CAN TODDLERS LEARN NOVEL WORDS FROM EDUCATIONAL VIDEOS?
A STUDY USING REPEAT EXPOSURE TO ASSESS INFANT’S USE AND UNDERSTANDING OF TELEVISION

BY

AMY RUSH

A Thesis Submitted to the Graduate Faculty of
WAKE FOREST UNIVERSITY GRADUATE SCHOOL OF ARTS AND SCIENCES
in Partial Fulfillment of the Requirements
for the Degree of
MASTERS OF ARTS
Communication
May 2011
Winston-Salem, North Carolina

Approved By:
Marina B. Krcmar, Ph.D., Advisor
Allan D. Louden, Ph.D., Chair
Deborah L. Best, Ph.D.
DEDICATION

This culmination of my educational experience would not have been possible without the incredible generosity of my grandparents. Thank you Mimi and Papa for your continued support and love over the years….I truly would not be here without you.

And also to my Dad, who encouraged me to believe that I was gifted enough to excel in an academic environment such as Wake Forest.
ACKNOWLEDGEMENTS

Though I cannot include everyone in this list, I would like to express my sincerest thanks and appreciation to all those who have contributed to the completion of this masters thesis. To my parents who gave me the will to accomplish everything I set my sights on, thank you both for believing in me and encouraging and supporting me when I didn’t believe in myself. Your smiling faces and warm hugs have given me the strength to tackle a Wake Forest education. To my sister, thank you for the comedic relief you were always so quick to provide via Facebook. To my brother Paul, thank you for making your older sister look bad by getting your life together before me…however, you’ve given me the inspiration to believe that we both truly can accomplish anything we want to!

Both my undergraduate and graduate career at Wake Forest would not have been possible without a host of remarkable professors and mentors within the Communication Department of Wake Forest University. Specifically, I would like to thank my advisor, Marina Krcmar, whose imprint and wealth of knowledge is seen throughout these pages. Thank you for sharing your research plan and vision with me…I could not have gotten through all those 4:30 am commutes to Charlotte if I hadn’t seen the bigger picture. Dr. Louden, where would any of us be without you? I certainly would not have gotten through my years at Wake Forest without your humor and healthy outlook on life. Thank you for always providing a willing ear to listen and hope of a light at the end of the tunnel! To my third reader, Dr. Debra Best, thank you for being willing to step across department lines to offer your expertise to my thesis. Your careful consideration and
advice to the more technical aspects of my thesis truly made the end result a better product.

Finally, to friends near and far, thank you for the encouragement along the way! I’m not sure I could have made it through these final two years without wine dates on my porch or the occasional dinner at Village Tavern. We definitely struggled through together but in the end, I’d say it was worth it!
TABLE OF CONTENTS

I. Abstract.......................................................................................................................... 1
II. Introduction...................................................................................................................... 2
III. Literature Review.......................................................................................................... 6
   A. The Rise of Children’s Videos.................................................................................. 6
   B. Word Learning.......................................................................................................... 8
   C. Children’s Attention to Television........................................................................... 8
   D. Comprehension of Television.................................................................................. 10
   E. Learning From Television........................................................................................ 11
   F. Word Learning From Television............................................................................. 12
   G. Video Deficit............................................................................................................. 13
   H. Repeat Exposure...................................................................................................... 14
   I. Social Relevancy....................................................................................................... 15
   J. Joint Attention.......................................................................................................... 18
   K. Television Mediation............................................................................................... 18
IV. Methods and Measures............................................................................................... 24
   A. Design....................................................................................................................... 24
   B. Recruitment and Participants.................................................................................. 25
   C. Setting....................................................................................................................... 25
   D. Stimulus and Intervention....................................................................................... 25
   E. Posttest Measures..................................................................................................... 27
V. Analysis and Results..................................................................................................... 31
VI. Discussion and Implications....................................................................................... 34
   A. Summary of Findings.............................................................................................. 34
   B. Practical Implications.............................................................................................. 34
   C. Limitations and Future Research............................................................................ 35
VII. References................................................................................................................... 38
VIII. Appendix..................................................................................................................... 45
    A. Parental Consent Form........................................................................................... 45
    B. Parent Questionnaire............................................................................................. 47
    C. Instructions To Be Given With Video..................................................................... 48
    D. Posttest Instrument............................................................................................... 49
    E. Code Book.............................................................................................................. 50
IX. Curriculum Vitae.......................................................................................................... 51
I. Abstract

The current study employed a mixed design to assess word learning in infants under the age of two. Four conditions were used to see if babies who watched an infant-directed DVD at least six times over two weeks, or who watched an infant-directed DVD with parental mediation at least six times over two weeks, learned more novel words from the DVD than infants in the control condition. The current study was unique in three ways. The present study used a DVD very similar to an actual Baby Einstein DVD and the study used repeat exposure to explore whether showing the same DVD to a child multiple times could increase word learning. Finally, this study sought to determine if parent mediation could enhance children’s viewing experiences. Results suggested that repeated exposure to the DVD did have a significant impact on word learning for infants aged four months to twenty-four months compared to children who had not seen the DVD. Results also showed that while the interaction between age and condition was not significant, the means were in the predicted direction and thus infants aged eighteen to twenty-four months did learn more novel words than the younger infants. Lastly, results showed that children in the treatment group with mediation did learn more novel words than children whose parents did not provide mediation of the DVD for them; however, the effect for word learning was not significant.
II. Introduction

In 2001, The American Academy Of Pediatrics discouraged television viewing for children younger than two years of age and encouraged all parents to engage in more interactive activities such as talking, playing, singing and reading with their children in order to promote proper cognitive development. The Academy also recommended that parents limit their children’s total media time to no more than one to two hours of quality programming per day. However, parents seem to have disregarded this piece of advice as there has been a great increase in the amount of television infants under the age of two are exposed to throughout their daily activities. A recent Kaiser Family Foundation study reported that 68% of infants under the age of two watch television each day (babyeinstein.com). Whether this viewing is intentional exposure through media such as *Baby Einstein* or exposure due to happenstance, children are still watching more than the recommended amount of television per day. Thus, further exploration is needed in order to better comprehend children’s understanding of television and DVDs because they continue to be exposed to them on a daily basis.

With the creation of DVDs like *Baby Einstein*, claims are being made that children under the age of two can learn words and numbers from watching a simple DVD just a few times (babyeinstein.com). However, there is not a large base of evidence to support this claim. In fact, some evidence provides contrary results. Recent studies have shown that infants do not learn from DVDs until just a few months before their second birthday. Therefore, more research is needed to better understand what infants see when
they watch television, what they understand when they watch television and if they can actually learn from it.

Studies within the last few years have focused on a babies’ abilities to learn words from these educational DVDs. Overall, infants begin to speak their first words between the age of ten and fifteen months and by their second birthday, children are adding anywhere between five to nine new words to their vocabulary each day (Carey, 1978). However, when novel words are presented to infants on television, they are less likely to be able to learn the words than they are when the same words are presented live and this deficit seems to persist until approximately twenty-two months (Krcmar, Grela & Lin, 2007). Anderson and Pempek (2005) refer to this as a video deficit because the infants are able to imitate or learn these same actions when presented to them in live conditions but seem unable to learn the words until much later when presented on video.

The current study employed a mixed design to assess word learning. There were four conditions: a treatment condition with DVD A, a treatment condition with DVD B, a mediation treatment group with DVD A and a mediation treatment group with DVD B. Children were randomly assigned to each group. Parents in treatment groups A and B were asked to have their children view a DVD created for the purpose of this study at least six times over two weeks. Parents in the mediation groups were also given a DVD and asked to have their children watch it six times over two weeks; however, they were also asked to actively watch the video with their children and mediate for them in order to encourage and promote word learning. At the end of two weeks, all four groups of children were brought in for a posttest to assess word learning. The DVDs were created to mimic a commercially available infant-directed DVD (i.e. Baby Einstein). Each DVD
included three novel words that were presented three times each throughout the DVD. In total, then, infants were exposed to three novel words, eighteen times each.

While other studies have tested the video deficit, this study approached the video deficit in three unique ways. First, the present study used a DVD very similar to an actual Baby Einstein DVD. Few studies have used commercially available DVDs such as Baby Einstein. Rather, researchers typically use stimulus materials created for the purpose of the study and these DVDs do not mimic the production styles of infant targeted DVDs. Second, this study used repeat exposure to explore whether showing the same DVD to a child multiple times could increase word learning. In a study conducted by Anderson (2004), it was found that showing the same episode of Blue’s Clues to children every day for a five-day period actually increased children’s attention to the program over time for the youngest children. However, these children were somewhat older. Thus, this study tested the effect of repeat exposure on younger children. The present study had the children watch the same DVD at least six times over a two-week period. Finally, this study sought to determine if parent mediation or coviewing can enhance children’s viewing experiences. A growing body of research indicates that parent mediation of television plays an important role in shaping a child’s response to television (Nathanson, 2001a). However, the extant research on coviewing focuses on older children. Therefore, it is unclear how very young children will respond to coviewing. Thus, this study used four conditions to see if watching the DVD with a parent and watching that DVD multiple times could help very young children learn novel words.

Using this design, I was able to better understand the age at which infants could learn from television with the assistance of a parent and if this occurred at an earlier age
than if the children were viewing the program alone. Specifically, this research study was interested in understanding if repeated exposure to a DVD would have a significant impact on word learning for infants aged four months to twenty-four months when compared to babies with no exposure and if parent mediation would result in higher mean changes in word learning over time.
III. Literature Review

*The Rise of Children’s Videos* In 2001, The American Academy Of Pediatrics discouraged television viewing for children younger than two years of age and encouraged all parents to engage in more interactive activities such as talking, playing, singing and reading with their children in order to promote proper brain development. Nine years later, parents seem to have disregarded this piece of advice as there has been a great increase in the amount of television infants under the age of two are exposed to each day. A recent Kaiser Family Foundation study reported that 68% of infants under the age of two watch television each day (babyeinstein.com). One reason for this increase in television viewing among young children is the abundance of children’s media that now exists. Companies have realized that they can make a lot of money marketing products to the parents of very young children. As a result, television viewing among infants seems to be greatly increasing.

Before the rise of educational DVDs such as *Baby Einstein*, Certain and Kahn (2003) found that 83% of infants younger than eleven months watched no television whereas 27% of infants ranging in age from twelve to twenty-three months of age watched one to two hours of television a day. Analyzing data from a national longitudinal study in the 1980s, Christakis, Zimmerman, DiGiuseppe and McCarty (2004) found that children aged 1 ½ years watched an average of 2.2 hours of television each day. Children aged 3 ½ years watched 3.6 hours of television a day.

However, these numbers have greatly increased since shows like *Baby Einstein* and *Teletubbies* began to expand the television opportunities available to young children.
In 2004, Pierroutsakos, Hanna, Self, Lewis and Brewer surveyed one hundred parents in order to assess the amount of time children under the age of two were spending watching television and videos. They found that the average child was exposed to about 120 minutes of television per day with 50% of that being infant programming, 40% adult programming and 9% preteen programming. From parents’ responses, they estimated that children attended to about 60 minutes of that television per day. Anderson and Pempek (2005) examined data from a Kaiser Family Foundation national survey of parents and found 52% of children under the age of one, 60% of one-year olds and 71% of two-year olds watched television. In a similar vein, 30% of children under the age of one, 47% of one-year olds and 53% of two-year olds watched videotapes or DVDs. For those children who did watch television, the average time spent watching television per day was 1 hour 8 minutes for infants under the age of one, 1 hour 26 minutes for one-year olds and 1 hour 35 minutes for two-year olds. For those children watching videotapes or DVDs, average viewing time per day was 1 hour 16 minutes for infants under the age of one, 1 hour 27 minutes for one-year olds and 1 hour 39 minutes for two-year olds. In 2006, Rideout and Hamel examined media use in children between the ages of six months and six years. They found that 70% of infants younger than twelve months watch television at least several times per week. Additionally, 91% of children between the ages of two and three watch television several times per week as well.

As Anderson and Pempek (2005) state, it is very interesting to note the change in viewing habits and hours of television that children are exposed to on a daily basis since the creation of educational videos. For infants younger than one year of age, the amount of infants who did not watch television dropped from 83% to 48% while nonviewership
among one-year olds dropped from 52% to 40% (Anderson & Pempek, 2005). Thus, it seems that the introduction of products like Baby Einstein has only increased the amount of visual media that very young children are being exposed to on a daily basis. The following pages explore the research that does exist in order to better understand the debate that has developed around young children’s use and understanding of television.

Word Learning. Children begin to speak their first words between the age of ten and fifteen months. By about eighteen months, most children have begun to add on average five to nine new words to their vocabulary every day (Carey, 1978) and by their second birthday, children are able to use fifty or more words to express themselves throughout daily life (Krcmar, Grela & Lin, 2007).

Shonkoff and Phillips (2000) and Linebarger and Walker (2005) have stated that with just a small amount of stimulation, most children will acquire basic language skills as a result of daily experiences and interactions. However, it has also been found that more robust vocabularies can be built with the help of other environmental factors and stimuli (Robb Richert & Wartella, 2009). For example, Shonkoff and Phillips (2000) showed that the amount of talking directed at children by their mothers is strongly associated with vocabulary growth. The more mothers talk to their children, the larger the vocabulary growth on the part of the children. Thus, children who have parents who interact with, talk to and encourage word learning will develop more robust vocabularies than those children whose parents do not interact with them in the same way.

Children’s Attention to Television Until the 1990s, it was thought that children under the age of two paid little attention to television because they could not understand or make sense of what they were viewing (Anderson & Pempek, 2005). However, now
that videos and DVDs are being specifically targeted to children under the age of two, it is important for researchers and parents alike to understand what children actually see when they are looking at a television screen and whether they are able to pay attention to the images they are viewing for an extended amount of time.

Barr, Chavez, Fujimoto, Garcia, Muentener and Strait (2003) found that infants ranging in age from twelve to fifteen months paid substantial amounts of attention to baby videos when these videos were shown to infants in their own homes. Look times increased depending on the video and whether it was familiar to the children. In a study examining young children’s attention to *Teletubbies*, Anderson and Pempek (2005) found high levels of looking were exhibited by eighteen and twenty-four month-olds if they were sitting on their parents’ laps and had toys to play with in front of them.

Current research seems to rely on two prevailing theories to explain children’s attention to television. Some researchers believe that children’s attention to television is driven by the visual or auditory changes that exist within a television program (Huston & Wright, 1983). Other researchers believe that children’s attention to television is driven by higher cognitive factors such as their ability to understand and comprehend what they are watching (Anderson & Lorch, 1983). In some cases, these two theories meld together in order to explain the attention span of children as they move throughout the stages of life. For example, Huston and Wright (1983) thought that in early childhood development, formal features of television such as visual and auditory changes within a program drive attention but that as children mature and become more experienced with television, attention derives more from comprehension of the television show (Anderson & Pempek, 2005). Thus, if an infant’s comprehension of television is low, attention may
solely rest on the visual and auditory changes that occur within the program. However, as Anderson and Pempek (2005) note, programs that are designed specifically for infants may be more comprehensible to them and thus greater attention is paid to that show because the infants are able to cognitively process the events taking place on the screen.

**Comprehension of Television** Now that videos and DVDs are specifically being created for young children, it is important to understand whether children’s comprehension of the events occurring on the screen actually increases and then whether this in turn increases attention to the program. Anderson, Lorch, Field and Sanders (1981) assessed comprehensibility among two, three and a half and five year-olds by manipulating episodes of *Sesame Street*. To test the children’s comprehension, they randomly reordered shots, made the dialogue run backwards and in some instances added foreign languages. They found that children of all ages looked at the screen less when the segments being shown were less comprehensible. Thus, cognitive comprehensibility does seem to be an important factor in children as young as twenty-four months when it comes to determining whether or not they will attend to a television show.

Valkenburg and Vroone (2004) examined attention to television in children ranging from six to fifty-eight months of age by showing children a video composed of six brief television segments that varied in complexity from news stories to children’s television shows. They found that very young children paid more attention to programs with simple content (*Teletubbies*) and that older children paid greater attention to more difficult content (*Lion King II*) (Anderson & Pempek, 2005). However, all age groups paid little attention to television programming designed for adults. Thus, it seems that children pay the greatest amount of attention to television shows and/or content that is
easily comprehensible to them (Anderson & Pempek, 2005). However, attention to a program and actual learning from that program are two very different things.

**Learning From Television** Children’s ability to learn from television is usually assessed in one of three ways. One way to assess learning is through imitation. In an imitation experiment, children are shown either a live version or a video version of an experimenter performing a certain task. Sometimes simple tasks, such as removing a mitten from a puppet, are performed and other times far more complex tasks are performed (such as removing a mitten, shaking it to show that there is a bell inside the mitten and then removing the bell from the mitten) (Anderson & Pempek, 2005). Even when shown to children as old as thirty months, the imitations of the video tasks are still poorer than the imitations based on the live demonstration (Hayne, Herbert & Simcock, 2003). Muentener, Price, Garcia and Barr (2004) found that only when children saw the videotaped task six times were they able to imitate the performance as well as children who had seen the live task.

A second technique used to assess learning involves showing children a toy being hidden in an adjacent room and then asking the children to go find the toy. In a typical object retrieval study, one group of children watches through a window as the toy is being hidden and a second group of children watches the toy being hidden on a television screen (Anderson & Pempek, 2005). The children are then asked to go retrieve the toy from the adjacent room. When twenty-four month olds saw the toy being hidden through the window, they were able to successfully retrieve the toy without looking in multiple places (Schmitt & Anderson, 2002; Suddendorf, 2003; Troseth & DeLoache, 1998). However, if these same children saw the toy being hidden via video, their ability to find
the toy was very poor (Schmitt & Anderson, 2002; Suddendorf, 2003; Troseth & DeLoache, 1998).

A third method to assess children’s ability to learn from television is concerned with word learning and it is this method that will be discussed in greater depth as it is the method used in the current study.

*Word Learning From Television* Early research focusing on children’s ability to learn from television demonstrated that children were able to learn novel words from television by the age of three (Rice, Huston, Truglio & Wright, 1990). To test word learning from educational videos and DVDs, researchers have gravitated towards two different approaches. The first approach has used actual television programming to test learning (Krcmar, 2009). Video clips from real television programs like *Baby Einstein* or *Teletubbies* are sometimes manipulated and then used by the researcher. For example, Krcmar, Grela and Lin (2007) used an edited clip of *Teletubbies* to see if children aged fifteen to twenty-four months could fastmap novel words presented on television to objects in real life.

In the second approach, researchers create their own DVD for each individual experiment. This is an appealing technique to many researchers because it gives them the ability to focus on or assess specific aspects, details or qualities of the learning process within a video (Krcmar, 2009). For example, Barr and Hayne (1999) designed a study to test for imitation immediately after exposure and then again after a twenty-four hour delay. They used a simple three-step action in which a bell was hidden inside a puppet. The action was either presented to the children live or shown to the children over a video screen. In both conditions, children were less likely to imitate an action if they had seen it
on the video than if they had seen it live. In fact, multiple studies have concluded that children do not seem able to learn from commercial television and DVDs until slightly before their second birthday at approximately twenty-two months of age (Krcmar, Grela & Lin, 2007).

**Video Deficit** In general, prior experiments about infants’ abilities to learn from television have consistently shown that infants learn better from real life experiences than from video. McCall, Parke and Cavanaugh (1977) showed that infants younger than eighteen months could not imitate an action that was presented on video even when that action could be easily imitated if shown to the infants live. Specifically, McCall, Parke and Cavanaugh (1977) had infants in three age categories (eighteen months, twenty-four months and thirty-six months) watch an action being performed on a television monitor. A control group that watched the same action being performed live was also utilized. Imitation of the video action among both the eighteen and twenty-four month old infants was significantly lower than imitation of the live action among the same age group. Only among the oldest age category (thirty-six months) were the infants able to imitate the video action at the same level as the live action. Thus, infants seem to learn better in live conditions than they do from television.

This phenomenon has been termed ‘the video deficit’ by Anderson and Pempek (2005). Specifically, the video deficit is the tendency for children to learn from live models more readily than they learn from those same representations via video. While there are relatively few studies that have tested the video deficit (Anderson & Pempek, 2005), the research conducted consistently shows that there is a video deficit for children twenty-four months and younger. Thus, children learn less from television than they do
from everyday lived experiences; however, the exact age at which the deficit disappears varies somewhat. In general, the video deficit persists until at least two years of age and sometimes later, depending on several factors such as task complexity and video characteristics (Krcmar, 2009).

Research has shown that the video deficit can be overcome for children aged six to twelve months for action imitation if the task being imitated is relatively simple (Barr, Muentener & Garcia, 2007) However, for the much more complex task of word learning, the video deficit has been shown to persist until approximately twenty-two months of age (Krcmar, Grela & Lin, 2007). Krcmar, Grela and Lin (2007) used an edited clip of Teletubbies to see if children aged fifteen to twenty-four months could fastmap novel words presented on television to objects in real life. They concluded that children could not learn from Teletubbies until approximately twenty-two months of age even though the children could learn the same words quite easily from adults. With even more complex tasks, the video deficit can persist longer because the more complex the task, the more children must focus their cognitive abilities on understanding what they are seeing on the screen as well as learning the task or concept being presented on the screen (Krcmar, 2009). Thus, it seems to be hard to overcome the video deficit in some instances. However, research is beginning to show that repeated exposure to a DVD can help overcome the inability to learn from television.

Repeat Exposure In a study conducted by Anderson (2004), he found that showing the same episode of Blue’s Clues to children every day for a five-day period actually increased their attention to the program over time for the youngest children. He also found that there was a curvilinear relationship for the middle age group and that
attention decreased over time for the oldest children. However, overall there was an actual increase in learning (Anderson, 2004). Barr (2007) discovered that doubling the number of times an action was presented on video decreased the video deficit for twelve month olds but not for fifteen month olds. In a recent study, Krcmar (2009) utilized repeat exposure along with social meaningfulness to assess whether the video deficit could be overcome in children under the age of two. Asking if children would engage in more word learning after multiple viewings as compared to a single viewing, she found that the main effect for condition on word learning approached significance. She also found that repeated exposure may be more beneficial for the youngest and oldest cohort. However, no research has looked at repeat exposure of real DVDs and babies.

However, it is likely that children will vary in the degree to which repeat exposure to an educational DVD will benefit them. Specifically, older children are likely to benefit more than younger children. Therefore, I predict that repeated exposure to the novel words presented in the DVD will help word learning but this learning will vary by age.

H1) Repeated exposure to an infant-directed DVD will have a significant impact on word learning for infants aged four months to twenty-four months compared to children who have not seen the DVD.

H2) Eighteen to twenty-four month old infants will learn more novel words through repeated exposure to the DVD than infants younger than eighteen months.

Social Relevancy Another possible explanation for the video deficit is the lack of social relevancy of television. Infants are not able to understand that what they are viewing on television can in fact be a representation of objects from their daily lives and
that those objects can impact and change the world around them. Television programs such as *Baby Einstein* not only present children with novel words and objects but they also present children with people and characters that these children have not encountered before. These actors on television have no connection to children’s daily lives and are not responsive to them when on the screen. Thus, infants do not find these people to be socially relevant and often discount them as a result of the lack of social relevancy.

The idea that television lacks social relevancy has gained credibility in recent years as a result of several important studies conducted by Georgene Troseth. New objects or words encountered on television have no real or meaningful significance to children because these objects have not been encountered in daily life. Thus, these objects or words are not relevant to children’s lives and are therefore harder to learn. In fact, Troseth, Saylor and Archer (2006) even argue that as a result of this lack of social relevancy, infants discount what they see on television because it is either unrelated or contradictory to what they have experienced in their daily lives. To test this idea, Troseth, Saylor and Archer (2006) employed the object search paradigm in which children are shown a room on video and then watch an adult hide a toy within the room. After watching the video, the children are then placed into the real room and asked to find the toy that was seen to be hidden on the video. To try to help ensure social relevancy, information was gained about the children and then inserted into the video in order to try to help the children make a connection between their lives and the images on the screen. The hope was that the children would see the images on the monitor as representative of the room around them. Troseth and colleagues argued that this added social relevancy would no longer enable children to discount the information on the screen as irrelevant to
their daily experiences. Their results showed that children who were shown the socially relevant video and then asked to find the hidden object in the room were three times more likely to find the object when compared to children who watched the video with no socially relevant cues and were then asked to find the hidden object. Thus, it seems that adding socially relevant material to a video or DVD can indeed help overcome the video deficit.

In another experiment, Troseth (2003b) wanted to teach twenty-four month old toddlers that television could indeed represent reality and be relevant to their daily lives. In order to do this, parents were randomly assigned to one of two conditions. One group of parents was asked to teach their toddlers about the relationship between television and reality. Parents were provided video equipment so that they could tape their children in daily life and then show the video to them. While watching the taped video, parents were encouraged to help the children make a connection between real life and television. The control group was not given any instructions about fostering this relationship between television and reality. Results showed that toddlers whose parents had tried to teach them about the relationship between television and reality were more successful when asked to find an object in a search task than were the toddlers in the control group.

These two experiments conducted by Troseth suggest that the lack of social relevancy in a video can help to explain the video deficit that seems to exist in children. Commercial DVDs such as Baby Einstein make no connection to children’s daily lives and contain no socially relevant individuals. Thus, the DVDs are often discounted by children. It is my belief that joint attention and parent mediation can provide a way to
ensure infants understand the importance of what they are viewing on television in order to overcome the video deficit.

**Joint Attention** Joint attention is a process whereby infants have the ability to follow the gaze or gesture of another person in order to share a common point of reference (Mundy & Newell, 2007). Research has found that by using joint attention, infants are able to follow the gaze of their parents in order to increase the likelihood of selecting the correct object (Baldwin, 1995). Although there have been instances where joint attention has been found in infants as young as four-months old (D’Entremont, Hains & Muir, 1996; Hood, Willen & Driver, 1998; Slaughter & McConnell, 2003), most researchers believe that infants develop the ability to follow an adults’ gaze at about eleven to twelve months of age (Carpenter, Nagell & Tomasello, 1998; Corkum & Moore, 1998). The idea is that infants turn their head in order to see what or where another person is looking and then focus their attention on that object or in that direction as well. In the current study, infants in the treatment group with mediation will be able to use joint reference to guide their attention because the parent has been asked to sit in the room with the child to provide mediation and encourage word learning while the DVD is being watched.

**Television Mediation** A growing body of research indicates that parent mediation of television plays an important role in shaping children’s responses to television. Parents can either enhance or diminish the effects of television simply by watching a program with their children (Nathanson, 2001a). There are three types of parent mediation and they are active mediation, restrictive mediation and coviewing (Nathanson, 1999).
Active mediation occurs when parents talk with their children about television (Nathanson, 2009). Positive active mediation occurs when parents express agreement or approval of the content of a television program while negative active mediation occurs when parents reject, criticize or refute the content on television (Austin, Bolls, Fujioka & Engelbertson, 1999; Austin & Chen, 1999; Nathanson, 2009). Nathanson (2009) defines a third type of active mediation, neutral active mediation, as when parents mediate their children’s viewing of television but comments made by the parents cannot be determined to be either positive or negative in tone.

Research done on active mediation has shown that parent mediation leads to an enhanced understanding of television (Nathanson, 2009). Thus, it seems that parent mediation of television could provide social relevancy for young children if parents took the time to relate what their children are viewing on the screen with their everyday lived experiences. Multiple studies have found that parents who engage in neutral active mediation with their children encourage more learning from educational content than parents who do not engage in mediation (Corder-Bolz, 1980; Reiser, Tessmer & Phelps, 1984; Reiser, Williamson & Suzuki, 1988).

The second form of parent mediation, restrictive mediation, occurs when parents enforce rules about television viewing by either limiting how much television can be watched or only permitting television viewing at certain times (Nathanson, 2009). Studies have shown that restrictive mediation is related to an increased comprehension of television plots and higher reading scores among sixth graders (Desmond, Singer, Singer, Calam & Colimore 1985; Roberts, Bachen, Horby & Hernandez-Ramos, 1984).
However, there is also evidence to show that restrictive mediation can produce harmful effects (Nathanson 1999).

The third form of parent mediation, coviewing, occurs when parents and children watch television together. Coviewing can occur during active mediation; however, it is distinct from active mediation because coviewing leads to a very different set of outcomes (Nathanson, 2001b). Nathanson (2001b) found that parents who engage in coviewing do so because they have positive attitudes about the television content while parents who engage in active mediation do so because they believe the content is harming their children. Salomon (1977) demonstrated that parent and child coviewing enhances children’s learning of educational material. Wilson and Weiss (1993) showed that coviewing with a sibling is related to increased enjoyment of the material. Thus, coviewing seems to enhance the effects of television. If the parent provides socially relevant cues while coviewing, it seems reasonable to assume that this coviewing could help and/or enhance children’s understanding of television.

The research that has been done on the three types of parent mediation shows that parent mediation can lead to learning in older children. Past researchers have offered some explanations as to why parent mediation can help children’s learning and it is important to look at these explanations to better understand why these effects might be occurring (Nathanson, 1999). One probable explanation for why television mediation affects children is the very fact that the parents’ input sends a message to their children about the importance of television. Negative active mediation or restrictive mediation may signal to the children that the content of the program is unimportant or irrelevant while coviewing may signal to the children that the content of the program is important,
useful and worthy of attention (Nathanson, 1999). Therefore, parent mediation of television may provide children with an orientation of television that can affect the degree to which they are affected by the content of television (Nathanson, 1999). If this holds true, young children may pay more attention to what they are viewing based solely on the fact that a parent is present.

Children whose parents watch television with them may come to believe that program content is important and may become more motivated to learn or pay more attention to the material they are viewing on the screen. As Singer and Singer (1985) suggested, “When parents take an active mediating stance toward television, and … comment about programs, children may acquire a more discriminating and critical stance toward the medium. Children so influenced may fail to show the more negative effects of viewing and perhaps even learn some constructive orientations.” Similarly, children whose parents engage in negative active mediation or restrictive mediation may come to believe that program content is unimportant and may come to regard television as a form of entertainment with no educational value. Messaris and Kerr (1984) suggested that “the mere face of maternal involvement in a child’s TV viewing – regardless of what exactly a mother may say about a TV program – makes a child more attentive and receptive to information presented on the screen.” Therefore, it seems reasonable to conclude that a parent’s mediation will affect children’s viewing experiences.

While there is extant literature on mediation effects in children over the age of three, there is little to no evidence on mediation effects in children under two. Therefore, this study examined how mediation affects children under the age of two. Parents in the
treatment groups with mediation who actively encouraged their children to learn the novel words by emphasizing them in daily life were speaking directly to their children about these new objects. These parents expressed agreement and approval at the information being presented on the screen and an emphasis was placed on learning these new words or objects. This emphasis by parents should encourage and support vocabulary growth. Children in the control groups did not experience this hands-on approach to novel word learning.

In an effort to overcome the video deficit in infants and provide parent mediation of television in order to encourage word learning, the present study enlisted the help of parents in the treatment groups with mediation. Similar to Troseth’s study, parents in the treatment groups were asked to actively encourage their children to make a connection between television and reality by emphasizing how the words and objects seen on the television screen were applicable to their children’s lives. For example, if the objects were seen in daily life, the mothers were asked to point out the objects to their children and to emphasize the object’s name at that time. By asking parents in the treatment groups to help their children, social relevancy is being created and a connection is being made between the images on the screen and the children’s real everyday lives.

Thus, I predict that

H3) Children in the treatment groups with mediation will learn significantly more than children whose parents did not provide mediation of the DVD for them.

In summary, the three hypotheses for the current study are
H1) Repeated exposure to an infant-directed DVD will have a significant impact on word learning for infants aged four months to twenty-four months compared to children who have not seen the DVD.

H2) Eighteen to twenty-four month old infants will learn more novel words through repeated exposure to the DVD than infants younger than eighteen months.

H3) Children in the treatment group with mediation will learn significantly more than children whose parents did not provide mediation of the DVD for them.
IV. Methods and Measures

A. Design

The current study employed a repeated-measures mixed design to assess word learning in infants aged four to twenty-four months. There were four conditions: a treatment condition with DVD A (teaching three novel words), a treatment condition with DVD B (teaching three novel words different from those in DVD A) a mediation treatment group with DVD A and a mediation treatment group with DVD B. In addition, children were identified as younger (four to seventeen months, N= 30) or older (eighteen to twenty-four months, N=8). Children were randomly assigned to one of the four conditions. All children were tested on six words, three that appeared in the DVD they were exposed to and three that appeared in the DVD they were not exposed to. Thus, DVD A acted as the control group for treatment B children and vice versa.

Mothers were asked to have their children view the DVD at least six times over two weeks. Mothers in the conditions with DVDs A (N= 11) and B (N= 15) were asked to not watch the DVD with their children or to encourage their children to learn the words over the next two weeks. Mothers in the mediation treatment groups with DVDs A (N= 5) and B (N= 7) were encouraged to actively watch the DVD with their children and encourage and promote word learning (see Stimulus’ section for the wording of instructions). At the end of two weeks, all four groups of children were brought in for a posttest to assess word learning.

At the time of the posttest, all children were tested on their recognition of the six words taught in the two DVDs. For each child, three of the words appeared in the DVD
they saw and three were unfamiliar. The children in the treatment groups with mediation were also assessed on the three words present in the DVD they watched as well as the words in the DVD they had not previously encountered.

**B. Recruitment and Participants**

Children under the age of twenty-four months were eligible for this study. Subjects were recruited at the Harris YMCA in Charlotte, North Carolina. The researchers stood outside the ChildWatch center and approached parents who had children under the age of twenty-four months. The current research study was briefly described and then parents were asked if they would allow their children to participate in the study. If parents agreed to participate, the researcher wrote down the parent’s name and the child’s name as well as a phone number. Children who participated received compensation for their efforts in the form of a small cardboard picture book.

Thirty-eight infants under the age of two were successfully recruited to participate in this study. Of those thirty-eight infants, eighteen had parents who had graduated from college and nineteen had parents who had a degree higher than a bachelor’s degree.

**C. Setting**

The current study took place at the Harris YMCA in Charlotte, North Carolina. The Harris YMCA has a ChildWatch program where parents can leave their children while they work out. We conducted our study in one of the rooms in the ChildWatch center of the Harris YMCA.

**D. Stimulus and Interventions**

The DVDs created for this study were approximately twenty minutes in length and very similar to a commercially available *Baby Einstein* DVD. DVD A and DVD B
were identical except that the three novel words in DVD A (scooper, scrubbie, caselet) differed from the three novel words in DVD B (baster, lens, stopper). The videos opened with a transition shot in which a hand is shown snapping a photo with a child’s toy camera. The picture then changes to a shot of a novel object on a black background. A female voice-over states the name of the object three times (“Look, it’s a scooper. See the scooper. It’s a scooper.”) While the word *scooper* appears in the background, a dragon hand puppet enters the shot to play with the novel object by putting the object in its mouth. The next shot gradually zooms in on the novel object being used in its correct context as music is introduced in the background before the transitional shot is once again displayed. The puppet scene and the scene where the novel object is shown in its intended context are then repeated for the two remaining novel objects until the DVD has presented each of the novel objects three times. Between each series of three novel objects, there is approximately three minutes of filler material that consists of brightly colored pictures with upbeat music. The mothers in each condition were instructed to have their children watch the DVD at least six times over two weeks and to record exactly how many times their children actually watched the DVD over that two-week period.

Mothers in treatment conditions A and B were given a set of instructions with the DVD that asked them not to watch the DVD with their children and to not encourage or promote word learning over the two weeks. Two weeks later, mothers were asked to write down how many times the children actually watched the DVD when brought in for the posttest.
The treatment groups with mediation mothers were asked to have their children watch the DVD at least six times over the next two weeks. Mothers were asked to write down how many times their children actually watched the DVD when brought in for the posttest. They were given written instructions that asked them to actively watch the DVD with their children. Specifically, the instructions read: “Actively watch the DVD with your child and then if he or she encounters the objects mentioned in the DVD in real life, please point them out to your child and encourage him/her to learn the object. While watching the video, you might say things like, “Look (child’s name), there’s a whisk. See the whisk.” You are trying to help your child learn and remember the object.” Therefore, at the time of the posttest, mothers in this group were asked about their contribution to the process –how many times did they watch the DVD with their children, did they emphasize words or concepts while watching the DVD with their children, and then the extent to which they used the words or objects with their children over the next two weeks.

E. Posttest Measures

A paired-sample T-test was used to analyze Hypothesis 1 while repeated measures ANOVAs were used to test the relationship between the treatment groups with mediation in infants older than eighteen months of age and children younger than eighteen months of age in Hypothesis 2 and to test word learning in the treatment and control groups in Hypothesis 3. In order to provide a manipulation check for both mediation and the stimulus, the overall mean and standard deviation for the three groups have been reported. The stimulus mediation check also took into account how many times the children actually watched their DVD.

**Word Learning** Both the treatment conditions with DVDs A and B and the treatment groups with mediation children were tested on their word learning. To do so,
mothers were brought into the lab with their children one at a time. Children were held on mothers’ laps, facing a large black screen with sides that sat approximately 2 feet apart. Thus, children had a black screen both in front of them and on either side. The screen had a small hole cut in it and a hidden camera was placed behind the screen in order to record the direction of the infants’ eye gaze. The experimenter placed two objects (one which was present in the DVD and the second a distracter object) approximately fourteen inches in front of the child on a small platform measuring six inches in height. The two objects were approximately four to six inches from each other; the positioning of the objects (left and right) was rotated so that the distracter object was not always on the same side. A screen was placed in front of the two objects so that the infants could not see the two objects until the experimenter was ready to start the experiment. The screen was then raised to reveal the two objects, one which was one of the six novel objects and one which was a distracter object. The mother then said, “[Child’s name], where’s the X? Can you see the X? Look at the X.” The three sentences were dispersed over a ten second period timed by the experimenter. Thus, the infants saw the two objects for a total of ten seconds and the video camera recorded their eye movements the whole time. This process was repeated for three objects in the control DVD and three objects in the treatment DVD. Both groups of children were asked to identify objects from both DVDs even though they were only assigned to one of the groups.

Assessment of word learning was scored based on the children’s ability to point or look at the object in question. With very young children, one of the most successful methods for assessing word learning is the Preferential Looking Paradigm (Naigles). The Preferential Looking Paradigm was developed once it was found that one-year olds fixate on an object
longer when they hear that object’s name. Thus, if children look longer at the object in question, it is assumed that they understand and have in fact learned the word in question. Thus, the present study videotaped each posttest and then recorded the amount of time each child looked at the object in question. Longer look times were assessed as understanding of the word in question.

The current study had two measures of word learning: look time and looking at the requested object. Recall that both taught and unfamiliar words were paired with a distracter object at the time of posttest. Mothers were instructed to ask their infants to look at the objects (e.g., “Anna, where’s the scooper?”). Mothers were instructed to ask the question three times over a ten second period. This process was repeated for all three taught words as well as all three unfamiliar words. The hidden camera placed behind the black screen recorded the infants’ eye gazes throughout the entire process. All recordings were time stamped so that the experimenter could later determine the amount of time the infants looked at each object.

To code these look times, the experimenter watched the video of the child as the mother asked him/her to find the object. Total time spent looking at each of the two objects in the pair (in three cases, the taught object and a distracter object, in three cases an unfamiliar object and a distracter object) were coded. Subsequently, total look times were averaged for the three taught objects and for the three distracter objects. Also, look times for the three unfamiliar objects and the three matched distracter objects were averaged. Thus, each child had an average look time for taught objects and for unfamiliar objects as well as for distracter objects.
To code an infant’s ability to look at the requested object when asked, the experimenter watched the video taken at the time of the posttest to determine whether the children looked at the object in question immediately following the time when the mother named the object. If the children correctly looked at the object, it was coded as a 1 while a 0 meant the children looked at the wrong object or looked at neither of the objects. This resulted in an additive score of their performance on 3 trials that ranged from 0 to 3. A 1 would mean the children only correctly identified one out of the three familiar words while a 3 would mean the children correctly identified all three familiar words presented in the DVD.
V. Analysis and Results

In order to provide a manipulation check for the treatment, parents were asked how many times the DVD was actually shown to the child. Results suggested that parents showed the DVD almost as frequently as suggested in the instructions they received with the DVD (M = 5.31, SD = 1.78).

Recall that the conditions included those who saw DVD A (including three novel words), those who saw DVD B (three different novel words), and two mediation conditions, one of which saw DVD A with mediation and one which saw DVD B with mediation. Because DVD A words were used as a control for DVD B words, I tested to see if the objects in DVD A were more difficult to learn than objects in DVD B regardless of viewing condition. Look times for the three objects in each DVD were averaged. On average, infants who saw DVD A (M = 1.56, SD = 1.09) had no more difficulty learning novel words than infants who saw DVD B (M = 1.59, SD = 1.01). This difference was not significant t(36) = -0.083, p > 0.05. I compared look times for each DVD as well. The t-test revealed no difference overall for look time with infants in DVD A (M = 2.93, SD = 2.28) and infants in DVD B (M = 3.92, SD = 2.47), t(36) = -1.26, p > 0.05, thus A and B words were combined for the analyses about the mediation treatment. Since the two were not significantly different, I assumed that one set of objects was not, in and of itself, more difficult than another and any differences in outcomes were a result of viewing condition.

Hypothesis 1 predicted that repeated exposure to the DVD would have a significant impact on word learning for infants aged four months to twenty-four months.
compared to children who have not seen the DVD. In order to test this hypothesis, a paired samples t-test was conducted to compare infants who had seen the DVD to infants who had not seen the DVD. Both look times and an infant’s ability to look at the requested object were used to assess word learning. Overall, there was a significant difference in the word learning for infants aged four months to twenty-four months who had seen the DVD compared to infants who had not seen the DVD. On average, infants correctly looked at the novel object from their DVD when asked (M=1.58, SD=1.03) significantly more than infants who had not seen the DVD with the novel object in question (M= 1.13, SD=.99, t(37) = 2.39, p < .05, r = .37). Also, infants looked longer at the correct object (M=3.50, SD= 2.41) from their DVD than infants who had not seen the DVD with the novel object in question (M= 2.58, SD= 2.18, t(37) = 3.68, p < .05, r = .52).

Hypothesis 2 predicted that infants aged eighteen to twenty-four months old would learn more novel words through repeated exposure to the DVD than infants younger than eighteen months. Two repeated measures ANOVAs were run to test the interaction between age and word learning. First, I used the infants’ initial look direction, determining if they looked at the requested (learned) object first or the distracter object when the object was named. The analysis resulted in a main effect for watching the DVD, F (1, 36)=3.05, p<.05, with infants looking first at the correct object more often when they had seen it on the DVD (M = 1.83, SD = 1.19) than when they had not (M = 1.46, SD=.95). The interaction between condition and age was not significant; however, the means were in the predicted direction. Specifically, older infants looked at the correct object from their DVD (M =2.13, SD =.99) when asked more than younger infants.
looked at the correct object from their DVD (M = 1.43, SD = 1.01). Older infants who had not seen the DVD with the novel word in question looked at the correct object (M = 1.25, SD = 1.04) when asked third most often while younger infants who had not seen the DVD with the novel word looked at the correct object (M = 1.10, SD = .99) the least when asked.

I also tested look times and found that older infants looked at the correct objects from their DVD (M = 6.87, SD = 2.54) the longest out of the four conditions, F (1, 36) = 1.24, p > .05. Older infants who had not seen the DVD with the novel word in question looked at the novel objects (M = 4.68, SD = 1.39) the second longest while younger infants who had not seen the DVD with the novel word looked third longest at the correct objects (M = 3.29, SD = 2.50). Finally, younger infants looked at the correct objects (M = 2.20, SD = 1.19) from their DVD the least amount of time.

Hypothesis 3 predicted that children in the treatment groups with mediation would learn significantly more than children whose parents did not provide mediation of the DVD for them. A repeated measures ANOVA was run to test the interaction between condition and word learning. The analysis resulted in a main effect that approached significance F(1, 36) = 3.05, p = .089, with children in the treatment group with mediation correctly looking first at the novel object (M = 1.83, SD = 1.19) when asked more than children who were not in the treatment group with mediation (M = 1.46, SD = .95). The effect for word learning measured by look time did not support the hypothesis. Children in the treatment group with mediation did not look at the novel object (M = 3.37, SD = 2.58) significantly longer than children who were not in the treatment group with mediation (M = 3.56, SD = 2.38).
Summary Of Findings This study sought to test if infants could learn novel words through repeated exposure to an infant-directed DVD with the help of parent mediation. Results suggested that repeated exposure to a DVD does significantly increase an infant’s ability to learn novel words for infants aged four to twenty-four months when compared to children who have not seen the DVD; however, the pattern of means for older and younger children suggest that older infants, aged eighteen to twenty-four months, learn more novel words than infants younger than seventeen months. Although the interaction between age and condition was not significant, the means occurred in the predicted direction suggesting that the addition of more infants to the sample might increase the significance of the results. Finally, results suggested that infants in the treatment group with mediation were able to learn more words than infants who did not receive parent mediation; however, once again, these results were in the predicted direction but were not significant. A larger sample size may have made the results significant. Thus, it seems that parent mediation may help novel word learning.

Practical Implications The results of this study indicate that repeated exposure to an infant-directed DVD can increase novel word learning in infants aged twenty-four months and younger. Parent mediation of these infant-directed DVDs can help increase novel word learning; however, only in infants older than eighteen months. Practically speaking, this suggests that while older infants may be able to learn novel words, younger infants did not benefit as much from parent mediation.
At the time of the posttest, several parents told the researcher that they did not mediate or encourage word learning as much as the instructions provided with the DVD suggested. If this is true of most parents who allow their children to watch educational videos, mediation may be useful, but not practical. In other words, even if mediation is effective in an experimental situation, it is only helpful insofar that parents actually do it. Thus, until parents begin to actively watch the DVD with their children in order to encourage and promote word learning, even the oldest infants cannot benefit from the help parent mediation can provide.

**Limitations and Future Research** While these results suggest that infants learn more novel words through repeated exposure to a DVD and with the help of parental mediation, there are also several limitations to this study that should be mentioned. First, the researcher was not able to obtain as many participants as originally planned. We had initially planned to recruit fifty participants; however, only thirty-eight completed the entirety of the experiment through the posttest. Thus, more participants should have been used in order to better understand the age at which infants become able to learn novel words through repeated exposure to a DVD.

Second, the infants that were obtained to participate in the study were not as demographically diverse as they should have been. The infants who participated in the study were recruited from a YMCA in an upper-middle class area of Charlotte, North Carolina. Of the thirty-eight infants tested, only three were non-white. Additionally, all subjects were recruited during the middle of the day, suggesting that the family income is substantial enough for one parent to stay at home with the children. Thus, a more diverse sample is needed to further assess parental mediation of infant-directed DVDs on novel
word learning because it could be that mothers who stay at home with their children are able to encourage and promote word learning more than mothers who must also hold a job to support her family.

Third, while coding the data, the researcher noticed that first looks were more valid than look times because look times were not indicative of whether the infant actually understood the novel word. Some of the infants would look immediately at the novel object when asked to identify it and yet the look times do not accurately show this understanding of the word because often times the infant’s attention would turn elsewhere after correctly identifying the object. Thus, while both first looks and look times are an appropriate means of assessing word learning, future researchers should realize that an infant’s first look is more valid than time spent looking at each object.

Finally, the present study did not make use of intercoder reliability when coding and analyzing the data. If this paper were to be published or used in any other setting, intercoder reliability would need to be established before these results were distributed on a larger scale.

One interesting insight gathered during the collection of this data was how many parents noted that their infants were visually attentive to the DVD only when the more visually or auditorily stimulating parts of the DVD were on the screen. Parents noted that infants would wander away from the television or lose focus to pay attention to something else in the room until the filler material with the stimulating music was displayed on the screen. Thus, it seems that infants exposed to infant-directed DVDs may only attend to parts of the DVD and that their attention is regained only for parts of the DVD that are interesting visually and auditorily.
Why did parents’ of children in the sample say that their children were more attentive to them than to the DVD? There are at least two possibilities. First, the infant-directed DVDs provide too much stimulation, both visual and auditory, and thus too much for an infant to cognitively process. When their parents are trying to teach them novel words, they can eliminate any other distractions that might exist in the environment and there is no distracting music to draw the infant’s attention away from the novel word learning. Second, parents are also able provide socially relevant cues that can enhance a child’s learning experience. For example, if an infant’s attention is wandering, the parent is able to regain his attention by using his name or adjusting the environment so that the child will not be distracted by other stimuli. Both of these benefits cannot be provided by a commercially produced DVD.

Thus, more research is needed in order to determine whether these visual and auditory cues are distracting and detract from an infant’s ability to learn novel words. Future researchers should manipulate infant-directed DVDs in order to assess the changes in visual and auditory components of the DVD that could have a direct impact on an infant’s ability to process the information in the DVD.
VII. References


Austin, E. W., & Chen Y. J. (1999). The relationships of parental reinforcement of media messages to college students’ alcohol-related behaviors, age of experimentation and beliefs about alcohol. Paper presented at the annual meeting of the Association for Education in Journalism and Mass Communication, New Orleans, LA.


Krcmar, M. (2009). Can social meaningfulness and repeat exposure help infants and toddlers overcome the video deficit?


Dear Parent or Guardian,

You and your child are being asked to participate in a research study of infants’ and toddlers’ responses to television. If you agree to participate, your child will be randomly assigned to one of three research groups. Children and parents in the control group will not receive a video. They will only be asked to come back to the research facility two weeks later. Children and parents in the treatment group with no mediation will be asked to watch the video but parents will be asked to not promote or encourage word learning. Children and parents in the treatment group with mediation will be asked to actively watch the video to encourage and promote word learning. There are two parts in the study, conducted approximately two weeks apart. In the first part, you will fill out a very brief questionnaire about your child and you will be asked to take a DVD home for your child to watch. Over the next two weeks, you will be asked to show the video to your child multiple times. The video is approximately five minutes long and we ask that your child watch it at least six times over the next two weeks.

After two weeks, you will be recontacted to return to the research site where your child’s word learning will be assessed. Your child will be videotaped to record his/her facial responses and gestures. Each phase will take approximately fifteen minutes.

Your child’s participation in this study is completely voluntary. The risks from participating in this study are no more than would be encountered in everyday life and there are no direct benefits to you and your child. You may withdraw your child from the study at any time without any penalty and your child will still receive a small prize. To withdraw from the study, please contact the researcher (Amy Rush) in person or at 706-373-8007. You may choose to not answer any question(s) you do not wish to for any reason.

In order to protect the child’s confidentiality, a number and not his or her name will appear on all of the information recorded during the experiment. All study information will be kept in a locked filing cabinet in an office in Carswell Hall at Wake Forest University. Signed consent forms will be locked securely in a cabinet separately from the video tapes. Video tape responses will be coded and then destroyed. No one besides the researchers will see the information collected.

If you have any questions or concerns regarding this study at any time, please contact me, Amy Rush, at 706-373-8007 or Marina Krcmar at 704-451-2824. If you have questions about your child’s rights as a participant in research, please call the Office of Research and Sponsored Programs, 336-758-5888.

If you are giving permission for your child to participate in the experiment and to be videotaped, please sign the form below. By signing, you’re indicating that you give permission for your child to participate and to be videotaped. Thank you very much for your time.

Amy Rush
Graduate Student
Wake Forest University

X. Appendix

Parental Informed Consent

Infants’ and Toddlers’ Responses to Video
*All children received one of two versions of the DVD.
Parent Questionnaire

1. Child ID Choose a four-digit number that you will remember over a two week time period. For example, I might pick 0101, the month and date that I was born.

_____________.

2. Child’s Date of Birth (month and year only) ________________

3. Sex of Child:  male   female

4. AVERAGE minutes of television watched by your child per day _______________
   For example, if your baby watches 4 thirty minute videos per week, you might estimate 20 minutes per day.

5. Favorite TV show/ DVD _______________

6. Parent Education
   Parent 1:  
   some high school   high school graduate
   high school graduate
   some college
   college graduate
   some graduate school
   graduate degree
   
   Parent 2:  
   some high school
   high school graduate
   some college
   college graduate
   some graduate school
   graduate degree

7. Approximately how many words does your child know? _______________
Instructions To Be Given With Video

Condition with Parental Mediation

Dear Parent,

Please have your child watch this video at least six times over the next two weeks. Actively watch the DVD with your child and then if he or she encounters the objects mentioned in the DVD in real life, please point them out to your child and encourage him/her to “learn” the object. While watching the video, you might say things like, “Look (child’s name), there’s a whisk. See the whisk.” You are trying to help your child learn and remember the object.

Please record exactly how many times your child actually watches the video so that we can accurately record that number at the time of the posttest.

If you have any questions or concerns, do not hesitate to call me (Amy) at 706-373-8007. Thank you. Your cooperation is greatly appreciated.

Condition with Video A

Dear Parent,

Please have your child watch this video at least six times over the next two weeks. You may be in the room while your child is watching the DVD but please do not interact with your child while he/she is watching the DVD, do not encourage word learning and do not point out any of the items in the DVD if your child encounters them in real life. If you have other children, please make sure they do not watch the DVD with your child who is participating in the study.

Please record exactly how many times your child actually watches the video so that we can accurately record that number at the time of the posttest.

If you have any questions or concerns, do not hesitate to call me (Amy) at 706-373-8007. Thank you. Your cooperation is greatly appreciated.

Condition with Video B

Dear Parent,

Please have your child watch this video at least six times over the next two weeks. You may be in the room while your child is watching the DVD but please do not interact with your child while he/she is watching the DVD, do not encourage word learning and do not point out any of the items in the DVD if your child encounters them in real life. If you have other children, please make sure they do not watch the DVD with your child who is participating in the study.

Please record exactly how many times your child actually watches the video so that we can accurately record that number at the time of the posttest.

If you have any questions or concerns, do not hesitate to call me (Amy) at 706-373-8007. Thank you. Your cooperation is greatly appreciated.
Posttest Instrument

1) ID (4 digit number given on parent questionnaire) __________

2) month and year of birth __________

3) sex: male female

4) How many times did your child watch the video? __________

5) When was the last time your child watched the video? ________

6) Child was assigned to

video with mediation control group with video A control group with video B

Familiar Video

word 1: successful unsuccessful other
word 2: successful unsuccessful other
word 3: successful unsuccessful other

Unfamiliar Video

word 1: successful unsuccessful other
word 2: successful unsuccessful other
word 3: successful unsuccessful other
**Thesis Data Code Book**

**ID** - four digit code given as an identifier, the ones with 5 numbers instead of four indicate twins

**age** - age of child in months

**sex** - 0 as male, 1 as female

**avgtv** - average amount of tv per day in minutes

**favshow** - child’s favorite tv show

**pareducone** and **pareductwo** - education levels of the parents with

- 0 being some high school
- 1 being high school graduate
- 2 being some college
- 3 being college graduate
- 4 being some graduate school
- 5 being graduate degree

**knownwords** - an estimation of the amount of words known by child at time of experiment

**group** - the manipulations they were assigned to for purposes of the experiment with

- 0 being treatment group A
- 1 being treatment group B
- 2 being control group A
- 3 being control group B

**timeswatched** - how many times the child actually viewed the video

**lasttimewatch** - the number of days since the child last saw the video, with being 0 being the day of the posttest

**famword1, famword2, famword3** - the three objects that they were familiar with from the video they watched, 1 denotes having successfully looked at the object when asked, 0 denotes an unsuccessful attempt

**tautime1, tautime2, tautime3** - the time that the child looked at the familiar object from their video (out of 10 seconds)

**unfamtime1, unfamtime2, unfamtime3** - the time that the child looked at the distracter object when placed beside the familiar object in their video (out of 10 seconds)

**unfamword4, unfamword5, unfamword6** - the three objects that the child was unfamiliar with because they were not in his or her video (for the children in either A group, these would be the B objects), 1 denotes having successfully looked at the unfamiliar object when asked, 0 denotes an unsuccessful attempt

**tautime4, tautime5, tautime6** - the time that the child looked at the unfamiliar object (either object A or B depending on their group) as opposed to the time he/she looked at the distracter object (out of 10 seconds)

**unfamtime4, unfamtime5, unfamtime6** - the time that the child looked at the distracter object as opposed to the time that he/she looked at the unfamiliar object not from their video (out of 10 seconds)
Amy E. Rush
Curriculum Vitae

amyrush87@gmail.com
373-8007

Education:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Program</th>
<th>Institution</th>
<th>Location</th>
<th>Graduation Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.A.</td>
<td>Communication</td>
<td>Wake Forest University</td>
<td>Winston-Salem, NC</td>
<td>May 2011</td>
</tr>
</tbody>
</table>

Cumulative GPA: 3.7

Master's Thesis:
Can Toddlers Learn Novel Words From Educational Videos? A Study Using Repeat Exposure To Assess Infant’s Use And Understanding Of Television
Advisor: Marina B. Krcmar, Ph. D.

<table>
<thead>
<tr>
<th>Degree</th>
<th>Program</th>
<th>Institution</th>
<th>Location</th>
<th>Graduation Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.A.</td>
<td>Communication</td>
<td>Wake Forest University</td>
<td>Winston-Salem, NC</td>
<td>May 2009</td>
</tr>
</tbody>
</table>

Cumulative GPA: 3.3

Academic Honors:

- Dean’s List: Fall 2006, Spring 2007, Fall 2007, Spring 2008
- Wake Forest Honors in Communication: an advanced program recognizing superior academic success, 2009
- Lambda Pi Eta: National Communication Honor Fraternity

Relevant Coursework:

- Communication and Rhetoric
- Empirical Research Methods I and II
- Applied Research Methods
- Rhetorical Criticism I and II
- Survey of Organizational Communication
- Interpersonal Communication
- Persuasion
- Communication and Technology
- Digital Politics

Academic Positions:

- Academic Tutor, Wake Forest Student Athlete Services; tutored Wake Forest Athletes in Communication and Sociology classes; Spring 2009 – Spring 2011
- Wake Forest University Argumentation Conference Coordinator, coordinated weekend-long communication event, including dining, transportation, and lodging; Spring 2010
- Research Assistant for Dr. Marina Krcmar, assisted with perfecting protocol for research experiment, assisted with subject recruitment and data collection, coded all research data and entered into SPSS; Summer 2008- Fall 2008

Professional Experience:
- **Wake Forest University, Winston-Salem, NC**
  *Student Athlete Services, Spring 2009- Spring 2011*
  - Tutored Wake Forest Athletes in Communication and Sociology classes between 10-25 hours a week

- **Wake Forest University, Winston-Salem, NC**
  *Research Assistant, Summer 2008-Fall 2008*
  - Assisted with perfecting protocol for research experiment
  - Assisted with subject recruitment and assessment for a study examining the effect of educational videos on infants under the age of two
  - Assisted with data collection
  - Coded all research data and entered into SPSS

- **Child Care Provider, Augusta, GA, Summer 2003- Summer 2009**
  - Provided 50+ hours of child care (ages 0-6) for the entirety of working relationship
  - Organized and planned all daily activities with specific concerns to client scheduling
  - Continually maintained cleanliness and order of residence
  - Developed creative fundraising ideas and delegated fundraising duties
  - Created brochures and handouts to recruit potential members, added seven members

- **Child Care Provider, Winston-Salem, NC, November 2008- May 2011**
  - Provided 3-10 hours of child care (ages 3-5) while taking a full class load
  - Organized and planned after school activities including the execution of daily homework assignments