IS YOUR BABY A *BRAINY BABY*?

LEARNING FROM "EDUCATIONAL" INFANT DVD PROGRAM

CONTENT BY 12- TO 24-MONTH-OLDS

by

ERIN LEIGH RYAN

(Under the Direction of Alison Alexander)

ABSTRACT

Though the American Academy of Pediatrics recommends no "screen time" for children under age two, parents routinely ignore this edict, exposing their children to television and the educational "baby videos" that have become exceedingly popular over the past decade. This project studied this baby video phenomenon in three phases: 1) a qualitative content analysis of the marketing and advertising of two industry leaders, Brainy Baby and Baby Einstein; 2) interviews with parents of children ages one to two regarding their beliefs about and experiences with baby videos; and 3) a quasi-experiment with children in the second year of life, utilizing a one-group pretest-posttest repeated measures methodology to test whether children could learn picture-letter pairings in the short term from several viewings of Brainy Baby's *First Impressions: Letters* video. Results revealed that the companies' marketing and advertising strategies fell into three broad categories: educational, credible, and aspirational. Interviews uncovered that parents routinely let their children under two watch television and videos alone, often giving parents time to do housework. In general, parents expressed that while they believe the baby video companies want consumers to *think* the videos are educational, parents are actually skeptical of the educational value. Yet, these parents continue to allow their children to watch. Additionally, parents reported hearing positive comments from fellow parents about baby videos, but they are generally not being asked about their child's video and television habits by pediatricians. The results of the quasi-experimental portion of the study revealed no significant findings. Thus, in the short term, there was no detectable learning found. Trial-by-trial analyses revealed that children between ages one and two do not perform any better than chance on repeated posttests. In sum, children under age two did not learn from the DVD.

INDEX WORDS: Babies, toddlers, television, baby video, Brainy Baby, Baby Einstein, educational, learning, qualitative content analysis, interviews, quasi-experiment

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DEDICATION

For my family.

Mom, Dad, and Kelly – I love you.

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CHAPTER ONE

INTRODUCTION

As has been well publicized, the American Academy of Pediatrics (1999) recommended that children under the age of two receive no "screen time." The report states that "although certain television programs may be promoted to this age group, research on early brain development shows that babies and toddlers have a critical need for direct interactions with parents… for healthy brain growth and the development of appropriate social, emotional, and cognitive skills" (p. 342). Not only have creators of children's television ignored this recommendation, creating such infant- and toddler-geared television programs as *Teletubbies*, but another group of media producers has capitalized on this "diaper demographic": companies such as Baby Einstein (owned by Disney), Brainy Baby, Nickelodeon (owned by Viacom), and even Sesame Street Workshop, who have all created a highly lucrative infant DVD market. In fact, parents in the Pierroutsakos, Hanna, Self, Lewis, and Brewer (2004) study reported owning an average of just over six infant videos or DVDs. This "baby video" phenomenon has been so successful that it has spawned a 24-hour cable network devoted exclusively to babies: BabyFirstTV.

Recently, researched published by University of Washington scholars posited that among children ages eight months to 16 months, for each hour of the day spent viewing "baby videos" there was an associated significant decrement in language development (Zimmerman, Christakis, & Meltzoff, 2007a). While this study was not experimental in

nature, its publication has unleashed a firestorm of controversy surrounding the infant DVD market, as well as condemnation and a request for a retraction by Disney's CEO Robert Iger (Iger, 2007).

Following the assertions made by the above authors, this project experimentally examines the claims made by some of these DVD creators that their content is somehow educational by focusing on one specific product: Brainy Baby's "First Impressions: Letters" video. Additionally, to put the experimental portion of this project in its proper context, this manuscript includes both an examination of the marketing and advertising of two of the "baby video industry" leaders, Baby Einstein and Brainy Baby, as well as interviews with parents of one- to two-year-olds regarding their use of such products. Accordingly, this introduction outlines the "birth" of educational baby videos, brief histories of both Baby Einstein and Brainy Baby, an explanation of a Federal Trade Commission complaint recently levied against both companies, and the organization of this manuscript.

Educational Media and the "Mozart Effect"

Educational toys have been a staple of childhood since World War I, when interest in the mental and physical development of American children gained popularity in an age of uncertainty about the future (Gothie, 2006). During this time, educational toys and games carrying the full endorsement of child psychologists gained popularity and "aimed to pass on to the next generation the traits of the individualist and the innovator which had been so prized in nineteenth century America" (Cross, 1997, p. 134). As Gothie (2006) notes, American faith in children's educational toys grew drastically in the second half of the twentieth century, thus it is not surprising that the

number of companies offering products to "prepare children for school, social life, employment, and adulthood" grew in tandem (p. 3).

While many of these educational products came in the form of three-dimensional toys, as the twentieth century came to a close several companies began to market educational media as well. Perhaps the most obvious rationale for the boom in this educational media market was what has been termed "The Mozart Effect." In 1993, Rauscher, Shaw, and Ky published a study claiming that exposure to ten minutes of a Mozart piano sonata increased college students' scores on a standardized test and that the students' enhanced visual spatial ability lasted for about 15 minutes after listening. And while Rauscher and Hinton (2006) explained that there was, and is, no indication that this effect is specific to Mozart, the popular press coined the term "Mozart effect" upon publication of this research, and thus created scientific legend.

Of note is that the original study sampled college students – not young children – but the notion that "Mozart makes you smarter" (Rauscher & Hinton, 2006, p. 233) permeated the popular media and thus an entire "Mozart effect" industry was born. Further studies appeared to support this effect with college students (i.e., Rideout & Taylor, 1997) and a meta analysis of 36 Mozart effect studies found the effect to be moderate and robust but limited to only a very specific type of spatial-temporal task (Hetland, 2000). A handful of studies involving children and the Mozart effect have yielded contradictory results, with some showing no improvement on spatial IQ scores by children who listened to Mozart sonatas (i.e., McKelvie & Low, 2002) and others demonstrating significant improvement in spatial-temporal scores of elementary school children after listening to both Mozart and J. S. Bach (i.e., Ivanov & Geake, 2003). Other

studies have demonstrated an improvement in children's scores after listening to popular music, leading scholars to conclude that the positive benefits of listening to music on cognitive abilities is most likely due to the enjoyment of the music itself, or elevated mood while listening (Schellenberg & Hallam, 2005).

A separate type of research, often confused with Mozart effect research, has found that with musical *instruction*, children's cognitive performance can be enhanced. These studies show that when young children are provided with instrumental instruction, positive effects on spatial-temporal, hand-eye coordination, and arithmetic tasks can persist for up to two full years after the instruction was terminated (Rauscher, LeMieux, & Hinton, 2005). However, the authors caution readers not to lump this stream of research together with Mozart effect work. Scholars who have done so have created misconceptions about the durability of the effect of simply listening to music. These instruction studies, Rauscher and colleagues assert, have much more profound implications than the listening studies for educational practice.

While the support for any Mozart effect for very young children is virtually nonexistent, the appearance of books, DVDs, and music CDs such *as The Mozart Effect Music for Babies: A Bright Beginning* and *Mozart for Mommies and Daddies – Jumpstart your Newborn's IQ* have fed into the cultural myth of an exaggerated effect on infant cognition from listening to classical music. In fact, the Mozart effect industry led Georgia's governor Zell Miller to launch a program in 1998 to provide every newborn in the state with a classical music CD entitled *Build Your Baby's Brain Through the Power of Music* (Jensen, 2002). Miller stated that "no one questions that listening to music at a very early age affects the spatial-temporal reasoning that underlies math and engineering

and even chess" and played legislators part of Beethoven's "Ode to Joy" and asked, "Now, don't you feel smarter already?" (Sack, 1998, p. A12).

Zigler, Finn-Stephenson, Hall, and Jones (2002) explained that "In spite of its scientifically weak base, the Mozart effect has gained a durable reputation with the public… Entrepreneurs, not surprisingly, have capitalized on the phenomenon, and the Mozart effect has quickly found its way into a variety of products for families with infants and small children" (pp. 146-148). The wildly successful sales of "educational" DVDs from the Baby Einstein Company and the Brainy Baby Company based on the Mozart effect premise illustrate this point. Interestingly, the founder of the Baby Einstein Company Julie Aigner-Clark seemed to time the release of the *Baby Mozart* video with the publication of Don Campbell's best-selling book *The Mozart Effect for Children: Awakening Your Child's Mind, Health, and Creativity with Music* in 2000. She explained in an interview:

> Right around the time that our video "Baby Mozart" hit store shelves, there was a study published which received a tremendous amount of national media attention. Called "The Mozart Effect," it explored the positive relationship between the development of a child's intelligence and exposure to classical music. It seemed like our timing was perfect!" (quoted in Gothie, 2006, p. 7).

So while the scientific community publicly debunked the Mozart effect, the popular press and the business community continued to perpetuate the myth. As Gothie (2006) explains, either parents have not heard that the Mozart effect has been debunked or they have simply chosen to ignore it, because the infant DVD market has virtually exploded.

The "Birth" of the Baby Video

The growing baby video industry is logging sales at the $1 billion mark, and the two industry leaders in the market are by far The Baby Einstein Company and the Brainy Baby Company (Meltz, 2006). In fact, while Baby Einstein may be more of a household name, Brainy Baby was one of the first creators of educational infant videos. Founded as Small Fry Productions in 1995 in Alpharetta, Georgia, the Brainy Baby Company began to produce the "Baby's First Impressions" videos, a series of 10 videos that uses "bouncy music, babies and puppies crawling across the screen to introduce educational basics, such as, letters, numbers, opposites, animals and more" (Brainy Baby Company, LLC, 2007, n.p.). Founder Dennis Fedoruk created the Brainy Baby line of videos because he could not find quality media for his own young children, and he used his skills as a successful filmmaker and video producer to create videos that are "reality-based and intelligent" (n.p.). The official company website boasts that they were the first in the industry to create this type of "edutainment" video. Recently, the company's products have been aired by Los Angeles-based BabyFirstTV network, available to DirecTV customers (Pearce, 2007). Current titles available for purchase include *Right Brain, Left Brain, Peek-a-Boo, Shapes & Colors, Animals, ABCs, 123s, Art,* and *Music*.

The Baby Einstein Company was born in the basement of founder Julie Aigner-Clark's home in 1997 when she used a borrowed video camera to create the first Baby Einstein video: *Baby Einstein Language Nursery* (The Baby Einstein Company, 2007). Similar to Fedoruk's reason for starting Brainy Baby, Aigner-Clark noticed a void of age-appropriate videos for her young daughter, which led this "mompreneur" to seek out a national distributor for her videos (Gothie, 2006). A mere three years after producing her

first video, Aigner-Clark signed a deal with Buena Vista Home Entertainment International to market her videos across the globe (Fitzpatrick, 2000). The Walt Disney Company acquired The Baby Einstein Company in November 2001 for an undisclosed amount (a rumored $25 million) and retained Aigner-Clark as a consultant (Gothie, 2006). In the years following the acquisition, sales increased exponentially and in 2005 the company reported $200 million in sales (Oldenburg, 2006). Current titles include *Baby Bach, Baby Beethoven, Baby Da Vinci, Baby Galileo, Baby MacDonald, Baby Monet, Baby Mozart, Baby Noah, Baby Neptune, Baby Shakespeare, Baby Van Gogh,* and *Baby Wordsworth*.

Initially, both companies had catchy tag lines that spoke volumes regarding what their products promoted: Brainy Baby boasted, "A little genius in the making" while Baby Einstein's logo had the caption, "Great Minds Start Little." On May 1, 2006, the Campaign for a Commercial Free Childhood (CCFC) filed a complaint with the Federal Trade Commission (FTC) against both companies for just such language; the CCFC believed that the two companies were engaging in false and deceptive advertising strategies, misrepresenting the educational value of their products for infants (Campaign for a Commercial Free Childhood, 2006). Specifically, the complaint claimed that "Baby Einstein and Brainy Baby make numerous representations that their videos are educational and beneficial for infant development" (p. 7) and that "Baby Einstein and Brainy Baby are likely to deceive consumers acting reasonably under the circumstances into thinking that infant videos are educational and beneficial" (p. 19). As of this writing, the FTC has not taken any action against either company, but both have changed their tag lines: Brainy Baby to "Learning for a lifetime" and Baby Einstein to "Where discovery

begins." Of the change, Brainy Baby president and CEO Dennis Fedoruk says, "We want to make sure we stand before our consumers pure and clean" (Melillo, 2006, p. 15).

Generally, the complaint against both companies comes down to a question of research, or lack thereof. While both companies appear, both implicitly and explicitly, to be marketing educational media products, neither company's claims are grounded in research. A senior producer at Brainy Baby explained that her company bases some of its marketing claims (such as "Aimed at whole brain development for children") on testimonials from parents (Melillo, 2006, p. 15). Baby Einstein general manager Russell Hampton explained that they are not a "research based" or "curriculum based" brand and that while the videos were designed to be educational and developmentally appropriate, the company did not test whether babies were in fact learning anything from them (Guernsey, 2007, p. 48).

However, parental anecdotes cannot replace scientific research. The FTC's associate director for advertising practices Mary Engle explained that if these companies are making "objective claims about boosting intelligence, then they need to have appropriate support for those claims… and generally speaking, anecdotal information is not adequate substantiation" (p. 15). Vice President and director of the National Advertising Division (NAD) of the Better Business Bureau (BBB) Andrea Levine added that "the bottom line is, the plural of anecdote is not data. You need a well-controlled study… if it is all just implied in the name of the product, then NAD would want to see some evidence that consumers were taking away the message that the product was going to enhance the development of their child" (p. 15). This take-away message is precisely what has the CCFC concerned.

Organization of the Project

As noted above, this project was completed in three phases: an analysis of the marketing and advertising of two baby video industry leaders, Brainy Baby and Baby Einstein; interviews with parents with children between ages one and two; and a repeated measures quasi-experiment with multiple exposures to the stimulus testing learning from a Brainy Baby DVD. Thus, the manuscript is organized in the following manner. Chapter Two begins with the conceptual and theoretical framework for the marketing and advertising analysis, which is followed by a lengthy discussion of infant cognition, infant attention, and infant interaction with television and video, thus providing the impetus for this study and introducing the key concept of the "video deficit effect." Research Questions and a hypothesis are also provided in this chapter. Chapter Three outlines the methodology for each of the three phases of this project. Chapters Four, Five, and Six provide the results from each phase of the study in order of their completion: Chapter Four includes the marketing analysis results, Chapter Five includes the parental interview results, and Chapter Six includes the results from the quasi-experiment. Chapter Seven provides the discussion and analysis of the project, and contains limitations to the study and directions for future research.

CHAPTER TWO

REVIEW OF THE LITERATURE

Research outlining the sheer number of hours under-two's spend in front of the small screen clearly demonstrates that parents are ignoring the advice of the American Academy of Pediatrics. Little research has been done examining why parents are comfortable putting their very young children in front of the TV screen, but there is speculation that the marketing and advertising of such brands as Baby *Einstein* and *Brainy* Baby may lead parents, both explicitly and implicitly, to believe that they are aiding in their child's cognitive development by exposing them to these media products. Such companies, termed by some as the "Baby Genius Edutainment Complex" (Quart, 2006), intimate that they are providing parents with harmless entertainment for their infant that has the potential to make their child smarter. Quart explained that this "complex" promises that children who are exposed to such media in infancy will become high-achieving adults. This brand of "extreme parenting" – pressuring children to succeed even in infancy – reflects the faith that "if babies are exposed to enough stimulating multimedia content… bright children can be invented" (Quart, 2007, p. 110).

There also appears to be a prevailing attitude among parents that there is no harm in exposing infants to these products. Indeed, one popular press article exclaimed, "With primary colors and classical music, *Baby Einstein* swallowed my guilt as a new parent for feeling the need to plop my son - every once in a while, just for a little while - in front of a TV screen. It was, after all, *educational*. Look at the title!" (Cramer, 2007, n.p.). This

"guiltless" screen time assuages parental culpability in the area of potential negative media effects.

Given such findings, the objective of the current study is to determine how these "baby DVDs" are being marketed to parents, what parents believe about these products, and whether children in the second year of life can learn from a brief viewing of one such product. The purpose of this chapter is to highlight relevant literature that will give the reader a framework within which to place the current study. This chapter begins with the theoretical and conceptual framework for Phase One of this project: the marketing and advertising analysis. Next, the chapter outlines relevant literature regarding infants and the possibility of learning from televised media – the overall topic under examination in this project. Included are sections detailing the development of visual attention and learning during infancy; recent relevant research in infant attention; and research regarding infants and television, including sections on time spent with television, attention to television, and learning from television. The chapter concludes with the research questions and hypothesis.

Framework for the Marketing Analysis

The first phase of this project used a qualitative content analysis methodology to investigate the marketing and advertising messages of both Brainy Baby and Baby Einstein (see Chapter Three). Due to the nature of the "Baby Genius Edutainment Complex" as a very specific portion of the home video market – even among children's videos – aspects of both niche theory and brand equity theory lend themselves neatly to this analysis as framing tools.

Dimmick's (2003) theory of the niche was developed to explain competition and coexistence in the modern media. Dimmick explained that in the current media environment, a company must adapt and evolve through its marketing environment in order to survive and prosper. A niche, according to Dimmick, is fundamentally "a relationship between [a] population…and the environment" (p. 25). The population competes for scarce resources, which in the case of producers of baby DVDs are *consumers*. According to McDowell (2004), the ultimate goal is to "cultivate a niche that prospers without exhausting its energies fighting too many similar competitors for the same limited resources" (p. 220). Similarity in niches creates strong competition, and the key for any company is to recognize your competitors and then make wise marketing decisions that allow your company to emerge in the most advantageous position or niche possible (Dimmick, 2003). McDowell (2004) stressed that the ideal niche is one in which a company can maximize revenue while simultaneously minimizing the costs of fighting with competitors. In this study, both Baby Einstein and Brainy Baby are examined – two companies battling for the same consumers. By simply examining each company's revenue Baby Einstein is the clear winner (see Gothie, 2006), however each company appears to be attempting to carve out a niche within the Baby DVD market in different ways.

In addition to niche theory, the analysis in Phase One is also framed by brand equity theory (Keller, 1993). Brand equity can be defined in terms of the marketing effects that are uniquely attributable to a brand; according to Keller (1993), a brand is said to have positive brand equity if, for example, consumers react more favorably to an element of the marketing campaign for the brand than they do to the *same* element when

it is attributed to a fictitious or unnamed brand. In his discussion on brand names, Keller stressed that the brand name itself can communicate meanings to consumers that are designed to enhance the value of a branded product. McDowell (2004) noted that successful brands not only evoke brand images (i.e., the various meanings associated with the brand) that are seen by consumers as valuable, but must also be perceived by consumers as unique or truly different from their competitors, a trait referred to as "brand differentiation." As McDowell explained, "strong, positive associations are of little consequence if the same associations can be attributed to several competing brands" (p. 221). This notion of associating positive emotions with both Brainy Baby and Baby Einstein will be explored in the analysis.

Framework for the Overall Project

As briefly noted previously, the interview phase of this project functions as a bridge between the marketing analysis and the quasi-experiment (see Chapter Three), thus no specific theoretical or conceptual framework was employed with this phase. Overall, however, the research regarding the question of "can children under two learn from television?" serves as the impetus for this project, informing and grounding the interview phase as well as the marketing and quasi-experimental phase. In the pages that follow, particular attention is given to research highlighting infant attention, learning, and interaction with television and video.

Infant Visual Attention & Learning

Before discussing infants and the media specifically, it is imperative to take a step back and ask the question: Is it even possible that infants have the cognitive capacity to pay attention to *anything* for a sustained period of time? Many of the companies creating

media content for babies claim that their products are made for ages zero to three. Is it reasonable to suggest that a newborn could even watch a video, let alone learn from it? To answer these questions, one must turn to the infant cognition literature.

Development of Attention

According to scholars such as Colombo (1993; 2001), the development of visual attention in infancy follows a reliable developmental course. Colombo's model of the development of attention includes four stages: alertness, spatial orienting, attention to object features, and finally endogenous attention. Alertness, or a state of readiness, emerges first and can be seen in newborns. Colombo and Horowitz (1987) note that only a small portion of an newborn's day is spent in an alert state – they explain that newborns spend three-quarters of their time in sleep states and less than 20% in alert states. While the *attainment* of an alert state is more important in the first few weeks of life than the *maintenance* of an alert state, by the twelfth post-natal week most infants can reliably both attain and maintain alertness (Colombo, 2001). Thus, is appears possible that by age 3 months a baby can remain alert, however she still does not have control over where to direct her attention. Spatial orienting, or the "where system," is next to develop and during this state infants begin to learn where to direct their attention in the visuo-spatial field. This stage of development is indexed by examining behaviors such as smooth pursuit, covert attentional shifts, and disengagement.

Smooth pursuit involves the ability to follow an object across the visual field smoothly (Colombo, 2001). Infants younger than two months may have difficulty with smooth pursuit but most infants older than two months exhibit this ability. According to Richards and Holley (1999), older infants show more smooth pursuit behavior, are more

accurate than younger infants at fixating moving targets, and can more readily track faster-moving targets. Covert attentional shifts and rapid saccadic eye movement emerge later in infancy. This can be assessed when a new object suddenly appears in the visual field – how does the infant react visually? Older infants have better control over such attentional shifts. Disengagement of attention is the last to emerge (Frick, Colombo, & Saxon, 1999). The infant who can disengage attention from one stimulus and attend to another in a second location is exhibiting more goal-directed behavior, and this does not develop until later in infancy. According to Colombo (2001), all of the various components of spatial orienting, while following somewhat different developmental courses, appear to be fairly well established by age six months.

Colombo's (2001) third area of visual attention development is termed "attention to object features" and is sometimes called the "*what* system" – the counterpart to the *where* system described above. Even very young infants can begin to notice the visual properties of objects, and this development of attending to features of objects eventually leads to understanding of form and pattern (Webster & Ungerleider, 1998). Very early on, infants can discriminate color and shape, but not until about five months can they perceive them as complementary (Dannemiller & Braun, 1988). Very young infants have a tendency to only visually inspect the outer contours of objects, which can negatively affect later recognition, while older infants learn to scan entire objects to learn as much as possible about visual properties (Bronson, 1991).

Last to develop is what Colombo (2001) terms "endogenous attention." This stage of visual development involves internal motivations for attention, whereas earlier in the visual development process, infants were motivated to look at certain aspects of the

visual field because of external properties such as noises or sudden movement. Endogenous attention involves more effortful, active, and purposeful control over attention as well as the ability to disengage from repetitive or redundant visual information. This visual behavior is more goal-directed and intentional. To arrive at this type of attentional ability, infants typically pass through the first three phases in a predictable fashion (Colombo, 1993). Between birth and two months, and infant is concerned with attaining and maintaining an alert state. Between two or three and six months, an infant shows rapid improvement in spatial orientation and attention to object features. Once an infant hits five or six months, she will begin to exhibit signs of endogenous attention and this development continues through infancy and beyond (Colombo, 2001).

Classic Assessment of Infant Learning

Beyond simply examining where infants are looking and what they are looking at, however, scholars want to know whether and how infants are *learning* from what they see. Generally, when researchers are interested in infant learning, they turn to either the "selective learning paradigm" (Fantz, 1964) or to learning studies.

Under the selective learning paradigm, research has demonstrated that infants have a preference for stimuli that change and they reliably decrease attention to an unchanging stimulus. Some refer to this as the "systematic fixation of a novel stimulus." The habituation paradigm gives researchers a way to study this phenomenon.

The term habituation refers to the tendency for infants to habituate to, or "learn" a stimulus that is presented to them repeatedly. After presenting an infant with a visual stimulus over and over, researchers can be confident that the infant has habituated to the

stimulus when she stops looking at it. In essence, the infant has learned what the stimulus looks like and has no further need to visually explore it. Researchers have determined several ways to quantify habituation, such as habituation rate (e.g., Cohen, DeLoache, & Pearl, 1977) or habituation pattern (McCall, 1979), but Colombo and colleagues (e.g., Colombo & Mitchell, 1990) suggest that the best metric for measuring attention within the habituation paradigm is "fixation duration".

Fixation duration refers to the length of a look toward a stimulus, and infants are either categorized as "long lookers" or "short lookers" (Colombo, 2001). During infancy, fixation duration is essentially the opposite of what is commonly called "attention span". In older children a "good" attention span involves looking and paying attention to one object or activity for extended periods of time. However, when studying fixation duration in infancy, it is those infants who are "short" lookers who are actually gaining the most information from visual stimuli. Short lookers are more efficient; they can examine a stimulus and gather information about it quickly. Long lookers spend more time visually engaged with a stimulus but are actually learning less about the stimulus. These long lookers sometimes engage in what has been termed "sticky fixation," and appear to only fixate one area of the stimulus, failing to visually explore the stimulus as a whole. Frick et al. (1999) also determined that the long-looking child has difficulty with disengagement, or pulling attention away from one stimulus in order to concentrate on a second stimulus.

Fixation duration not only tells us whether an infant is a short (or efficient) looker or a long looker, but it can also be used for prediction. Studies of concurrent prediction suggest that fixation duration has a negative significant relationship with tasks performed

simultaneously with looking in three- and four-month-olds (see Colombo, 1993). Stated differently, infants who are long lookers perform poorly on other tasks. Studies of "lagged prediction" have also revealed that infants who are long lookers become children with lower IQs (Sigman, Cohen, Beckwith, & Parmelee, 1986), who perform poorly on developmental tests (Rose, Slater, & Perry, 1986), and who are more sedentary during free play (Kagen & Lewis, 1965). Fixation duration during infancy reflects exploration of visual stimuli and speed of encoding, and this ability has clear implications for learning in early childhood.

A second paradigm scholars work under to study learning in infancy is termed the "response to novel stimuli" paradigm (Colombo, 1993). As mentioned above, infants show a preference for a novel or new stimulus after habituating to another stimulus. According to Colombo, the best way to test an infant's preference for novel stimuli is a "paired comparison test" in which an infant is seated in front of two screens, one that consistently shows the same visual stimulus and one that is constantly changing. The infant should habituate to the unchanging stimulus after a time and begin consistently visually "choosing" the novel stimulus. There are several theories as to what this novelty preference actually represents, however. Some believe it is simply a positive affective response to something new in the visual field (Sternberg, 1985). Others argue that the preference for novelty reflects an infant's ability to visually discriminate between stimuli at a sensory/perceptual level (Hainline & Riddell, 1992, cited in Colombo, 1993). Some also believe that novelty preference reflects memory recall; the infant must be remembering that she has already seen the unchanging stimulus several times and no longer needs to look at it to seek new visual information (Thompson, Fagen, & Fulkner,

1991). Lastly, some scholars posit that tests of novelty preference reflect an infant's speed of processing or encoding, believing that children who habituate more quickly are more efficient encoders of information (Colombo, Mitchell, & Horowitz, 1988).

Another method used to assess infant attention and learning is the learning studies themselves. Typical learning studies done with infants fall under the "operant conditioning" paradigm in which a response from the infant is met with some type of consequence: either a reward or a punishment (Colombo, 1993). Scholars believe that learning studies done in infancy tell us something important about how a child will learn later in life. One theory is that these studies reflect a structural trait; a child who can learn quickly and efficiently in infancy possesses some "learning trait" that will carry through to childhood learning and beyond. Thus, studying learning in infancy can tell researchers much about a child's capacity for learning later in life.

One typical method using the operant learning paradigm is termed the "conjugate reinforcement paradigm" (Rovee & Rovee, 1969). In such studies (e.g., Fagen & Ohr, 1990), infants between three and nine months old are placed in a crib and a ribbon is tied to one of their legs. When the infant kicks with that leg, the movement activates a mobile that hangs over the crib directly above them. This is called "conjugate reinforcement" because the magnitude of the mobile's movement is directly related to the magnitude of the kick. If the amount of kicking at the end of this type of experiment is greater than the amount of kicking at baseline, the infant is said to have learned that her action is associated with a reward.

A second type of operant conditioning study is called the "visual anticipation paradigm" (Haith, 1991). During this type of research, an infant is presented with some

type of visual stimuli that are shown in some kind of ordered pattern. The infant is usually presented with the pattern between 30 and 60 times. If the child begins to "notice" the pattern, she is said to have learned to anticipate what stimulus comes next. This anticipation is measured by tracking both head and ocular movement; if the infant takes less than 200msec to turn to the anticipated next stimulus, she has learned the pattern (Colombo, 1993).

Colombo (1993) noted that the use of all of these methods can help predict later childhood intelligence. The studies outlined here capture the four ways that infant attention is related to later cognition: fixation duration (habituation paradigm), preference for novel stimuli, imitation of behavior (conjugate reinforcement), and encoding speed (visual anticipation). Assessing infant ability in all four of these domains can inform us about later childhood intellectual functioning.

Recent Research in Infant Attention

There are several areas in the study of infant attention that consistently produce new research that is highly applicable to the current study of children under two and the potential to learn from educational media. Three such research streams that deserve mention include joint attention, imitation, and attentional inertia.

In the infant's first year of life, she learns to coordinate a look at an object with an adult's look. This behavior is termed "joint attention" because both adult and infant are jointly attending to the same stimulus. This joint attention is critical for learning; infants view adults as credible teachers about the world. In a study by Dunham, Dunham, and Curwin (1993), they were interested in how joint attention affected lexical acquisition. These scholars designed a study in which they examined a caregiver's strategy at

teaching an infant a new word label for a toy. The researchers differentiated between two distinct types of caregiver strategies: Attention-Following (AF) where the caregiver waited until the infant was actively engaged with an object before "naming" it, and Attention-Switching (AS) where a caregiver names a novel object and tries to direct the child's attention to it at a time when the child's attention is concentrated on another object or stimulus. During eight-minute play sessions with various toys, the experimenter either engaged in the AF or AS strategy with infants, labeling a new toy a "dodo" consistently throughout the session. At posttest, the infants were asked, "Which one is the dodo? Can you find the dodo?" Only two of the 14 children in the AS condition correctly found the dodo, while seven of the 14 in the AF condition found it. Dunham et al. (1993) concluded that when caregivers are looking to teach novel words to infants, they will be more successful when engaging in an attention-following (AF) strategy, labeling things the child is already paying attention to. This research has clear implications for parental expectations of learning from infants DVDs; the findings suggest that if parents interact with their children when they are actively paying attention to the DVD, perhaps pointing out new words or objects, learning may more readily take place.

Research has also been done in the area of infant memory recall through the use of imitation. Bauer (2002) explained that for many years it was assumed that children did not have the capacity for recall before age three because recall was associated with verbal ability. If a child could not describe something she "remembered" then she did not possess the ability to recall. However, Bauer's (2002) research explained that thinking in recent years has changed on the matter as scholars have determined a way to study recall in preverbal humans: elicited imitation. As opposed to just recognition, recall involves

the ability to mentally represent something from the past without any outside assistance. Bauer (2002) suggested that the best way to test this using imitation is by teaching infants multi-step ordered sequences to imitate. To imitate a multi-step sequence after a delay depends entirely upon the ability to recall the ordered steps; recognition memory does not help in this case. Using this method, research has demonstrated that infants as young as nine months old show ordered recall ability. While such recall is still a bit unstable at that age, further research has shown that by 13 months, children can easily exhibit ordered recall of multi-step sequences, many times after only seeing the sequence demonstrated one time. Something to keep in mind, however, when applying these research findings to the current study is that the recall was demonstrated after learning from a *live* model, not a televised model. As will be described in further detail below, infants learn much more readily from live models than from televised ones. The important point to take away from this research is this: it is possible for children as young as nine months to learn multi-step sequences, if one defines learning as demonstrated recall ability.

Another stream of research that has gained prominence in the field of infant attention is Anderson's work on "attentional inertia," a term first coined in a study by Anderson, Alwitt, Lorch, and Levin (1979). Basically, attentional inertia refers to the fact that as the length of a look at a stimulus increases, there is less of a chance that a child will be distracted from the look. Anderson's work in this area is the first type of research in the field of infant attention that was specifically designed to investigate what prompts children to either maintain looks at *television* or to look away. Attentional inertia, as explained by Anderson, Choi, and Lorch (1987), involves sustained attention to television. The longer a look at television is maintained, the more likely a child is to

continue to look. Near the beginning of a look at television a child is easily distracted, but as the look progresses the child becomes harder to distract. In fact, Anderson and colleagues have determined that as a look at television lasts longer than 15 seconds, it is less likely that the child will be distracted (Anderson & Pempek, 2005).

Unlike attentional inertia, from what researchers have uncovered about habituation (see above), this paradigm is clearly not applicable to viewing television. Children do not get "bored" with television and look for novel stimuli; the television continually offers them novel stimuli, so there is nothing for them to habituate to. Television is not static like the instruments used to study habituation in infancy. Television changes from moment to moment, and children must continuously maintain attention through changes in speed, action, camera angles, and content (i.e., the move from a program to a commercial and back again). Studies assessing the preference for novelty illustrate that infants prefer to look at new stimuli, and studies of attentional inertia tell us that once children become engaged with the novel content, it is difficult to distract them.

In one attentional inertia study, Anderson et al. (1987) studied preschool students ages three and five while they viewed *Sesame Street* and determined that while a child was in a state of sustained attention, not only was she less distractible, but she also remembered more about the content she was viewing. When they presented a distractor slide to one side of the television screen (with a loud beep preceding the presentation of the distractor), a child was less likely to look at it if she had been watching *Sesame Street* for more than 15 seconds. Any time children whose attention had been sustained on the television for more than 15 seconds did indeed look at the distractor slide, their reaction

time and head turn was slower than children who turned toward the distractor early in a look.

Richards and Gibson (1997) expanded Anderson's work with attentional inertia and television in two ways: by testing infants rather than preschoolers and by determining whether physiological measures could detect attentional inertia. Richards and Gibson (1997) took Anderson's hypotheses about attentional inertia and applied them to children at 10, 14, and 26 weeks old. In a similar experiment to Anderson's, they had a child sit in a parent's lap facing a screen that played the *Sesame Street* movie "Follow That Bird." Just as Anderson did, the researchers had a distractor slide that was illuminated at different intervals off to one side of the television screen. In addition, these researchers attached electrodes to the infant's chests to record heart rate (HR) in "interbeat intervals" (IBIs), which is the reciprocal of heart rate (i.e., as HR goes up, IBI goes down). Richards and Gibson (1997) determined first that the attentional inertia hypothesis most definitely applied to these infants: the longer a look at television progressed, the less likely it was that the infant would be distracted. Regarding heart rate, they found that as an infant began a period of sustained attention to the television, IBI intervals became longer (i.e., HR slowed) and that this IBI lengthening continued for the length of the look. Just prior to look termination, IBI returned to the prestimulus level. Clearly, measures of heart rate changes can inform researchers about sustained attention to television.

Richards and Cronise (2000) again expanded this line of research even further by testing older infants in two age groups: 6- and 12-month-olds, and 18- and 24-month-olds. Again, they determined that heart rate accurately reflects periods of sustained attention. In addition, they were curious as to whether the content of what the children

viewed had any affect on sustained attention and attentional inertia. The researchers showed not only a *Sesame Street* movie, but also a screen showing abstract patterns. They expected that the younger children (6 and 12 months) would show no differences in sustained attention between the movie and the abstract patterns because they were too young to understand the story continuity of the movie. The older children, however, they believed would show more sustained attention to the narrative of the movie because it was more comprehensible to them. As expected, the older children showed more interest in the movie than the abstract patterns and the younger children showed no preference (Richards & Cronise, 2000). The results of this research inform the debate over what drives very young children's attention to television, which is discussed in further detail below.

Summary

Taking everything that scholars have uncovered about infant attention and learning into account, it seems a little incongruous that media companies are claiming to produce educational DVDs and videos for children age "zero to three" or "three to six months." Knowing what we do about the development of attention in the first six months of life (from alert states to spatial orienting, to attention to object features, and finally to endogenous attention) it is unlikely that children before the age of six or seven months could learn much of anything from televised media. Clearly infants can *learn*, as has been demonstrated by studies of preference for novel stimuli, conjugate reinforcement, and memory recall, but the question remains whether they can learn a set of specific skills presented to them audiovisually on an educational video. What appears most likely, when studying the "under-two's," is that there is more potential for such learning as infants

become toddlers and enter the second year of life when they can sustain attention to televised content.

Infants and Television

Recall that the American Academy of Pediatrics has recommended that children under age two spend no time with screen media. Parents are clearly not taking this advice to heart, however it cannot be helping the AAP's argument, as Anderson and Pempek (2005) pointed out, that there is very little published research regarding the use and impact of media on very young children. Pierroutsakos et al. (2004) explained that television has become a large and very meaningful part of infants' lives and that we must examine television habits at these young ages in order to properly gauge viewing and effects of television later in childhood. Anderson and colleagues (e.g., Anderson & Pempek, 2005) believe we should pay special attention to very young children and the media because of the media's pervasiveness in the home; even when no adults are in the room, the television is often on, the computer is running screen savers, or a radio is left playing. These young children cannot escape the electronic media, and it will play a huge role in their lives. Thus, we need to examine potential effects of such exposure.

Infancy and toddlerhood are especially important periods during which to study media exposure and comprehension. Rideout, Vandewater, and Wartella (2003) discussed the explosion of media in the last decade or so that has been created specifically for the under-two crowd, not only highlighting videos and DVDs, but also mentioning video games and special computer keyboard toppers that are being marketed to nine-month-olds so they can "learn" to use a computer. These researchers believe that the critical starting point in assessing how thee young children might be affected by such a barrage

of media choices is to first look at each child's access to and use of the media. From there, researchers can begin to construct an idea of how children's lives and/or development may be changed by such exposure.

In Lemish's (1987) seminal article of infant viewing in the home, she discussed three reasons why we should be aware of how infants interact with the television. First, infants are constantly searching for visual and auditory stimuli to inform their development of social skills. Next, it is clear that these very young children have access to television in the home every day. Lastly, she noted that research demonstrates that children do indeed pay attention to some television content and that they are finding something in that content which appeals to them. While these children are in such a "busy" developmental time in their lives, parents and caregivers should be especially cognizant of how much time their young child spends in front of the small screen.

Time Spent with Television

According to the literature, parents are exposing their very young children to an average of over an hour of television per day. A 2004 survey by Pierroutsakos and colleagues found that parents report that children between the ages of 2 ½ months to 24 months were exposed to an average of 119.13 minutes of television per day, and that these children are "actively watching" television for just under half of that time. These parents also reported that 50% of the time when the television is on when their infant is present, "child-friendly" or infant-geared programming is on. These researchers also determined that the average family owned six "baby videos" including the likes of Baby Einstein and Brainy Baby. Many parents surveyed in the Peirroutsakos et al. (2004) study believed that these educational videos were good for their infants, teaching them social

skills and language. They reported that their babies were less fussy and more focused on the television when these programs were playing. It's no wonder parents believe that these videos are going to help their children's intellectual development: Pierroutsakos and Troseth's (2003) study included a quote from the box of Baby's First Video that referred to the product as "baby brain food… a must-have for newborns!"

A study by Rideout et al. (2003) for the Kaiser Family Foundation revealed that very young children are watching more television than they did ten years ago: infants younger than one year now watch an average of 1 hour 8 minutes, one-year-olds watch 1 hour 26 minutes, and two-year-olds watch 1 hour 35 minutes. When asked whether children under age two had ever watched TV, parents in the Kaiser study reported 74% watched television and 70% watched videos or DVDs. In a typical day, these parents reported that 68% of children under two used screen media: 59% watched television programs and 42% watched videos or DVDs. When asked specifically about baby videos, 27% of parents reported owning at least one Baby Einstein video developed for children 18-months-old and younger. In addition, the researchers determined that a full 30% of children ages zero to three had televisions in their bedrooms.

Certain and Kahn's (2003) study of infant viewing in the 1990s revealed that of infants zero to 11 months, 83% watched *no television* at all and 52% of 12- to 24- month-olds watched no television. These corresponding "no viewing" numbers dropped to 48% of infants under age one, 40% of one-year-olds, and 29% of two-year olds (Rideout et al., 2003). Zimmerman, Christakis, and Meltzoff (2007b) found that by age three months, 40% of children regularly watch television and that figure rose to 90% by age two. Certain and Kahn (2003) determined that daily TV viewing increases by an average of

one hour each day per year during the first three years of life. Anderson and Pempek (2005) speculated that this increase in time spent with television in the last decade may be due to the introduction of baby videos and television series in the 1990s which substantially increased the amount of "foreground" television available for very young children.

Attention to Television

Troseth, Saylor, and Archer (2006) noted that the fact that infants and toddlers watch an average of one to three hours of media per day indicates that young children must find something about the content engaging. Clearly, these children are paying attention to the content put in front of them. Pierroutsakos et al. (2004) stated that parents report their children attending to about 60 minutes of television per day, which amounts to roughly half of the total time they are exposed to television. Anderson and Pempek (2005) explained that infants tend to overtly watch the screen when foreground television – or any content specifically designed for infants and toddlers – is playing. Research by Barr, Chavez, Fujimoto, Garcia, Muetener, and Strait (2003, cited in Anderson & Pempek, 2005) revealed that when these infant-geared programs are on television, very young children spend about 50 to 75% of the time actively, overtly looking at the screen. In fact, they have also found a linear increase in overt looking at the screen every year for the first three years of life. According to Anderson and Pempek (2005), around 30 months of age there appears to be a qualitative shift in viewing behavior: when children are brought into a room with a television set turned on prior to 30 months, they tend to sit and play with their backs to the screen, occasionally turning to look of something catches their attention; after 30 months, they generally enter the room and sit facing the

television, overly looking at the screen. The researchers explained that this is the age when children begin to treat "watching television" as an actual behavior.

In Lemish's (1987) classic "Viewers in Diapers" study, she gave considerable insight into how children between six months old and two years old actually behave when watching television. Lemish visited 16 families in their homes on four or five occasions every six weeks and observed children between the ages of six months and two years. In addition to the observation, she conducted in-depth interviews with parents to determine the child's personality, development, and existing television habits and asked the mothers to complete viewing diaries tracking their children's viewing activities. After observing the infants, the researcher broke them into three age groups by behaviors: six to 10 months, 10 to 18 months, and 18 months and beyond.

Lemish (1987) noticed that the youngest children were apt to turn their heads toward the television when they heard sound effects, but that the average length of look at the television was only about 30 seconds. These novice viewers were also more apt to play with the television set itself, touching the screen and turning knobs. The children in the 10-18 month group began to interact with the television more. They became excited when they heard the *Sesame Street* theme song and they appeared to become attached to specific characters. The children in this middle age group were very attentive viewers when given snacks and drinks while watching. Around a child's first birthday, the parent generally had a more positive attitude about television, some calling it a "talking book." At 16 months, children could turn the television on by command and began to actively imitate what they saw on-screen. Once children reached 18 months, they were more interested in number and letter sequences on *Sesame Street* and they looked more at

cartoons and anything involving other children or animals. Around age two these children were left to watch television on their own and they began to request certain television programs. Lemish (1987) concluded her study by stating that younger children learn to use the television as a source of information about the world before they even learn to use the potty.

The motivations for attention to television in very young children (usually measured as overt looking at the screen) are still under debate. Some scholars maintain that infants and toddlers pay attention to media due to overt formal features, such as visual and auditory stimuli or changes (e.g., Huston & Wright, 1983, 1989). These scholars believe that such formal features as animation, sound effects, movement, and special effects cause children to look at the screen briefly simply due to an orienting reflex. Certainly Lemish (1987) noticed this type of behavior, as referenced above. Other scholars focus on the comprehensibility of the content presented to the very young audience, which is a more cognitive approach (e.g., Anderson & Lorch, 1983). These researchers argued that the increase in looking at television during the first few years of life was due to the shared path of cognitive and language development; children after age 30 months were better able to understand age-appropriate programming, thus they would maintain sustained attention to such programs. Anderson and Pempek (2005) also reference the evidence that when "infant videos" are on the screen, babies and toddlers tend to pay high amounts of attention to them.

In several studies, Anderson and colleagues have concluded that comprehensibility is key when examining why children pay attention to different types of televised content. Anderson, Lorch, Field, and Sanders (1981) manipulated the

comprehensibility of an episode of *Sesame Street* by randomly reordering shots, using foreign language, and running dialogue backwards. Children ages two, three and a half, and five *all* looked at the screen less when the segments were less comprehensible. The authors highlight the fact that the 24-month-olds in the study were sensitive to the comprehensibility of the program, even though the formal features remained largely unchanged. In Anderson and Pempek's (2005) article, they discuss similar ongoing research which presents normal and distorted versions of *Teletubbies* to infants and toddlers. Thus far they have found that for both 18- and 24-month-olds, looks at television were shorter if the program had reduced comprehensibility. The authors concluded that their findings suggest that children as young as 18 months are processing television beyond a primitive orienting and perceptual level. They plan future studies to assess the "cut off" age when children are not sensitive to the sequential and linguistic aspects of children's television programming, and add that at that age and younger "it would be hard to argue that such programs are educational" (p. 511).

Many scholars agree that attention is a function of the two motivations (the orienting reflex and comprehension) working together. As Anderson and Pempek (2005) note, the two theories are not mutually exclusive. Huston and Wright (1983) pointed out that it is possible that when comprehension is minimal, as it is with the very young children watching "general audience" television, attention may be driven purely by the orienting reaction to formal feature stimuli, but when young children are exposed to programming specifically designed for their age group the content may be more comprehensible, thus attention reflects higher cognitive processing and not just an orienting reflex.

Additional research appears to support this argument. Valkenburg and Vroone (2004) created an experiment in which they exposed infants and toddlers to a video containing segments of news, *Sesame Street, Teletubbies, The Lion King II*, and commercials aimed at both children and adults. They found that the younger children only paid attention to shows like *Sesame Street* and *Teletubbies*, the older children watched some *Sesame Street* and *The Lion King II* and children's commercials, and that none of the children watched the news. The researchers discovered an attentional shift from salient formal features (such as applause, animation, children's voices, laughter, music, peculiar sounds, visual effects, movement, and sound effects) in infancy to more non-salient features between 18 and 30 months. The attention of the older children appeared to be allocated based on content features. The researchers concluded that in the second year of life, children's attentional selectivity becomes less influenced by formal features and more influenced by whatever they find intrinsically interesting or attention-worthy. The findings support Huston and Wright's (1989) feature/signal hypothesis; children progressively learn to use certain program features as signals for choosing television content that might be interesting or age-appropriate.

The results of a qualitative study of 20 children in Australia by Howard and Roberts (2002) also appear to support this hypothesis and build upon it. The research team visited children ages 14 to 24 months in their homes and observed while the children viewed an episode of the young children's television program *Teletubbies*. They determined that the children in their sample overtly watched the program for roughly 45% of the program's segments. They also noticed that children were "cued" to watch when they heard sound effects and other noises. They were also able to view affective

responses while children were watching and noticed that children who were overtly looking at the screen displayed behavioral signs of positive affect. The researchers concluded that not only do formal features and comprehensibility enter the equation, but that affect also plays a part in attention to television at this age. There was no problem within their sample with sustained attention when the level of enjoyment was obviously elevated.

Overall, research has indicated that infants and toddlers do spend time with electronic media and that researchers really have no idea how this may affect them going forward. As Anderson and Pempek (2005) noted, there is some evidence that suggests that too much time with media may be harmful to children in the long run (e.g., childhood obesity concerns due to too much screen time), but currently the evidence is weak and open to multiple interpretations. However, these scholars do caution that in the meantime, as a nation we are engaging in a vast and uncontrolled experiment with our youngest generation by exposing them to so much media without any knowledge of how they may be affected by it later in life.

Can Infants Learn from Television?

While the literature has clearly supported the notion that infants and toddlers pay attention to the television screen, there is still debate about whether they can actually learn from a television show or DVD. Several scholars have tackled this issue, and the general consensus is that very young children can learn somewhat from the media, but that they learn from a live model more quickly and thoroughly than from a televised model (e.g., Anderson & Pempek, 2005; Troseth, Saylor, & Archer, 2006). This failure to learn successfully from televised models has been termed the "Video Deficit Effect." The

underlying question of *why* this video deficit occurs has been subject to debate; thus, what follows is relevant literature highlighting the video deficit and two potential explanations for the effect: the perceptual encoding impoverishment theory and the dual representation hypothesis.

The "Video Deficit Effect"

Several researchers have documented what Anderson and Pempek (2005) have called a "video deficit." In its most basic form, the video deficit refers to the fact that very young children learn less from television than from real-life models or experiences. Numerous lines of research have investigated, documented, and supported this deficit, including imitation studies, language learning studies, and studies of learning from televised emotional responses.

Imitation studies have been carried out to determine how well young children can learn basic behavior from televised models. As explained by Hayne, Herbert, and Simcock (2003), imitation is an ideal way to test infant learning because it doesn't involve the comprehension or production of language. Indeed, infants and toddlers learn much about the world via imitation, with only one source of such information being television.

Imitation studies have shown that children in the second year of life can imitate very basic or limited behaviors demonstrated by videotaped models (e.g., Barr & Hayne, 1999), however research has also revealed that a very young child's ability to learn and imitate multi-step sequences of behaviors or actions from a televised model is significantly less than the ability to learn from or imitate a *live* model (e.g., Hayne et al., 2003). Barr and Hayne (1999) tested 12-, 15-, and 18-month-olds to determine if they

could learn to imitate a series of specific actions with a novel stimulus – a puppet. Some of the children saw the actions performed with the puppet live and others saw the same actions performed by the same adult on a television monitor. The researchers found that infants of all three ages were able to imitate the actions that were modeled live, even after a 24-hour delay. However, the majority of both the 12- and 15-month-olds failed to imitate after viewing the action on television, both immediately following the demonstration and after the delay. The performance of the 18-month-olds who attempted to imitate after viewing the televised model was consistently inferior to those who viewed the actions performed live. The researchers concluded their study by stating that "the ability to learn from television is undoubtedly constrained by both perceptual factors unique to television and by general cognitive development as well" (p. 1079). Indeed, in a later study by Hayne et al. (2003), they found the same results with children ages 24 and 30 months; these older children imitated actions seen on television to a degree, but the performance of the children exposed to a live model was far superior. These researchers concluded that the video deficit remains a roadblock to learning until approximately age three.

One manipulation that appears to aid in learning and imitation of behavior from video is repetition. For example, Barr, Dowden, and Hayne (1996) found that while 6-month-olds could not imitate televised actions presented in three demonstrations after a 24-hour delay, 12-, 18-, and 24-month-olds could imitate somewhat successfully. When the number of repetitions was increased to six, even the 6-month-olds were able to imitate successfully. The same appears to hold true for older children. Crawley, Anderson, Wilder, Williams, and Santomero (1999) found that repeating an episode of

Blue's Clues for 3-, 4-, and 5-year-olds once per day for five days significantly increased comprehension.

Other studies have examined language learning and infants. This line of research is of particular interest to this study in light of the various infant DVDs that claim to teach foreign languages beginning in infancy. Kuhl, Tsao, and Liu (2003) designed an experiment to test American infant learning of the unique phonetic sounds of Mandarin Chinese. Given research that demonstrates that between 6 and 12 months of age the ability for infants to discern foreign-language phonetic units sharply declines, they tested 9-month olds' ability to retain this skill after hearing a live native Mandarin speaker for 12 sessions, or 12 sessions of the same speaker on video recordings. They found that exposure to Mandarin via video had no effect, but that exposure to the live model resulted in retention of the skill. Clearly, this study demonstrates another example of the video deficit effect. This study is particularly illuminating given the number of "foreign language" videos being marketed to children as young as 6 months, such as Baby Einstein's *Baby's First Sounds,* as well as Brainy Baby's *French* and *Spanish* videos, which are marketed to 12-month-olds. The research presented here indicates that such videos alone are unlikely to teach infants these unfamiliar languages.

Third, there are studies designed to assess the learning of emotional responses from television or video. Mumme and Fernald (2003) wanted to investigate whether infants draw implications for their own behavior after witnessing an emotional event on television. The researchers exposed 10- and 12-month-old infants to videos depicting an actress acting either positively, neutrally, or negatively/fearfully toward an object. The emotion was conveyed through tone of voice and facial expression. After viewing the

video, the infants were presented with the real objects depicted in the video and their own emotional reactions were gauged. The 12-month-olds showed increases in negative affect after viewing the negative-emotion scenario, avoiding the "fearful" object, but showed no response differences to the neutral and positive objects. The 10-month-olds showed no consistent changes in object interactions or affect after watching the video. These researchers concluded that perhaps children in this age group simply do not make the cognitive connection between the two-dimensional objects seen on television and the three-dimensional objects with which they were presented. Again, this provides further evidence for the video deficit effect and provides further support for one of the explanations put forth for such an effect: the perceptual encoding impoverishment theory.

The Perceptual Encoding Impoverishment Theory

One prominent explanation for this video deficit is termed the "perceptual encoding impoverishment theory" (Barr, Muentener, Garcia, Fujimoto, & Chavez, 2007). This theory suggests that because the two-dimensional input from television is "impoverished" compared to three-dimensional input, the cognitive encoding process is therefore impoverished as well. According to this theory, the video deficit effect is a result of poor perceptual encoding (e.g., Barr & Hayne, 1999). This theory fits neatly into Johnson and Aslin's (1996) more general "threshold model" of perception in which the child's perceptual system necessitates a minimum amount of input for successful perception, regardless of whether the stimuli are two- or three-dimensional. In their study of object unity, Johnson and Aslin determined that young infants' perception of object unity is not dependent upon a single visual clue. In fact, key elements in perceiving an object are depth cues, something that may be difficult for young children to perceive

when viewing two-dimensional screens. The researchers explain in their threshold model that an insufficiency of cues may be the best account of why infants fail to perceive object unity, and that this threshold appears to be lower in older infants, and still lower in adults (Johnson & Aslin, 1996).

Very young children have trouble transferring two-dimensions (i.e., television or video) to three-dimensions (i.e., real-world objects). Barr et al. (2007) explained that a two-dimensional presentation "may not match its 3D counterpart until a sufficient number of individual sources of information are available to match from one to the other" (p. 197). Carver, Meltzoff, and Dawson (2006) have found that 18-month-olds process two-dimensional images more slowly than three-dimensional objects; recognition of three-dimensional objects comes very early in the attentional process while recognition of a two-dimensional photograph of a familiar object emerges much later. In addition, Barr et al. (2007) explained that during imitation tasks, participants must "transfer perceptual attributes of the 3D test object to stored attributes of the memory representation of the original 2D display" (p. 197), and that that the video deficit effect could be accounted for either by the slower processing of the two-dimensional input or the cognitive load associated with the child's transfer of information from two-dimensions to three. In addition, objects on television appear much smaller than they do in real life, which also communicates less information to the young child.

The Dual-Representation Hypothesis

While the perceptual encoding impoverishment theory focuses on the lack of cues coming from the content itself, most other tentative explanations for the video deficit focus on the young child's cognitive capacity. Coined by psychologist Judy DeLoache

(1987, 1991, 1995), the dual-representation hypothesis is a second very popular explanation for the video deficit effect. This hypothesis refers to the fact that very young children have trouble grasping the dual reality of symbols, and that this difficulty manifests as a roadblock to learning from television. DeLoache's basic argument is that children under the age of two do not have the representational capacity to make the link between the content seen on television and what they are presented with in real life. They do not understand that what they see on TV actually represents something in the real world; thus, they have a "dual-representation" difficulty. As DeLoache, Miller, and Rosengren (1997) pointed out, even a high degree of similarity between a symbol and what it represents is no guarantee that young children will understand the symbol-referent relationship. They explained that in order to understand and use a symbol, a child has to mentally represent the symbol itself as well as it's relation to the referent; while thinking about the concrete features of the symbol, the child must simultaneously think about the abstract relationship between it and something else. This hypothesis has important implications in the world of young children and television, a two-dimensional medium that represents a three-dimensional world.

Very young infants will respond meaningfully to mediated symbols long before they are cognitively capable of taking a symbol as a source of information about a real situation. Research on infant perception indicates that from a young age, infants can recognize people and objects depicted in pictures and videos, they appear to perceive the correspondence between a video image and what it depicts, and they can discriminate between depictions of objects and the objects themselves, but they cannot understand the *meaning* of the differences they perceive (Pierroutsakos, & Troseth, 2003). In research

with still pictures, several studies revealed children as old as 16 months trying to manipulate, pick up, put on, or grasp objects in the picture (e.g., DeLoache, Pierroutsakos, Uttal, Rosengren, & Gottlieb, 1998).

The explanation for such behavior lies in infants' inability to understand the significance of the difference between the depicted object and the real object it represents; they do not fully understand what two-dimensionality means (Pierroutsakos, & Troseth, 2003). For many children, this understanding is not complete until age five. For example, Jaglom and Gardner (1981) report a 2-year-old going to get a paper towel after seeing a egg break on the television screen, and 3-year-olds in Flavell, Flavell, Green, and Korfmacher's (1990) study who saw a bowl of popcorn on a television screen believed that the bowl would spill over if the television set were knocked over. Clearly, even these older preschool-aged children have a difficult time with the picture-referent relationship.

Several tests of the dual representation hypothesis have utilized object retrieval tasks. For example, Troseth and DeLoache (1998) had children ages two and two and a half watch on a video monitor as a toy was hidden in an adjacent room. In essence the children in this study were asked to "use a symbolic medium (a video event) to form a mental representation of an existing situation (the location of the toy in the room) and to use that representation to guide their behavior" (p. 951). This places a higher cognitive burden on these children than does imitation. Most of the older children were able to retrieve the toy, but the younger children were not. The authors speculated that the older children had more general symbolic experience, and thus were better able to complete the task. Intriguingly, when the "video event" is presented to look more like a children's

television program, object retrieval is even poorer, even for children as old as three. Schmitt (1997, cited in Troseth and DeLoache, 1998) showed two- and three-year-olds a video containing background music and toy animals who "talked" in a voiceover and who "hopped" or "walked" to a piece of furniture to hide themselves. When the children were asked to retrieve the puppet in the adjacent room, only 16% of two-year-olds and 44% of three-year-olds were successful. Troseth and DeLoache (1998) concluded that young children are inclined to separate their mental representations of events they view on television from their mental representations of real-world events.

The problems very young children have with the dual representation of symbols in videos would appear to indicate that they may have trouble actually learning about the three-dimensional world until at least age two and a half. In addition, these authors argue that perhaps the two-year-olds failed because they had enough experience with television to know that what they saw on TV was not "real," and thus they should not use the information presented to them via television as applicable to the real-world situation in which they found themselves. Older children, they argue do understand that television can represent something other than itself and that this understanding trumps the belief that nothing on television is "real" (Troseth & DeLoache, 1998).

Schmitt and Anderson (2002) follow a similar line of thinking to DeLoache and colleagues and propose that when young children are presented with televised information, they believe that the activity is physically located "inside the box;" they think that what they see on television is limited to the space inside the TV cabinet. When asked to perform a task like object retrieval, these children must use their cognitive capacities to remember what they saw "in the box" and try to use that information to

apply to the real-world room in which they find themselves. They must cognitively "scale-up" what they saw on television, as the 3-D world is much larger than the 2-D world they just encountered. Because of this added cognitive burden, these children often fail to remember the task at hand, not remembering where the toy is located due to the energy they are putting into the "scaling up," and thus failing the object retrieval task.

Troseth, Saylor, and Archer's (2006) research took object retrieval studies a step further in order to further investigate the video deficit effect. Rather than just having some children see the hiding event through a window and some via a pre-taped television segment, these researchers added a condition in which a child saw a hiding event on a television screen using closed-circuit technology so the child saw the event in real time. Before the closed-circuit television hiding event took place, the person hiding the toy interacted with the child, commenting on the way she was dressed, what she was currently doing, and engaging in a conversation with the child until the child understood that the person they could see on the television monitor could actually see her as well. When children in this condition were tested and put in the room where the toy was hidden, even the two-year-olds were successful.

Troseth et al. (2006) concluded that the difference in the two "television" conditions was that in the closed-circuit television condition the children learned that the person they were interacting with was "real" and could provide them with socially-relevant information. This social interaction allowed the children to apply the hiding event seen on television to the three-dimensional room. The authors further explained that this result indicates why preschool programs such as *Blue's Clues* and *Dora the Explorer* are so successful: the characters in these shows look directly into the camera,

suggesting to children that they are looking directly at them, mimicking a social interaction with the children in the audience that could provide socially useful information. The perceived social interaction trumps the video deficit.

Summary

Knowing that children under the age of two are being exposed to over an hour of television per day is rationale enough to engage in a study of media products marketed to this demographic. Researchers have documented that children in this age group clearly find something about much of the content engaging, whether due to the formal features of the programs themselves, the comprehensibility or the content, or a combination of the two working together. Paired with the "Baby Genius Edutainment Complex" touting the educational benefits of infant-geared videos and DVDs, this evidence certainly calls for more research to determine if it is even possible for children under the age of two to learn from the two-dimensional screen.

Given the research on the video deficit effect from behavior imitation studies (e.g., Barr & Hayne, 1999), language (Kuhl, Tsao, & Liu 2003) and emotion studies (Mumme & Fernald (2003), and object retrieval studies (e.g., Troseth & DeLoache, 1998), there is certainly some doubt that the media products from companies such as Baby Einstein and Brainy Baby can deliver on their promises, both implicit and explicit. Anderson and Pempek (2005) noted that overall, there is very little evidence that children younger than two years old learn anything useful from television and that television has a different impact on children younger than two than it does for older children. These researchers believe that, given the research of DeLoache and others, the possibility of

learning from the small screen certainly exists after age two, but express doubt that the same can be seen during the first 24 months.

However, if learning from televised content before age two is indeed possible, it appears that the second year of life, 12 to 24 months, is a logical place to start investigating this phenomenon. When examining the "learning from television" literature as a whole, it appears that before age 12 months, children cannot effectively use the two-dimensional screen to successfully complete an imitation task, while children in their second year of life have some success with such tasks (e.g., Barr & Hayne, 1999). Additionally, recall that the research on attentional inertia also demonstrated that children in their second year can sustain attention to comprehensible media much longer than infants in their first year (Richards & Cronise, 2000). Attention is the necessary precursor to comprehension. Thus, it is reasonable to begin to investigate whether very young children can learn from television by examining those children most likely to sustain attention to the programming itself: children between 12 and 24 months old.

Research Questions and Hypothesis

One of the objectives of the current study was to take a closer look at how baby DVDs are being marketed to parents. As mentioned previously, the CCFC has filed complaints against both Baby Einstein and Brainy Baby for their alleged false and deceptive advertising, and as a result both companies have changed their tag lines. But beyond the use of such slogans, how does the company represent its product to parents? What appears to be the marketing strategy? Thus, the first research question is as follows:

RQ1: What impressions are being given about infant DVDs via marketing efforts by both Brainy Baby and Baby Einstein?

Whether the impressions such companies strive for in their advertising and marketing actually come across to parents is another matter. Therefore, a second objective of the study was to determine if parents are swayed by the "Baby Genius Edutainment Complex" to purchase and use their products to enrich their children's lives. Thus, the second research question is as follows:

RQ2: Why do parents choose to use/not use these DVDs?

Given the literature on very young children's difficulty in learning from video, a third objective of this project was to assess the claims made by one of the leaders in the infant DVD market: Brainy Baby. The company assures parents that use of their "Letters" DVD will aid children between eight months and five years old in learning the letters of the alphabet by associating letters with familiar objects (Brainy Baby, 2007a). The third research question addresses this claim by asking the following:

RQ3: Do infants between ages one and two learn from Brainy Baby's "Letters" DVD?

Recall that some of the imitation studies done with infants found that several repetitions were necessary before children in their first and second year were able to mimic a behavior (e.g., Barr et al., 1996). Thus, the fourth research question asks the following:

RQ4: How many repetitions are necessary before the infant begins to display comprehension of the material presented in the DVD?

In addition, as Anderson and Pempek (2005) point out, attention is a necessary precursor to comprehension and learning, thus a measure of how attentive a child is to specific content may reveal something about how well or how quickly a child begins to display

comprehension of the material. Accordingly, the fifth research question asks the following:

RQ5: Is the duration of look (eyes on screen) related to the overall comprehension score?

While this project focused on short-term learning (i.e., display of comprehension immediately following a viewing session) much like the language (Kuhl et al, 2003) and emotion (Mumme & Fernald, 2003) studies of learning in infancy, there is some indication in the imitation study literature (e.g., Barr & Hayne, 1999) that once a young child learns a behavior, it can be recalled at a later date. Thus, the current study also asks the following question:

RQ6: Once a child displays comprehension of the material, does the memory for the learned material remain over time?

Lastly, given the developmental research available reporting that older infants appear to learn more quickly (e.g., Colombo, 1993), this project makes the following prediction:

H1: Older infants will comprehend the material more quickly than younger infants (i.e., require fewer repetitions of the material).

CHAPTER THREE

METHODOLOGY

This chapter describes the method for each phase of the study. This project was completed in three distinct phases, each phase informing the next: a qualitative content analysis of marketing and advertising by both Baby Einstein and Brainy Baby, interviews with parents, and a quasi-experiment with children between 12 and 24 months old. Each phase is explained in detail below.

The study utilizes a post-positivist mixed-methods design: the qualitative marketing analysis and interviews, and the quantitative quasi-experimental design. According to Lindlof and Taylor (2002) post-positivists believe that mixing qualitative and quantitative research is acceptable because of their view of reality: the world is composed of "complex phenomena that exist independently of individual perception… human beliefs about these phenomena, however, are inevitably multiple, partial, approximate, and imperfect" (p. 9). People behave in patterned ways, but the perceptions of those patterns can differ from person to person. Thus, the use of multiple methods enhances explanations of complex phenomena to the post-positivist. Indeed, Jick (1979) is a proponent of mixed methods research, or "triangulation," because the use of multiple viewpoints can allow for greater accuracy and can capture a more complete, holistic, and contextual portrayal of the units under study; the quantitative methods provide statistical analyses that are given context and depth of understanding from the qualitative methods. Accordingly, this study utilizes both methods.

Phase One Method

Before delving into the usefulness of baby videos themselves, it is imperative to examine the companies behind this highly successful venture, thus the first phase of this project consists of a qualitative content analysis of the advertising and marketing of both Baby Einstein and Brainy Baby. In order to place the study of these media products in the proper framework, this project began with a qualitative content analysis of the advertising and marketing strategies of both companies. Because so little prior research exists detailing marketing strategies of the "Baby Genius Edutainment Complex," this portion of the project is very much exploratory. Though one of the strengths of the method of qualitative content analysis is its openness, a basic conceptual framework for the analysis is also necessary; a combination of Dimmick's (2003) media niche theory and Keller's (1993, 2003) brand equity theory provide a guiding theoretical framework to inform the analysis.

Qualitative Content Analysis

Although perhaps not as popular as its quantitative counterpart, qualitative content analysis is nevertheless an acceptable scientific method of inquiry. Mayring (2000) defines qualitative content analysis as "an approach of empirical, methodological controlled analysis of texts within their context of communication, following content analytic rules and step by step models, without rash quantification" (para. 5). As Maxwell (1998) noted, qualitative research requires a flexible, nonsequential approach and consequently, as Neimeyer and Gemignani (2003) explained, its process cannot be represented by a clear-cut model with distinct steps. Instead, the process is more complex, idiosyncratic, and fluid. Schilling (2006) uses the image of a spiral to map out

the process of qualitative content analysis, with movement in analytical circles from one level to the next (see Figure 3.1).

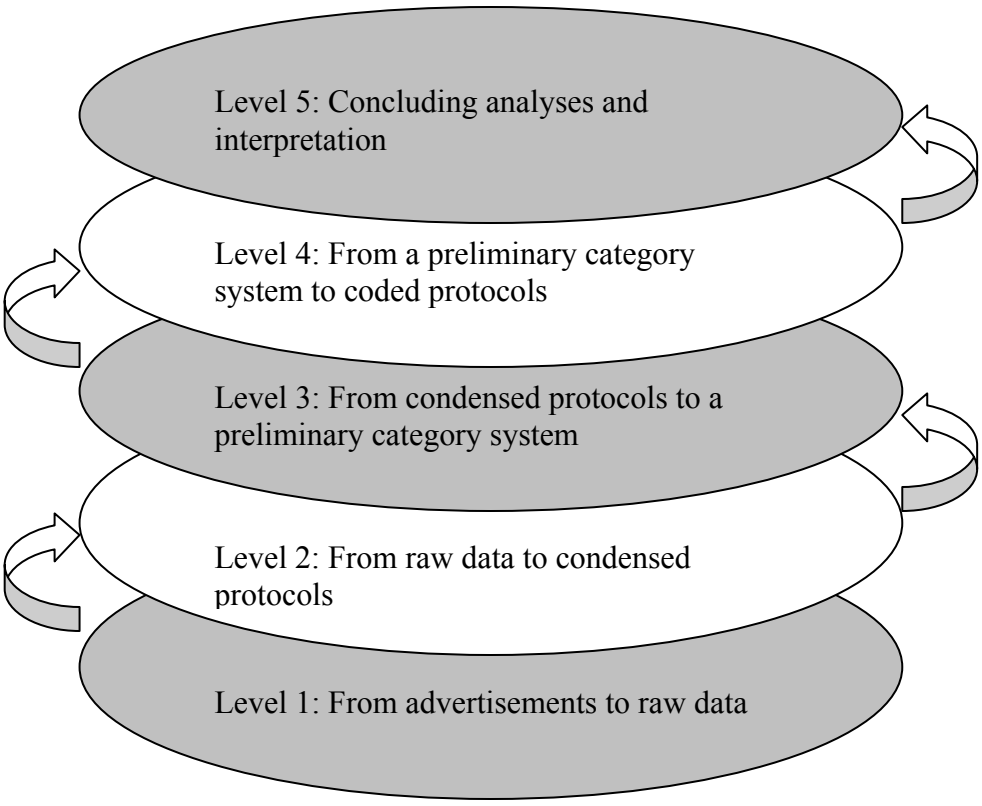

Figure 3.1: The qualitative content analysis spiral
Adapted from Schilling (2006) p. 29

Within the field of communication, there is ample justification for the qualitative content analysis of messages rather than a simple tally of how many times a variable occurs. In fact, as McDowell (2004) notes, this method allows for the focus to remain on advertising as a window or mirror that enables a better understanding of an external culture; it has the capacity to reveal more about the underlying issues facing an industry. Gunter (2000) explained that increasingly, media studies are adopting somewhat of a

hybrid approach to content analysis – bridging the strict quantitative measures and more cultural approaches – and developing more complex thematic analysis of messages that combine systematic coding with more interpretive sensitivity. In this phase of the study, this more "hybrid" approach is taken, using what Lindlof (1995) referred to as the "constant comparative" technique.

According to Lindlof (1995), the constant comparative technique is designed to organize data, and then consolidate data into parsimonious categories. As adapted by McDowell (2004), the execution of this technique involves the following basic stages:

1. Comparative assignment of incidents to categories
2. Elaboration and reinforcement of categories
3. Searching for relations and themes among categories
4. Simplifying and integrating data into a coherent structure (p. 221)

This phase of the study follows these four basic steps, a process that is very similar to Schilling's (2006) content analysis spiral.

Keller (2003) recommended that when performing an analysis much like the one in Phase One of this study, researchers focus on both what he terms "points of parity" (i.e., associations that are common to both brands) and "points of difference" (i.e., unique associations to one particular brand). The differences are often based less on tangible characteristics and more on the intangible, as "in many situations intangible image associations may be the only way to distinguish different brands in a product category" (p. 5). Thus, this analysis will focus not only on the explicit, but also on the implicit messages in the marketing campaigns of both companies.

The focus of this phase of the study was not concerned with the persuasiveness of the advertising and marketing of Baby Einstein and Brainy Baby so much as with an examination of the strategies these companies employ to brand themselves as beneficial products for infants and toddlers. Thus, the method centers on analyzing the explicit and implicit messages embedded in the advertisements. A basic assumption of this study is that the "inherent message of a business advertisement will offer insight into not only the company that created the advertisement but more important, a broader insight into the industry in which the company competes" (McDowell, 2004, p. 217). While this study does not sample from marketing and advertisements from companies other than Brainy Baby and Baby Einstein, it is likely that this examination can inform us about the marketing strategies of the "Baby Genius Edutainment Complex" as a whole and the messages they attempt to convey through their advertising and marketing.

Sample

This study employed a sample of magazine advertisements, websites, and a televised commercial advertisement. Before conducting the study, it was determined that Baby Einstein advertised in magazines and on television as well as relying on its website to market and sell products. Brainy Baby does not currently utilize printed or televised advertisements, instead marketing its products solely via its website (N. Buffone, personal communication, October 11, 2007). In the coming months, Brainy Baby will begin marketing via catalog as part of a distribution partnership with BabyCrazy, but the catalog and products will not be available until September 2008 (PRWeb, 2008). Brainy Baby did, however, advertise its videos in a *Pregnancy* magazine buyer's guide in 2005

(leading to the CCFC's complaint to the FTC), and that advertisement is included in this sample (see Appendix A).

A census of all family-oriented magazines (including anything targeting expectant mothers or current parents) was conducted at two major national book store chain locations in October, November, and December of 2007. All advertisements for Baby Einstein products were flagged, and repeated advertisements with identical copy and graphics were not included. Advertisements were selected if they met two criteria: 1) The ad was for a Baby Einstein product and 2) The highlighted product was a video or DVD (as opposed to other advertised Baby Einstein products such as toys, baby/toddler plates, cups, and cutlery, as well as bath soap). This search yielded three unique advertisements, one each in the following magazines: *Parenting* (October 2007), *Mom & Baby* (Fall 2007/Winter 2008), and *Good Housekeeping* (December 2007) (see Appendix B). The first of the three print ads is termed "Piano" for the remainder of the project, as it prominently features a toddler playing a piano; the second is termed "Dad and Baby," as it features a man with an infant; and the third is termed "Bubbles," as it features a woman with a toddler who is trying to catch bubbles in the air.

In addition, during the holiday season of 2007 Baby Einstein released a new product – *Lullaby Time* – and ran a televised commercial advertisement to promote the DVD. The 30-second televised ad was recorded on December 10, 2007 on the cable network HGTV.

Lastly, websites for both companies were visited in early December 2007 and each unique page within the site was printed out for analysis (see Appendix C). Baby Einstein updated and upgraded their website in February 2008, so the analysis then

focused on the new website design. The Brainy Baby website remained unchanged. As both websites contained countless pages of information, this study limited the analysis to the homepage itself and only those additional pages that had links on the homepage. Links to such information as shipping policies, privacy policies, becoming a retailer, and store locators were not included in the analysis, as they contained little verbiage and no graphics. Thus, the analysis of the Baby Einstein website included the homepage plus 11 additional pages within the site and the Brainy Baby website analysis included the homepage plus 10 additional pages within the site.

Coding Categories

The manifest and latent content of the 4 printed ads, the 30-second commercial, and the 23 total website pages were coded in a number of different dimensions. As no previous analyses of baby video/DVD ads were found during the literature search, no coding templates existed. Accordingly, this analysis was informed by suggestions from several sources regarding the general analysis of advertising content (e.g., Baker, 2007; Daybell, 2007; Rank, 2007; Wilson, 2005). The resulting coding guide contained 33 items in six broad categories: the mood, the design, the context and content, signs and symbols, language and typefaces, and themes (see Appendix D). As there was only one coder for Phase One, validity was achieved via triangulation with parental interviews (see Chapter Four) and peer debriefing, whereby a doctoral student not affiliated with this project reviewed and asked questions about the study to ensure that the account given in this analysis will resonate with readers other than the researcher (Creswell, 2003).

Analysis

As noted above, this analysis utilized the constant comparative technique with the aid of a semi-structured coding guide. According to McDowell's (2004) interpretation of this technique, the procedure involves the comparative assignment of data into categories, the elaboration and reinforcement of categories, a search for relations and themes among the established categories, and finally a simplification and integration of data into a coherent structure. Thus, by examining each unique advertisement in turn – both print and televised – and then examining both websites, the researcher analyzed the materials for both implicit and explicit evidence of marketing strategies that attempted to portray these products as possessing valuable and unique characteristics in some way. Using the coding scheme as a guide, a constant comparative technique of sifting through the ads and websites several times was employed.

Phase Two Method

The second phase of this project consists of parental interviews. The objective of the interviews is two-fold: 1) To gain an understanding of how parents perceive the marketing and advertising of baby videos to triangulate the data from Phase One, and 2) To gain an understanding of the media habits of the children participating in Phase Three.

Sample and Recruitment of Participants

Parents were recruited to participate along with their children in this study, and thus were chosen if 1) They had a child between the ages of 12 and 24 months, and 2) If they agreed to allow their child to participate in the quasi-experimental phase of this project. As discussed below in Phase Three of the study, a power analysis revealed that 30 child participants would suffice for the quasi-experiment, thus one parent of each child

was interviewed for Phase Two. As Phase Three included two sets of fraternal twins, 28 parents were interviewed. Twenty-six parents were interviewed in their homes and two were interviewed in their workplace.

Participants were recruited via electronic listservs, whose members largely resided in a mid-sized southeastern town, and word-of-mouth snowball sampling. Permission to post a message on each listserv used was granted by the listserv administrator. Lindlof and Taylor (2002) explained that snowball sampling involves enlisting someone to serve as both interviewee and as a guide to potential new interviewees, and Biernacki and Waldorf (1981) define the technique as recruiting a sample "through referrals made among people who share or know of others who possess some characteristics that are of research interest" (p. 141). Those participants recruited via listservs were asked to recommend other parents of 12- to 24-month-olds who might agree to participate, thus yielding the sample of 28 parents.

Interview Format and Protocol

Interview Guide

For Phase Two, an "interview guide" was used, rather than the more formal or standardized "interview schedule" (Lindlof & Taylor, 2002) (see Appendix E). As explained by Gordon (1969), the interview guide "emphasizes the goals of the interview in terms of the topics to be explored and the criteria of a relevant and adequate response" (pp. 264-265). The interview guide was developed following Kvale's (1996) guidelines for a semi-structured interview. All interviews began with the "grand tour" (Lindlof & Taylor, 2002, p. 195) question: *Does your child watch television?*

Follow-up questions were asked dependent upon the answer to the first question. If a participant answered "yes," questions were asked such as: *Does he/she watch every day? Why does your child watch? During what times of the day? How long does he/she watch? What types of programs does he/she watch? Does your child have a "favorite" television program?* If parents answered "no" to the first question, they were asked to elaborate upon *why* their child did not watch. The interview guide (see Appendix E) was used to broach specific topics of interest to the researcher but the participating parents were allowed to elaborate on any topic of their choosing. Additional key topics of interest included whether the family owned baby videos and how they came to own them, how their child behaved when the videos were on, what impressions the parent was given about the products from the marketing and advertising, and how both their pediatrician and other parents felt about such products.

Analysis

Interviews were tape-recorded and transcribed by the researcher and an assistant. Transcripts of the interviews were reviewed by the researcher and were analyzed via categorization of themes. Spiggle (1994) explained that the "essence of categorization is identifying a chunk or unit of data (e.g., a passage of text of any length) as belonging to, representing, or being an example of some more general phenomenon" (p. 493). Open coding, defined by Strauss (1987) as unrestricted coding of data line-by-line, as well as axial coding, or the relation of "subcategories to categories and [the] development of the properties and dimensions of the categories," (Morgan, 2006, p. 35) were utilized throughout the study. Thus, the data were continuously categorized and re-categorized as new themes emerged.

As this phase of the project is qualitative in nature, the credibility or trustworthiness of the process of data analysis becomes the focus, rather than validity per se. Trustworthiness can be defined as claims substantiated by evidence, or as conclusions based on thorough and sensitive data collection and analysis (Morse, 2001). Criteria for evaluating such trustworthiness were developed by several researchers (e.g., Glaser & Strauss, 1967; Lincoln & Guba, 1985; Strauss & Corbin, 1998) and included components such as credibility, dependability, and confirmability.

According to Glaser and Strauss (1967), credibility is maintained when the researcher remains neutral in relation to the data, provides a detailed description of the collection, analysis and presentation of the data, and performs the research and analysis process as outlined. Dependability provides a method to determine reliability in that it is demonstrated by an audit trail of the research process. Confirmability is a clear presentation of findings that can be deduced from the data collected (Morgan, 2006). According to Glaser and Strauss (1967), Lincoln and Guba (1985), and Strauss and Corbin (1998), the use of thick descriptive data and the strict maintenance of the audit trail can establish both dependability and confirmability.

An additional validity check performed during Phase Two analysis was completed via "member validation." As defined by Lindlof & Taylor (2002), member validation means "taking findings back to the field and determining whether the participants recognize them as true or accurate" (p. 242). While still in-progress, the analysis was taken back to one of the participating parents who was asked questions regarding the portion pertaining to her interview, such as: "Is there anything you feel was misrepresented" and "Does this appear to be a fair assessment of your statements?" In

qualitative research, such member checks are crucial in maintaining accurate representations of data (St. Pierre, 1999).

Phase Three Method

The third phase of this project consists of an exploratory repeated measures quasi-experiment with multiple exposures to the stimulus with 12- to 24-month-old children. A quasi-experiment is defined by Hocking, Stacks, and McDermott (2003) as "any research project which, although one or more features of a true experiment are not present, the effect of an independent variable is studied" and they explain that the quasi-experiment "attempts to approximate the rigorous comparisons allowed by a true experiment as closely as possible" (pp. 299-300). In this case, random assignment was not utilized; thus, it is not a true experiment.

As Phase Three of this study is exploratory in nature, the project followed a one group pretest-posttest design, making repeated observations both before and after the introduction of the stimulus. As Shadish, Cook, and Campbell (2001) explained, this design is open to many threats to internal validity. As the pre- and posttests were administered immediately before and after the presentation of the stimulus however, the internal validity threat of history was controlled for. Maturation could also be a threat to internal validity, as children this young can get tired, hungry, or fussy; however, the experimental sessions were suspended at the first indication of distress. With a pretest-posttest design, there is always a chance of a testing effect, or the possibility that the pretest itself somehow affects the participants' scores on the posttest, and thus this threat cannot be controlled for in the present design.

Sample and Recruitment of Participants

This study assesses infants between 12 and 24 months old. A sample size of 30 was selected after consulting Cohen's (1988) guidelines. Cohen suggested that when conducting behavioral research, a power value of .80 is sufficient. According to Cohen's guidelines, then, if power is set at .80 and alpha is set at .05, 30 participants should be adequate and sufficient to address the research questions of interest.

As noted above in Phase Two, all infants were recruited along with their parents via electronic listservs and via word-of-mouth snowball sampling. Oversampling was necessary to a degree; thirty two children were recruited as two of the children whose parent's allowed them to participate did not in fact complete any of the pretest or posttest questions or watch the stimulus video. As the two children did not complete enough steps to be included in the final sample, their parents were not interviewed. The data from both children were thrown out and two additional parent-children dyads were recruited, for a total usable sample size of 30.

Apparatus

The quasi-experimental portion of this study utilized segments of a program created by The Brainy Baby Company's Small Fry Productions entitled "Baby's First Impressions: Letters." The Brainy Baby website lists the appropriate age group for this video as eight months to five years and explains, "Our complete line of videos is designed to introduce infants and toddlers to basic concepts like colors, numbers, and letters, or even other languages like Spanish, French or German…Baby's First Impressions® [is] a series of 10 videos that uses bouncy music, babies and puppies

crawling across the screen to introduce educational basics such as, letters, numbers, opposites, animals and more" (The Brainy Baby Company, LLC, 2007, n.p.). The description on the Brainy Baby website for the "Letters" DVD explains: "This video makes the alphabet fun by associating letters with fascinating objects" (n.p.).

The DVD was edited into a four-minute, six-second segment, which consisted of three sections: an introduction, an instructional section for letters A, B, and C, and a review of the letters. The entire video is set to music, but not any recognizable tune. The introduction, which lasts one minute 19 seconds, begins with an African-American toddler, all dressed in purple with her hair in a bow, sitting on a white floor with someone off-screen tossing her the large, multi-colored rubber "floormat" letters (the same letters used in the pretest and posttest; see below). The video then cuts to children of all ages and races playing in a playground, playing with the floormat letters while swinging, sliding, running, and playing in the water fountain. There are no children's voices, only music.

The "instructional" portion of the video begins at one minute 20 seconds and runs until three minutes 53 seconds. The letters A, B, and C are highlighted in this portion of the video, and associations are made between each of the letters with three objects: A with Apple, Airplane, and Arm; B with Bear, Baby, and Balloon; and C with Cat, Clock, and Car. This portion begins with a red screen showing the letters "A" and "a" in bold white lettering while the female voiceover says "A." A large (real) bright red apple is pictured on a white background. The voiceover says "A… apple" three times, and every time she says "apple" the word appears in the lower left-hand corner of the screen in bold white lettering. The video then cuts to four apples "dancing" across the screen, set to

music. The red screen with “A” and “a” reappears (with the voiceover repeating “A”), followed by a scene of an airplane taking off on a runway. The female voiceover says “A… airplane” three times, with the word appearing in the lower left-hand corner each time. The red screen with “A” and “a” appears again, followed by a scene with a bright yellow background and a young Caucasian girl wearing a royal blue t-shirt standing sideways, bending and flexing her arm. A female child’s voice says “A… arm” three times while the word appears in the bottom corner. The video cuts to a scene where a Caucasian girl and boy (preschool-aged) sit on the floor, waving their arms in the air.

The letter “B” starts at two minutes 13 seconds. The letters “B” and “b” are shown in bold white lettering against a bright green background while the adult voiceover says “B”. The video then cuts to a large brown bear walking in a cage – possibly at a zoo – while the adult female says “B… bear” three times. Again, the word appears in the lower left-hand corner every time the word is spoken. The green screen with “B” and “b” is shown again, followed by a scene featuring a Caucasian infant lying on its back on tan carpet, cooing and chewing on its fingers. The adult voiceover says “B… baby” three times, and the word “Baby” is shown each time in the bottom corner. The video cuts to another Caucasian baby on his stomach next to a teddy bear, wearing a blue baseball cap, looking up and laughing. The green screen with “B” and “b’ is shown for the third time, followed by a scene showing three helium-filled balloons (bright red, blue, and yellow), and the same female child’s voice as earlier says “B…balloons” three times. The word “Balloon” appears in the bottom corner each time. The video then cuts to a Caucasian boy, possibly four years old, playing with another bunch of helium-filled balloons in pink, purple, red, yellow, and light blue.

The letter “C” starts at three minutes and two seconds. The letters “C” and “c” are shown in bold white lettering against a light blue background while the adult voiceover says “C.” The video then cuts to a scene featuring a black and white cat sitting on the floor, and the adult voice says “C… cat” three times. The word “Cat” is shown in the bottom corner each time. The video cuts to a different cat (fluffy, tan) for a few seconds while the music plays. The light blue screen with “C” and “c” is featured again, followed by a dark blue background and a ticking white wall clock with black numbering. The same child’s voice from earlier says “C… clock” three times, and again the word is featured in the lower left-hand corner of the screen. The scene then cuts to another white clock on a white background with hands spinning faster than normal speed. The light blue screen with “C” and “c” is featured one last time, followed by a scene in which someone off-camera pushes a royal blue toy car with white stripes across the white screen. The car stops in the middle of the screen and the adult female voice says “C… car” three times. Again, the word “Car” is shown in the lower corner each time. The video then cuts to an old-fashioned, early 1900s, shiny black car driving down the street.

The final section of the video clip is a “review” of the three letters A, B, and C and it begins at three minutes 53 seconds. The first scene shows a four- or five-year-old Caucasian boy jumping out from behind a tree, holding the floormat letter “A” out in front of him. The boy yells, “A!” Next, the video shows an African American girl (who looks to be about six or seven) at the bottom of a slide in the park holding the floormat letter “B” out in front of her. She says, “B!” Lastly, the video shows an Asian baby sitting on a bench, holding the floormat letter “C” in her lap. A voiceover with several children’s voices yells, “C!” The video ends here.

Procedure

For Phase Three of this study, the researcher visited parent-child dyads in their homes, using a nine-inch portable DVD player to play the Brainy Baby video clip (the stimulus). The experimental procedure was video taped on a mini-DV. At both pretest and posttest, the experimenter asked the participants to "match" a letter of the alphabet (A, B, or C) with a still picture from the Brainy Baby video clip (see details below). The test for recognition/learning was whether the infant looked at or grasped the letter correctly associated with the picture presented to them at posttest.

Rationale for Alphabet Letters

The letters A, B, and C were used for several reasons. Research by Justice, Pence, Bowles, and Wiggins (2006) demonstrated that among preschoolers, the letters B, X, O, and A were known by the greatest number of children. In addition, their research showed support for the "letter-order hypothesis," which states that letters occurring earlier in the alphabet (i.e., A, B, C) are learned before letters occurring at the end of the alphabet (i.e., X, Y, Z). Children in their study were 1.02 times more likely to know a letter one position earlier in the alphabet, thus A had an advantage over B, B over C, C over D, and so on. As the concept of "the alphabet" is something that children struggle with even at age four (Justice et al., 2006), the present study sought to use three letters that had the highest likelihood of being recognized by the participants. Thus, A, B, and C were used in the procedure.

Pilot Testing

Pilot testing was performed with two children: a 24-month-old female and a 30-month-old male. During pilot testing, the children were shown three pictures from all

three letters (A, B, and C), for a total of nine pictures. Both children began to lose interest in the task as they got to the "C" pictures, thus in the formal experiment (described below), only six pictures were used – those from letter A and letter B. While the 30-month-old male did not display any observable learning of the material after viewing the video clip, the 24-month-old did indeed correctly match the letters and pictures at posttest after the first viewing of the stimulus.

Testing

Before infants were tested, the experimenter explained the procedure to the parent, asked the parent to sign a consent form (see Appendix F), and asked that the parent say nothing during the video or the testing that would be considered "helping" or "coaching" the child. The experimenter explained that the parent could use the child's name as often as necessary to direct the child's attention to the tasks, but not to say any more. While the researcher set up for the experimental session, parents were asked to fill out a short-form version of the MacArthur Communicative Development Inventory, or MCDI (the same instrument used in the Zimmerman et al., 2007a study; see Appendix G), in order for the researcher to gauge how familiar the infant was with the English alphabet and what words/phrases the child uses regularly (Fenson, Pethick, Renda, Cox, Dale, & Reznick, 2000).

Each parent was asked to sit with the child facing the experimenter, either on the floor or at a table. The video camera taping each session was set up across from the child & behind the experimenter so that the video image captured the child's head and eye movements while he/she completed the pretests and posttests and viewed the DVD (See Figure 3.2). The experimenter introduced herself: "Hi (name of child), I'm here to play

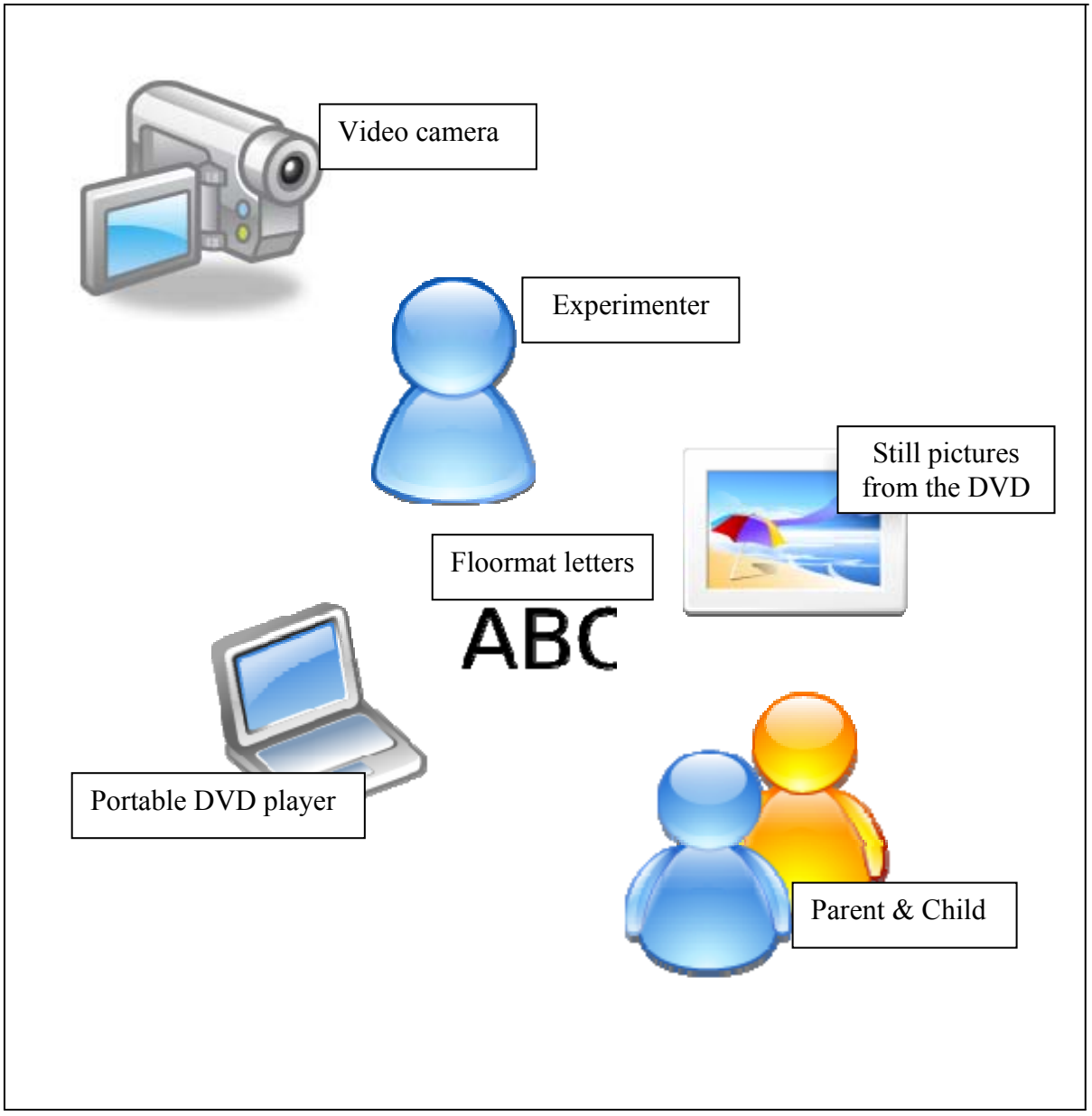

Figure 3.2
Layout of a Typical Experimental Trial

with you for a little while. We're going to watch a video with mommy/daddy in just a little while. But first I want to show you some ABC's." The child was presented with three brightly colored 12 ½-inch x 12 ½-inch "floormat letters" – all three were laid out in front of child, one at a time, within the child's grasp – and the experimenter directed his/her attention to which letter was which: "Okay (name of child), these are the ABCs of the alphabet: This one is A [placed the A in front of child], this one is B [placed the B in front of child], and this one is C [placed the C in front of child]." The child was then allowed to manipulate the letters for up to 60 seconds (or shorter if they seem bored) and the letters were then left in front of him/her within the child's grasp.

At this point, the pretest began. The child was shown a series of still pictures from the "Letters" DVD that corresponded to either the letter A or B (see Appendix H). As noted above, A and B had the highest likelihood of being known to the child. The experimenter presented the child with three laminated "A" picture stills (an apple, arm, or airplane) from the DVD followed by the three "B" picture stills (bear, baby, or balloons) [the child was permitted to hold & manipulate the picture] one at a time. As each picture was presented to the child, the experimenter explained "This is a picture of a _____." The experimenter then asked the child, "Can you show me or tell me: does this picture of a _____ go with A [point to the letter A], B [point to the letter B], or C [point to the letter C]?" Once the child indicated an answer, the experimenter removed the picture and presented the child with the next picture, repeating the above process until the child indicated an answer to all six still pictures.

Once the pretest was completed, the experimenter removed the letters, opened the portable DVD player, made sure the screen was clearly visible by the child, and gestured

toward the screen saying, “Now I want to show you a video about those ABC’s.” The experimenter used the child’s name to direct his/her attention to the portable DVD player screen, i.e., “Okay (name of child), watch the screen [experimenter points at screen].” The 4 minute video clip was played on the portable DVD player. Either the parent or the experimenter used the child’s name to direct his/her attention back to the screen if attention wandered off of the screen for more than 15 seconds; for example the parent/experimenter tapped on the screen saying, “Keep watching!” or “(name of child), make sure you’re watching the video.”

When the video clip was complete, the experimenter closed the portable DVD player and brought out the same laminated pictures from the “A” objects and the “B” objects. The child was again asked if he/she could match the correct letter with the six picture stills from the video. The pictures were presented to the child in the same order as during pretest. The experimenter presented the child with each laminated picture and explained “This is the same picture we looked at before. This is a picture of a _____. It’s the same _____ that we just saw in the video.” The child was then asked, “Can you show or tell me whether this picture of a _____ goes with A [point to the letter A], B [point to the letter B], or C [point to the letter C]?” Once the child indicated an answer, the experimenter removed the picture and presented the child with the next one in the sequence.

If the child successfully chose all six letters correctly, the current session of the experiment was ended. If the child did not successfully choose the correct letter, the experimenter made one of the following decisions: a) Show the video clip again and then retest the child (if the child is still alert & paying attention to the stimuli) or b) Terminate

the experiment for this session and ask the parent if the child may be retested at another time. As research has suggested that infants as young as six months can imitate an action with an object seen on video after six trials (Barr et al., 1996), this experiment allowed each infant a maximum of six trials of viewing the clip and being presented with the posttest before the experiment was ultimately terminated. Due to lack of attention to the stimulus, issues with temperament and willingness to participate, and parental cessation of the testing before six trials were completed, most children completed only one or two trials.

Once a child was in fact successful (i.e., correctly matching all six pictures to the associated letters), the experimenter asked the parent if she could return to their home to test for recall memory of the object-letter pairing. The goal of the follow-up session was to determine whether the child's memory for the picture-letter association was only apparent directly following the DVD presentation or whether perhaps the child had actually learned the material and could recall it at will. If given permission, the experimenter returned to administer the posttest again whenever the parent gave permission, up to one week later. The experimenter reminded the parent not to "coach" the child about the correct object-letter pairing in the interim to prepare him/her for the follow-up.

During such return visits, the child was *not* shown the video, but instead was simply presented with the same laminated pictures he/she was given during the original test along with the same three alphabet letters. The experimenter explained, "This is the same picture we looked at the last time I was here. This is a picture of a _____." The child was then asked, "Can you show or tell me whether this picture of a _____

goes with A [point to the letter A], B [point to the letter B], or C [point to the letter C]?" Once the child indicated an answer, the experimenter removed the picture. The experiment ended here.

Coding

Videos were coded by two independent coders. The coding sheet (see Appendix I) asked each coder to indicate whether the child gave a correct or incorrect answer to each picture-letter question for the pretest and all subsequent posttests. In addition, coders were asked to use a stopwatch to record the amount of time each child's eyes were looking directly at the video screen while the video clips were playing. For several children who happened to move outside of the view of the video camera while viewing the video clips, this data was not recorded. To assess intercoder reliability for these measures, the two coders independently coded the video of one of the pilot test participants. The two coders had 100% agreement on all pretest and posttest responses and a t-test revealed no significant difference in recorded stopwatch time of "eyes on screen" between the two coders, $t(1) = -2.058$, $p = .14$.

Data Analysis

Performance on the one-group pretest-posttest quasi-experimental trials was descriptively analyzed trial-by-trial. In addition, repeated-measures ANCOVAs of data, using the pretest scores as a covariate, were employed to analyze the pretest-posttest scores on the picture-letter pairings. Results appear in Chapter Six.

CHAPTER FOUR

PHASE ONE RESULTS: THE MARKETING ANALYSIS

This chapter describes the results for the first of the three phases of this project. As the phases were completed in order that each phase's results could inform the next, results are presented in chronological order of completion, with results from Phases Two and Three presented in Chapters Five and Six, respectively. This chapter contains the results of the qualitative content analysis of marketing and advertising by both Baby Einstein and Brainy Baby. Chapter Three explained that this phase was carried out via the constant comparative technique (Lindlof, 1995), whereby a constant sifting among advertisements and websites, and constant reference to the coding guide (see Appendix A) resulted in the formation of several categories. These categories were then grouped into three larger thematic categories: Educational, Credible, and Aspirational. All three of these overarching categories are described in detail below.

Recall the first research question: What impressions are being given about infant DVDs via marketing efforts by both Brainy Baby and Baby Einstein? After utilizing the constant comparator method to qualitatively analyze the marketing and advertising of the "Baby Genius Edutainment Complex" via Baby Einstein's print ads, television ad, and website as well as Brainy Baby's print ad and website – and maintaining a focus on niche and brand differentiation – one overriding framework emerged as a means of organizing the raw data. This broad thematic framework was created based upon several categories that emerged during the coding process. Categories included metaphors for "genius,"

metaphors for "learning," reference to the AAP guidelines, parental anecdotes, reference to founders, reference to parent company, "relatable" language, reference to child development, the "perfect parent," the "perfect child," the "perfect relationship," class/elite culture, race/ethnicity/religion, gender of parents and children, and gender of product. One meaningful way to classify this data in order to highlight the impressions being given by these companies about their products was to focus on three broad but salient categories that captured the essence of all of the above categories: Brainy Baby and Baby Einstein appear to brand themselves as "Educational," "Credible," and "Aspirational." Each of these three dimensions will be discussed at length below.

Baby DVDs as "Educational"

As noted in Chapter One, complaints against both Baby Einstein and Brainy Baby were levied by the Campaign for a Commercial Free Childhood (CCFC) to the Federal Trade Commission (FTC) due to intimations by both companies that their products are educational. The CCFC objected to any reference to the DVDs as "educational" as there are no published studies to support this claim, and thus believed any advertising that used the term was false and misleading. While not yet officially censured by the FTC, in the wake of the complaint both companies chose to alter their advertising strategies. This analysis, however, revealed that these changes do not completely eliminate the *idea* of the products as educational. As this section will explore, the associations made between both the written and visual elements to the notion of "learning" in some context appears to suggest that when children are exposed to baby videos early in life, they will become more intellectually curious, if not smarter. As discussed below, the names of the companies, the new tag lines, the use of synonyms for "educational" and "learning," and

the reliance on parental anecdotes continue to place these products squarely in the educational video category.

The age-old question of "What's in a name?" provides a sensible place to begin a presentation of results of the analysis of ads for electronic media created for the under-two's; each advertisement and website analyzed here featured the individual company names and logos prominently. These two companies specifically chose the names "Baby *Einstein*" and "*Brainy* Baby" to communicate something about their products. The names themselves appear to suggest to parents that these products will aid in their children's cognitive development. Brainy Baby's use of a synonym for "smart" or "intelligent" in their name indicates to consumers that the company produces products that will help babies become smarter, and the reference to the brain evokes images of cognitive prowess. Indeed, this is an assumption made by many writers in the popular press (e.g., della Cava, 2002). And of course Albert Einstein is not the creator of Baby Einstein videos, but the company's founder Julie Aigner-Clark tapped into a powerful metaphor for "genius" by including "Einstein" in the company's name. Paired with their logo of an Albert Einstein-like child with glasses and spiked hair, as Gothie (2006) explained, "it is not a stretch to suggest that the name 'Baby Einstein Company' indicates a merchant of products that will help babies attain Einstein-level genius" (p. 9).

As the Baby Einstein Company's website explains that they are not making any claims that their products are designed to make children smarter – instead claiming that their products "are designed to encourage discovery and inspire new ways for parents and little ones to interact" ("About Baby Einstein," 2008, n.p.) – it appears strange to reference Einstein at all. Indeed, evoking the world-renowned name of a producer of

genius-level thinking, thus associating his intellect with their products, while at the same time claiming that their product is *not* educational is counterintuitive. But Gothie (2006) explained how the company can "have their metaphorical cake and eat it too" by appearing to offer a brain-development product while only touting the enrichment potential, or possibility of "discovery", via their DVDs: for parents looking for a video to make their child smarter, the products are a perfect fit; but for parents who are turned off by the culture of pressuring young children to meet high educational standards before they can use the potty properly, they can take comfort in the fact that the DVDs are created to "encourage discovery." As founder Julie Aigner-Clark explained in an interview: "I'm not into pushing kids – I'm exposing them to the arts" (quoted in Gothie, 2006, p. 10).

All of the ads and websites analyzed here (see Chapter Three) take a very logical approach: they appeal to parents' desire to educate their children as early as possible. Advertising is widely perceived as a vehicle for associating brands with positive attitudes and goals (Halliday, 2008) – such as raising an intelligent child – and both of these companies appear to have taken this approach. Nowhere is this as obvious as in Brainy Baby's lone print ad, where they boldly exclaimed, "Since no parent asks, 'Got anything that'll make my kid dumber?'" in large font across the top of the ad. While none of the print ads – either Brainy Baby or Baby Einstein – actually feature the children *using* any of the infant products themselves, the basic thrust of the ads is to associate these two companies with giving young children a "leg up" of sorts in their education. Brainy Baby's ad all but claims this, stating, "Your child's education begins at birth. That's why the Brainy Baby video series was created, to give your child a jump start on learning,"

while Baby Einstein's ads communicate this more subtly, focusing on the idea of fostering "discovery" and "curiosity" in small children.

As mentioned above, both companies changed their tag lines after a complaint was filed with the FTC. Initially, Brainy Baby boasted, "A little genius in the making" while Baby Einstein's logo had the caption, "Great minds start little". Brainy Baby changed to "Learning for a lifetime" and Baby Einstein to "Where discovery begins." This use of language leads directly to the second observation from the data that supports the creation of this "Educational" category: the consistent use of terms throughout the advertising and marketing that are synonyms for "educational." While only Brainy Baby actually uses the word "educational," these synonyms communicate the same idea: these products are designed to teach something to children. Primarily, the terms "discovery," "curiosity," "learning," and "enrichment" appear prominently.

Brainy Baby, even post-FTC complaint, continues to use the word "education" in some capacity on their website, such as in the "About Brainy Baby" section which reads in part:

> Our award-winning products introduce educational subjects such as letters, shapes, animals, art and music… we are proud of the way the Brainy Baby family is expanding, and of the opportunity to give parents the tools to expose their children to educational basics (n.p.).

However, Baby Einstein appears to be a little less explicit about just how "educational" their products are, instead focusing on the ideas of "discovery" and "curiosity." In fact, the caption in two of the ads ("Piano" and "Bubbles") reads, "They're already curious. All you have to do is nurture them." Paired with the tag line of "Where discovery begins," Baby Einstein places much emphasis on a baby's twin senses of curiosity and discovery. While "discovery" does not itself equal "educational," it certainly implies

some form of learning. In fact, in Webster's (2008) definition of the word, one finds this: "to obtain sight or *knowledge* of for the first time," and the following synonyms: "discover, ascertain, determine, unearth, *learn*" (n.p., italics mine). "Curious" is defined as "marked by desire to investigate and *learn*" (n.p.). Indeed, it appears the company is implying that their products will help your child learn, without actually saying the word "learn".

The notions of curiosity and discovery are not just seen in the explicit language; the visual elements of the ads also convey these ideas. In Baby Einstein's "Piano" ad, the child pictured is ostensibly curious enough to want to learn how to play the piano, although as this child is still a toddler it is clearly too early in life for her/him to actually be playing anything of consequence. This image does, however, evoke the notion of a child prodigy, and perhaps that is precisely the image Baby Einstein wants to promote. In the "Bubbles" ad, the caption "They're already curious. All you have to do is nurture them" appears under the baby's arm as she's reaching up toward the bubbles, highlighting her curiosity; it's as if the company is saying, "See? She really *is* curious!" All of the references to curiosity and discovery by this company suggest that perhaps babies will not learn about the world around them without the aid of their DVDs; the basic idea here seems to be that if you expose a child to Brainy Baby and Baby Einstein products early in life, the child will be smarter, more intellectually curious, and more willing to try new things.

However, the Baby Einstein ads do convey some contradictory messages as well. In the "Dad and Baby" ad, the caption reads: "It's not what's in the box that's the gift but the moment that it brings." Here, the company romanticizes the idea of Baby Einstein as

an avenue of discovery about the world and highlights the fact that by purchasing their product, you're not just buying a DVD, but giving the "gift" of discovery. At the same time, however, when paired with the visual elements on the page, a consumer could be confused by this prose. A man is shown relaxing in his home with his child at his feet, spending "quality time" with the child. While the child is looking off the page (perhaps at a Baby Einstein DVD), the child is not pictured actually using one of their products. The emotional response evoked here hinges not upon buying things for your child, but rather upon spending quiet time with her/him. Thus the contradictory message: you don't really *need* our product to bond with your child, but buy it anyway "for the moment that it brings."

Indeed, the "Bubbles" ad is essentially one big contradiction as well: the parent and child dyad in this ad are pictured outdoors, trying to catch bubbles that someone has blown – they are certainly not watching a Baby Einstein DVD. Here, the baby is discovering the world around her by *being in it*, not by watching it on television in her living room. At the same time, the company is selling its product by communicating that their DVDs can foster a sense of discovery in children. Why would a child need a DVD when she can just go outside and see for herself? Perhaps the company is saying that without their products (i.e., "Where discovery *begins*"), children will not know what to do when placed in the outside world – Baby Einstein will teach them how to discover. Baby Einstein-reared children will learn more from the world than non-Baby Einstein-reared children. Thus, a key inference a reader must make when looking at this ad is that the company will help a child *learn how to discover*, and only then will she see the fun and excitement in playing outside. The voice-over in the DVD extra "About Baby

Einstein" found on all Baby Einstein DVDs seems to agree with this interpretation, as we hear Julie Aigner-Clark explain, "Baby Einstein – Mom's number one choice will stimulate your baby's sense of natural curiosity."

Another keyword used by Baby Einstein is "enrichment." The same DVD extra described above culminates with "From play time, to bath time, to travel time, to nap time, Baby Einstein can enrich every part of your baby's life." The word also appears all over the website. For example, the "About Baby Einstein" webpage (very similarly worded to the DVD extra) explains that the products provide parents an opportunity to "introduce your baby to the world around them in playful and enriching ways" and the "Baby Einstein Gift Finder" webpage tells visitors that they can feel confident "knowing you're giving a gift that inspires creativity and exposes baby to music, art, language, and nature in a variety of playful and enriching ways" (n.p.). According to Webster (2008), to enrich is "to supply with knowledge; to instruct" (n.p.). Much like the use of both "discovery" and "curiosity," then, "enrich" gives Baby Einstein another way to say "educational" without saying "educational."

Brainy Baby appears to be bolder than Baby Einstein with their language again, consistently referring to "learning" explicitly, while Baby Einstein only implies that learning that place with their products. Their new tag line says it all: "Learning for a lifetime." While this new motto may be less explicit than the previous one ("A little genius in the making") about the capacity of their products to teach, they may still be opening themselves up to censure from the FTC. Without any research to back up educational claims, they are taking the chance that they once again might be cited for false and/or deceptive advertising. In fact, Brainy Baby refers to their DVD's as a

"Learning Library" and wants to give children a "jump-start on learning" according to their print ad. Their homepage references the "entertaining lessons" found on their videos. In addition, various pages on their website highlight the "preschool basics" being taught, the introduction of "important skills" like object permanence and cause-and-effect, and other "educational basics" found on Brainy Baby's "reality-based and intelligent" DVDs and videos. On the "Brainy Baby Parent Guide" webpage, the company explains: "Your child's education is important… we believe education is a gift that parents give their children to help them develop a love of learning" (n.p.).

Baby Einstein, rather than explicitly stating that learning takes place with the use of their products, relies instead upon implications and parental anecdotes submitted to their website. On their homepage, visitors find an interactive grouping of parents with their children – running a mouse over each dyad results in different effects, such as music, voice-over, and animation. For example, running a mouse over the picture of a man holding a small baby in his lap results in the caption, "b-ba-baby, m-ma-mama, p-pa-papa" and if the image is clicked the new caption becomes, "Dylan has a b-buh-ball with storytime" while a visitor to the webpage hears the man reading along with the Baby Einstein talking book and the baby cooing. Running a mouse over a picture of a woman and infant sitting cross-legged on the floor results in the pair being surrounded by shapes; once clicked, the caption reads, "Logan's growing curiosity takes shape" and the animation shows the pair watching a video featuring shapes while the mother says "oh, look!" and the baby laughs. In the first example, the company highlights the adult's efforts at sounding out words for the baby – clearly too young to begin actually reading – but leaves visitors to the website with the impression that there is the potential for a child

this young to learn how to read, with the help of Baby Einstein. By using one of their keywords, "curiosity," in the second example, the company evokes the idea of learning; ostensibly, Logan is "learning" his shapes from the DVD he's watching.

Parental anecdotes are a powerful tactic that permeate the Baby Einstein website and add to the overall feeling that their products are educational. In the middle of the screen on the homepage, comments supposedly submitted by parents appear and are replaced by new comments every five seconds. Some examples include, "Madilyn will say what animal or object is on the TV," "My son Austin names all the animals on Baby Noah," "Vivaldi is her favorite," "I was so surprised when I saw my daughter making the sign with the video," and "We walked into a restaurant and my daughter stopped and said, 'Listen everyone… it's Mozart.'" Clearly, these parents are sharing incidents in which their children have *learned* something from Baby Einstein products. Personalizing these anecdotes with the children's names only adds to the credibility of the statements, something that is discussed in detail below.

In addition to pulling out the language used (and implied) in these ads and websites that indicate the products are somehow educational, the products themselves speak to a more societal or cultural emphasis on education. The notion of "Extreme Parenting" described earlier is certainly reflected in the mere existence of these companies: corporations that exist to give children an educational experience as soon as they enter the world. While the "chicken or the egg" question of which came first – "The Baby Genius Edutainment Complex" or the "Extreme Parents" – is outside the scope of this project, it is certainly clear from the advertising and marketing of these companies that they are assuming that parents do have a need for their products. The target audience

for each of these ads consists of parents of young children who want to give their children "an edge" by exposing them to educational media as soon as possible, and these companies want parents to believe that they can create brilliant children with the help of their products. After all, in American society we value the individual and people are encouraged to "make something of themselves" as early as possible; perhaps the use of entertaining and educational videos in infancy can start children down the road to success.

Interestingly, both companies – in addition to touting the benefits of using their products – make a point to rebut the AAP's recommendation of no screen media for children under the age of two. They both believe that the potential for learning from electronic media exists in the first two years of life. While Dennis Fedoruk, President of Brainy Baby, is quoted on the website as explaining that "Not all videos are created equal, especially when it comes to those for young children" (n.p.), he follows his statement by explaining that "studies show that age appropriate content and educational television programs help children develop language skills, pro-social behavior and school readiness" (n.p.). On the "Brainy Baby Parent Guide" webpage, there is a whole section termed "Should Babies Watch TV?" which begins by explaining that "as of yet, there have been no published studies to validate what makes a successful 'educational video'" (n.p.). This statement is followed by sections outlining what consumers can expect from Brainy Baby products: no commercials (which do appear on Baby Einstein videos), short segments designed to be viewed in many sittings, and no "repeat play" feature on the DVDs created for the youngest babies (with a request that parents use this feature responsibly with older children). In addition, the company explains that turning off the

television or pausing between concepts can help children better retain information, and that they are continuously on the lookout for the latest research on education, learning styles, science, and psychology to apply to their products.

Baby Einstein's webpage "About Baby Einstein" has its own section titled, "Children and Electronic Media" that addresses the AAP's recommendation more directly. The company explains that:

> While we respect the American Academy of Pediatrics, we do not believe that their recommendation of no television for children under the age of two reflects the reality of today's parents, families, and households – for example, a recent Kaiser Family Foundation study found that 68% of all babies under two years old watch screen media on any given day. The Baby Einstein Company believes that when used properly, developmentally-appropriate video content can be a useful tool for parents and little ones to enjoy together (n.p.).

The rest of the section highlights parental discretion regarding the "appropriate use of television" and ends by explaining that their DVDs are only one tool parents can use to interact with their children. Both companies are very clear that their videos and DVDs are designed to be used interactively – something discussed in more detail below – and not to be used as babysitters.

Baby Einstein and Brainy Baby as "Credible"

Sifting through the ads and websites several times resulted in a second over-arching category: credibility. First, the magazines in which Baby Einstein's print ads were located immediately lend credibility to the products, as the publications are associated with quality. The ads were featured in *Parenting* magazine, *Good Housekeeping* – a publication's whose "seal of approval" is much sought-after – and *Mom & Baby* magazine, which is published by FitPregnancy and whose tagline is "caring for both of you." Via taking a closer look and examining both implicit and explicit

messages in the advertising and marketing, it became clear that establishing further credibility with readers, visitors, and consumers was very important to both companies. In general, both Brainy Baby and Baby Einstein accomplished this goal in several ways: using direct statements about each company's founder and history – focusing on the "family friendly" or "safe" aspect of their products – and communicating messages in a relatable manner.

The Baby Einstein Company is not shy about proclaiming Disney as their parent company. The Disney logo is prominent in all of their advertising and on their website and in fact is an integral part of the Baby Einstein logo itself – after all, it's "Disney's Baby Einstein." In fact, the voice-over on the television ad describes *Lullaby Time* as "new on Disney DVD" – not "Baby Einstein DVD." By associating themselves with the Disney name, Baby Einstein communicates credibility in the "family fun" arena. Disney has consistently prided itself on being a company dedicated to children and families. As Fisher noted, "People would go to a Disney film, buy a Disney record, or go to Disneyland because they knew what they were getting—good, clean family fare with no sex, a minimum of violence, and a happy, satisfying ending" (as cited in Montgomery, 1995, p. 6). O'Brien (1996) noted, "Disney has created a mythic image of all Disney productions as wholesome, family entertainment for 'children of all ages'" (p. 155). Indeed, Michael Eisner, who served as Disney's CEO from 1984 to 2005, wrote in the company's 2002 Annual Report that "Disney is about family, fun and fantasy" (Eisner, 2002). Parents, then, are lead to believe that by purchasing a Baby Einstein product, they are treating their children to family-friendly fare.

In addition to associating themselves with Disney, Baby Einstein consistently reminds viewers of their television commercial and visitors to their website that the company was founded in 1997 by Julie-Aigner Clark, a mom who "wanted to share her love of humanities with her baby" ("About Baby Einstein," 2008, n.p.). Clark does the voiceover for the television ad and is featured prominently on the Baby Einstein homepage. In fact, she has a whole separate page within the website called "Julie's Corner," where she writes an open letter to parents. The homepage directs parents to this page by explaining, "Visit Julie's Corner for ideas on how to make everyday moments with your baby more meaningful" (n.p.). The short biography of Clark reminds visitors to the site that she is a former English teacher and a mother of two. Thus, she's educated but she's also someone parents can relate to.

In a similar fashion, Brainy Baby highlights their founder Dennis Fedoruk on their website. On the "About Brainy Baby" page (retrieved by clicking on a link on the homepage), the company explains that in 1995, Fedoruk – a successful filmmaker and video producer with over 25 years of experience – and his wife couldn't find quality educational videos for their young sons, so they decided to produce their own. Much like Clark's story above, the company represents their founder as a parent, or someone deeply concerned about the welfare of young children. The webpage further explains, "The Brainy Baby Company was the first in the industry to create this type of 'edutainment' video" (n.p.). Thus, while the company has "stood the test of time" much like Baby Einstein, they were the *first* to create baby videos. This lends them further credibility.

Both companies also highlight their videos as "developmentally appropriate," evoking a sense that children's developmental stages are truly taken into consideration

when crafting these products. For example, Baby Einstein's website explains that the company has "built its reputation on creating developmentally appropriate content that parents/caregivers know they can trust to use with their little ones" (n.p.). The idea of *trust* is the key here; many studies of source credibility propose that trustworthiness and expertise are the most important components of source credibility (Hovland & Weiss, 1951; McCracken, 1989). The notion of trustworthiness is a key aspect of source credibility, as it refers to the perceived sincerity, honesty, and objectivity of the information source (McCracken, 1989), and here Baby Einstein explains that they can be trusted as a source for developmentally appropriate videos for babies. In addition, they espouse their expertise by offering "expert" advice on their website. Expertise is a second important dimension of source credibility, referring to the perceived ability of a source to make valid assertions about the issue at hand (McCracken, 1989). By clicking the "Hot Topics" link on the Baby Einstein homepage, visitors are brought to their "Ask the Expert" webpage featuring advice from Karen Hill-Scott, Ed.D., a "nationally-recognized expert in child care and development" (n.p.). The use of such an expert communicates to website visitors that Baby Einstein knows what is best for children, and that they can be trusted as a credible source for child development tools.

Brainy Baby also relies on reference to child development to communicate credibility. Brainy Baby's homepage gives parents a link to an "Age Range Chart" that will show them which of their products are appropriate for children of different ages. In addition, on their "Parent Guide" webpage, Brainy Baby refers to what "experts" say – highlighting their expertise and credibility as a trustworthy source as explained above – regarding the capacity for learning in children between birth and age three, and tout their

products as making a difference during this "window of opportunity" (n.p.). In addition, they explain that they apply the most recent studies in the fields of education, learning styles, science, and psychology to each of their products. All of this is done to appear more credible in the eyes of parents.

Both Baby Einstein and Brainy Baby cite several awards in their marketing and advertising, lending further credibility to their products. For example, Baby Einstein's "Dad and Baby" print ad reads "WINNER of the AMBY Award's 'Top 10 best baby products of the year' 5 years in a row" and the homepage of their website contains "news" items such as "iParenting Media awards Take Along Tunes Greatest Products Winner" and "My First Signs DVD wins National Parenting Publications Gold Award." Brainy Baby's website has an entire page dedicated to "National Awards and Recognitions," including Dr. Toy's 10 Best Children's Videos awards (*Art* in 2003, *Left Brain* in 1999, and *Right Brain* in 1999) and endorsements and awards from The Parent Council, *Creative Child* magazine, *Kids First!*, Teachers Choice Awards, Parent's Choice Honors, and The Dove Foundation. In addition, they boast an endorsement from Mothers of Preschoolers (MOPS) on their homepage, and include a list of celebrities that have received their DVDs as part of the "BopStar Baby Celebrity baby baskets" such as Angelina Jolie/Brad Pitt and Katie Holmes/Tom Cruise. All of these items can give parents a sense that these are safe products for their children and that these companies are credible.

Lastly, these two companies hope to appear credible by communicating with parents in a relatable way with the use of casual, conversational language. Both Brainy Baby and Baby Einstein send messages to parents using direct address, just as if it is one

parent talking casually to another, having a discussion about products that are good for their children. This casual approach is first seen in the language used by both companies; both sound very conversational, using contractions and incorrect grammar like in the question, "Got anything that'll make my kid dumber?" in the Brainy Baby print ad, and "It's not what's in the box that's the gift" in the Baby Einstein "Dad and Baby" print ad. Indeed, Brainy Baby's approach appears to be "open with a joke," as obviously no parent wants a stupid child. By using such casual speech, both companies give the impression that they are just as concerned with your child's welfare as you, the parent, are.

Baby Einstein in particular furthers the illusion that the average parent is actively involved in a discussion with the company, as they encourage parents to share their own stories in the "Submit Your Own Baby News" link from the homepage and feature comments – ostensibly from real parents – in their "Baby Einstein News" section in the middle of the homepage. Brainy Baby's homepage features a link to a "Contact Brainy Baby" page where visitors can fill out some information and receive a response from a Brainy Baby employee. They further their relationship with parents who visit the site by sharing the baby pictures of all of the major Brainy Baby employees, from founder Dennis Fedoruk to their customer service manager Josalyne Sanders. This "baby book" of sorts gives a more intimate feeling than the massive Walt Disney Corporation's Baby Einstein website.

The Message of the Ads as "Aspirational"

The last major category to emerge from the data is what is termed "aspirational." In general, this term encapsulates the message being conveyed by both companies as "here's what you and your child *could be* if you use our products." The advertising and

marketing of Baby Einstein and Brainy Baby communicate this promise in many areas, including images of the "perfect parent," "perfect child," and "perfect relationship," as well as evoking the ideals of high class and elite culture, and a focus on specific races, religion, and gender. All of these aspects of the "aspirational" category will be discussed at length below.

Taken as a whole, the marketing and advertising of these two companies present an impression of the "perfect" or "ideal" parent. This parent wants nothing more than to nurture her child, and knows that the best way to do so is to purchase baby videos. Brainy Baby's print ad tells parents authoritatively, "Your child's education begins at birth" and advises them to "give your child a jumpstart on learning… start your baby's education with a solid foundation. Start with Brainy Baby." Baby Einstein's print ads "Piano" and "Bubbles" both tell readers, "They're already curious. All you have to do is nurture them," putting the onus on parents to nurture their children. The inference parents make when confronted with such direction from seemingly-credible sources is that their children will be more successful in life if they are exposed to these products early and often. Thus, the perfect parent will immediately purchase these DVDs and begin showing them to her child as soon as possible. Beyond just selling their products, then, these companies are selling guilt-free parents, or parents who can feel good about the opportunities they have given their children via the use of baby videos. These parents have done everything possible to give their children a "leg up."

The parents pictured in the Baby Einstein print advertisements add to the "perfect parent" image. In each ad, the parent appears dedicated, attentive, caring, nurturing, calm, serene, happy, and content; these parents want to spend their free time nurturing their

children and are completely invested in their children's well-being. These parents have an important role to play – they must ensure they their children "discover" and "learn" by spending time with them and interacting with them, it is assumed, via baby videos. It is as if the company is selling the lifestyle rather than the product, however, since none of the children in the advertisements are pictured actually using their products.

For example, in the "Piano" ad, a toddler is pictured at the piano getting ready to plunk down the keys, and the child is being guided by an adult who has a hand on the child's arm. This parent is clearly "nurturing" this child and is encouraging the child to become a musician of sorts. It can only be assumed that this parent has also purchased Baby Einstein DVDs for this child and that the viewing of these DVDs has somehow played a part in this child's curiosity about the piano – after all, the featured Baby Einstein products below this idyllic picture of parent and child include the DVD "Meet the Orchestra." Similarly, in the "Bubbles" ad, the parent/toddler dyad is pictured outdoors sitting the grass together with the mother holding the baby's waist while the baby reaches up to grasp some bubbles floating through the air. This parent obviously values spending time with her child, and is actively nurturing her child's sense of discovery; she is a hands-on parent (literally) who does activities with her child in the middle of the day. The bubbles evoke a feeling of innocence, simple pleasures, carefree, stress-free times – all things that would appeal to wistful parents wanting to experience this "ideal" situation.

In a similar vein, a second theme running throughout the advertising and marketing is the image of the "perfect child." The children pictured in the print ads are all smiling, happy, and content. The banner that appears across the top of the Brainy Baby

homepage shows four children sitting on the floor with Brainy Baby books and toys, laughing, smiling, and apparently enjoying themselves. The children on the Baby Einstein homepage are all captivated by what they're watching, reading, or listening to, and visitors to the site hear them laughing, cooing, and giggling while they interact with Baby Einstein products. In the television ad for Lullaby Time, we first see and hear a baby sitting up and laughing, but by the end of the commercial we are presented with a baby sleeping soundly in mother's arms. In the print ads, all three children have been captured looking happy, smiling, with eyes wide open and a sense of wonder on their faces. These are all well-behaved, adorable children; these are perfect children. There's no crying, fussing, or screaming in this ideal world and the inference, of course, is that they are so well-behaved because they have been exposed to these particular baby products.

Linking the "perfect parent" and "perfect child" images together is the theme of the "perfect relationship" that is found throughout the ads and websites. There is a definite focus on sharing, togetherness, and bonding that is seen not only in the language used, but in the visual elements as well. Both companies stress to parents that their products are meant to be used *with* your child, and not as an "electronic babysitter." The Baby Einstein website consistently uses the word "interactive" to describe their DVDs and the "About Baby Einstein" section stresses that "All Baby Einstein products, including its video line, are designed as interactive tools for parents to use with their babies" (n.p.). Indeed, every time a baby is shown in an ad, she is shown enjoying one of their products with a parent. Similarly, the Brainy Baby homepage explains that "Brainy

Baby products always work best with adults use them interactively with their child" (n.p.).

The parent/child pairs seen in Baby Einstein print and television ads also evoke the feeling of sharing or togetherness. The consistent reference to nurturing suggests bonding with your child, and the images drive that idea home even further. In the "Piano" ad, a parent is patiently encouraging a child to "play" the piano; in the "Dad and Baby" ad the father looks lovingly on while the baby is captivated by something off the page; in the "Bubbles" ad the mother looks down at her "curious" baby, softly smiling in approval; and in the television ad viewers are shown the serene scene of a mother rocking an infant to sleep. In all of the ads, the mood is dreamlike, with softly focused pictures, soft lighting, neutral color schemes, a fuzziness around the edges of the printed pictures, as if we're being offered a sneak peek into a special moment shared between parent and child. This is certainly an idealized version of the parent/child bond.

In addition to highlighting perfect parents and children, the ads for both companies communicate something about socio-economic status, or class. First, the printed Baby Einstein ads appear in magazines that appeal to parents of middle- and upper-middle class stature, and the cable channel HGTV ("home and garden television") where the television ad was run is obviously targeted to those who can afford expanded basic cable and have a vested interest in the appearance of their homes – again, a middle- or upper-middle class value. Brainy Baby relies on their website to sell their products, which assumes that their consumers have computers and internet access, and are savvy enough to shop online.

Further, the types of "skills" that are highlighted in the DVDs of both companies can also be considered somewhat "highbrow" or associated with elite culture. While the emphasis on education is certainly a trait of the middle and upper-middle class, the focus on art (*Baby Van Gogh*) and music (*Baby Mozart*) in particular reflect high culture. Indeed, the babies in both the "Dad and Baby" and the "Bubbles" ads are pictured looking upward – a visual icon of aspiring to higher class or culture. When examining the parents in the ads, it is also clear that these are parents who not only have the disposable income to spend on baby videos and the like, but also that they have the leisure time to spend with their kids enjoying such purchases. These are clearly not parents who are working two jobs just to pay the bills. Showing the parent enjoying the products with the child during the day says that she is a "stay-at-home" parent; she has the luxury of spending all day long bonding with her child over a baby DVD or two. She does not have to work; this is not a dual income family.

Lastly, the makers of the products themselves assume that the parents in their target audience have the electronics capable of playing their products: televisions and DVD players. While these items have become more ubiquitous over the years, not every family can afford these luxuries. The mother and child shown in the television ad for Baby Einstein not only had a television and DVD player, but they watched together in front of a big-screen television, something the "working class" most likely deems an unnecessary expense.

More implicitly than explicitly, both Baby Einstein and Brainy Baby communicate something about race, religion, and gender – privileging some over others – in their advertising and marketing. Most of the ads feature Caucasians, although some of

the women are brunettes and could be read as Latina. It is clear that Baby Einstein values its Spanish-speaking consumer base, however, as they have a version of their "Welcome to Baby Einstein" webpage written in Spanish: "Bienvenido a Baby Einstein." In addition, one of the children on their homepage is identified as Tomás. One Asian parent and child (in the "Piano" ad) is featured in print, and one pair appears on the homepage of the Baby Einstein website (recall "Logan" and his curiosity about shapes). In addition, on a webpage entitled, "Real People. Real Discoveries." the featured story focused on Asian mother and daughter Tami and Katie. One African American parent/child dyad is shown on the same homepage – a father and young infant listening to music – and one African American toddler is shown on the Brainy Baby homepage, playing a game. Overall, however, both companies appear to view Caucasians as their primary consumers and feature them prominently.

Religious beliefs are communicated very subtly by both companies via the products they offer, and both companies appear to privilege the Christian faith. For example, Baby Einstein offers the DVD *Baby Noah*, which is an "animal" video, and is named after Noah from the Christian bible who saved pairs of every animal on his ark during the flood. Further, Baby Einstein offers the *Baby Santa's Music Box* DVD, which clearly references Santa Claus, another traditional Christian figure. In addition, the television commercial for the newest addition to the Baby Einstein DVD library, *Lullaby Time*, includes a clip from the DVD which features a lamb puppet. The lamb can symbolize gentleness, innocence, and a childlike vulnerability, but for some viewers will evoke the image of Jesus. In Christianity, Jesus Christ is referred to as the "Lamb of God" and the term "lamb" is used in reference to Jesus 27 times in the book of

Revelation. Furthermore, Christian symbolism can also be seen in the "Madonna and Child"-like poses of the mothers with their babies on the Baby Einstein website and in the television commercial. The only obvious indication of religious preference in Brainy Baby's advertising and marketing includes the *Jingle Bells* DVD offered on their website, which brings to mind the Christmas season.

Gender is also an issue when examining these two companies, though in two completely different areas: the models in the ads, and the subjects of the baby videos themselves. Most of the parents pictured in the Baby Einstein ads and website (there are no parents pictured in the Brainy Baby advertising and marketing) are female, so one might conclude that the company is targeting mothers rather then fathers. There are a few exceptions, however: one print ad ("Dad and Baby"), and three men who appear on the homepage, two of whom are pictured with their children and the other who is standing behind his pregnant wife, advertising the "prenatal" music CDs. Three of the four children featured in the print ads for both companies are gender-neutral, wearing neutral colors with no indication of gender, while the fourth is clearly a little girl pictured wearing a pink shirt with lace and ruffles; these are "anybabies." On the websites there is roughly equal reference to both male and female children, so neither appears privileged over the other.

The story is quite different, however, when one looks closely at the products being advertised by Baby Einstein in particular. While Brainy Baby's DVDs are gender-neutral and appear more skills-based (e.g., *Right Brain, Left Brain, Peek-A-Boo, Spanish, French*, etc.), many of Baby Einstein's DVDs are inspired by famous artists, musicians, and writer throughout history – all of them male. Some of Baby Einstein's best-known

DVDs include *Baby Bach, Baby Beethoven, Baby Da Vinci*, *Baby Galileo, Baby Monet, Baby Mozart, Baby Newton, Baby Shakespeare, Baby Van Gogh,* and *Baby Wordsworth*. Historically, males were given more opportunity to become artists, musicians, and writers, but perhaps the Baby Einstein Company could highlight females in history as well and release titles such as *Baby Georgia O'Keefe*, *Baby Amelia Earhart*, *Baby Jane Austen,* or *Baby Maya Angelou*. Equating "Baby Einsteins" or "geniuses" only with males sets a dangerous precedent for how these young children are educated, beginning in infancy.

Summary

In sum, the three overall categories of educational, credible, and aspirational capture the essence of this reading of Brainy Baby and Baby Einstein's advertisements and websites. The "smart-sounding" names of the companies, the use of synonyms for "educational," and the use of parental anecdotes communicate that the products will help babies learn about the world. The placement of ads in mainstream publications, the reference to parent companies and founders, the notion that consumers can trust the "experts" that the products are developmentally appropriate, and the use of casual, conversational language all create an aura of credibility around the companies. Lastly, both the language used and the visual elements communicate that these products can help parents become "perfect," can create ideal children who aspire to elite culture, and can foster lasting bonds between parent and child. As previous research on Disney-produced media has found (e.g., Hoerrner, 1996; Rothstein, 1997; Dundes, 2001) some races, religions, and genders are privileged over others, with an emphasis on Caucasian, Christian, female mothers, while many of the products themselves are modeled after

famous males throughout history, perpetuating the age-old association of men with "genius." Overall, the ads and websites create positive associations with the products.

CHAPTER FIVE

PHASE TWO RESULTS: THE INTERVIEWS

This chapter presents the results from the second phase of this project: the interviews with parents of children in the second year of life. The purpose of the interviews was to function as a bridge between Phases One and Three; interviewing parents triangulated the results from Phase One, as parents were asked about their perceptions of baby video advertising, and gave additional information about the children participating in Phase Three. Furthermore, the interviews provided insight into the use of television and baby videos with children under age two.

As noted above, one of the goals of this phase is to triangulate the results of Phase One. Recall that the objective of Phase One was to address the impressions being given by both Brainy Baby and Baby Einstein about infant DVDs via their marketing and advertising. Phase Two triangulates the resulting data by directly questioning parents about their impressions regarding these two companies. The goal of the Phase Two interviews was to address the second research question: Why do parents choose to use/not use these DVDs? To address this question, parents were asked about their children's media habits and their own opinions about the "Baby Genius Edutainment Complex" (see Appendix B for the interview protocol). Responses to questions about how their specific child uses media and what they hear from pediatricians and other parents about baby video usage help to answer the second research question. This chapter first presents general information about parents, followed by parental impressions of baby

video advertising, and the analysis of why parents choose to use or not use these products.

Demographics and Use of Media

Twenty eight parents completed this interview. The mean age of parents was 33.87 years. All of the parents interviewed were female; 27 were Caucasian and one identified herself as "African." See Table 5.1.[1]

Most parents explained that they either watch television programs created primarily for adults (N = 9) or a mixture of adult and kid/baby programming (N = 11). The majority (N = 17) said they would not purchase baby videos for themselves in the future, nor will they buy them for others (N= 16). Parents were asked several questions regarding their child's media use, including both television and "baby video" usage and the resulting frequencies for these basic questions are found in Table 5.2. Only 27% of children in this sample have never watched television. Of the children who do watch television, 68% professed a "favorite" show. The majority of parents believed that content such as characters and music were reasons why these shows were favorites: 43% explained that the music either within the program or during the opening credits of the program is what grabbed their child's attention the most, and 43% said that the individual characters, such as Mickey Mouse and Curious George, had something to do with why the program was a favorite. Two parents (14%) touted the interactive nature of the

[1] While this sample is not representative of the overall population in the United States, it is however representative of the market for baby videos such as those produced by Baby Einstein. An examination of the publications in which advertisements for Baby Einstein products appear, such as *Parenting* and *Good Housekeeping*, reveals that the parent participants are in the key demographic. For example, the readership demographic for *Good Housekeeping* is 87% female with an average income of $52,392 (Echo Media, 2008).

Table 5.1

Parental Demographics

Variable	Frequency
Age:	
21 – 25	2
26 – 30	6
31 – 35	11
36 – 40	6
41 – 45	3
Job:	
Teacher/Faculty	7
Stay-at-home Mom	7
Health Professional	3
Human Resources	3
Sales/Accounting	3
Computers	2
Student	2
Writer	1
Education:	
High School Graduate	1
Some College	3
College Graduate	14
Finished a Graduate/Professional Degree	10
Income:	
$10,000 – 19,999	3
$20,000 – 29,999	1
$30,000 – 39,999	3
$40,000 – 49,999	1
$50,000 – 59,999	2
$60,000 – 69,999	2
$70,000 – 79,999	1
Over $100,000	14
Unknown	1
Hours/Week Spent with TV	
None	6
Less than 30 minutes	2
30 minutes	3
1 hour	7
2 hours	8
3 hours	1
4 hours	1

Table 5.2

Parental Interview Answers: Frequencies (N = 28)

Does your child watch television programs?	Yes = 22 No = 6	
(If Yes to above question) Does he/she have a favorite television program?	Yes = 15 No = 7	Favorites: *Curious George*: 2 *Mickey Mouse Clubhouse*: 2 *Sesame Street:* 2 *Wonder Pets*: 2 *Dora the Explorer*: 1 *Jack's Big Music Show* 1 *Spongebob Squarepants*: 1 *Teletubbies*: 1 *The Wiggles*: 1 *Winnie the Pooh*: 1 Anything on the Baby First Channel: 1
What makes this a favorite?	The music: 6 The character: 6 Interactivity: 2 It's the only thing she'll watch: 1	
Do you own any "Baby DVDs" or videos?	Yes = 19 No = 9	
How did you come to own them?[1]	Bought = 7 Gift = 12 Hand-me-down = 9	
Do you watch TV/videos with your child?[1]	Always = 4 Sometimes = 9 They watch with siblings = 12	
What types of tasks do you perform while your child is watching?[1]	Clean/Cook = 7 Take a shower = 3 Work/Study = 3	
Have you ever discussed the use of these products with your pediatrician?	Yes = 8 No = 20	
Have you ever discussed the use of these products with other parents?	Yes = 26 No = 2	*Heard comments that were*: Positive = 23 Negative = 1 Both = 4

[1] Some parents gave more than one answer to this question, and not all parents responded to this question

program (*Sesame Street* and *Dora the Explorer*) as the reason why it was their child's favorite. One parent (7%) explained that she believed the program was her child's favorite because it was the only thing she would sit still long enough to watch in its entirety.

When parents were questioned specifically about baby videos, 68% of all of the parents interviewed claimed they owned this type of video, whether on VHS or DVD, which is somewhat in conflict with their willingness to buy other videos in the future, as noted above. Though not specifically asked, many parents volunteered the names of those videos most frequently viewed by their children. Four parents specifically mentioned videos that purport to teach babies American Sign Language: two parents mentioned *Signing Times*, while the others used *My First Signs* and *Baby's First Signs*. Three additional parents mentioned "animal" videos: *Baby Noah*, *Neighborhood Animals*, and the Baby Genius DVD about the San Diego Zoo. The only additional titles specifically mentioned by parents were *Baby's First Moves* and *Discovering Shapes*. Some parents owned many baby videos, some were given as gifts, some were bought specifically for their child who was currently in the appropriate age range for them, and some were "hand-me-downs" from older siblings or from friends, neighbors, and family.

Of the 28 parents interviewed, only four explained that they always watched television with their child (i.e., their child was never alone in front of the television screen), while others said they either sometimes watch with their children or the children primarily watched with siblings (see Table 5.2). Many children who watch with siblings are sometimes watching programs not necessarily age-appropriate (e.g., *Spiderman, Batman,* and *Spongebob Squarepants*) because the older siblings choose the

programming. When asked about her children's television use, a parent of 19-month-old female twins explained:

> They probably see some television every day – and this is where this is probably somewhat of a convoluted answer – but [their older sibling] tends to be more of a TV person than the babies are, and so when she gets up in the morning she wants the TV on while she's getting ready, so as the babies get up the TV's there… one of the things I've always been concerned about with them is having things on like [their older sibling] likes – things like *Spongebob Squarepants* – and I feel like there is too much going on, too much noise, too much stimulation, so I try to keep them away from that kind of stuff.

This mother is obviously concerned that her little ones might be exposed to age-inappropriate content, but clearly there is always a chance in their household that they will indeed see some of it when they watch with big sister. In any home with children of different ages, this could be the domestic reality.

Nine of the parents interviewed claimed to "sometimes" watch with their children, and thus were asked what types of duties they perform when they allow their child to watch television or a video without a parent present. Probably not surprising to anyone with small children, seven of the nine parents (78%) used that time to "tidy up," do dishes, vacuum, cook, and generally "get things done." A mother of a 22-month-old male explained:

> I so don't approve as television as a babysitter, but if it's Saturday and I need to get these floors vacuumed, that'll keep him occupied without ripping toys out… I'm trying to vacuum and that's obviously not going to be good, if he's taking toys out, so that just lets him be in one place and he enjoys it, he asks for it.

Another parent of a 21-month-old male explained that sometimes it is about the child's safety more than just keeping him entertained:

> I would say probably in the scheme of things I don't think it's as good as other activities that the child could be engaged in, but the reality is sometimes when you have to get dinner on the table, it might be a good thing to watch a Barney video as opposed to touching the oven door when it's open.

A third of the parents also specifically noted that they put on baby videos so they would have time to take a shower. Lastly, three parents used the television to keep their children occupied while they worked or studied. These parents appear to believe that programming designed for very young children is "safe" enough to use to entertain their children when there is work (or showering) to be done. When most parents were discussing this issue, however, they were quick to explain that the duration of time they left their child alone to watch was somewhere between 10 and 30 minutes; according to these parents, the children are not being left alone in front of the television all day long. However, one parent of a 19-month-old male did say, "I wouldn't get anything done if he didn't watch TV!"

Discussion of Media Use with Others

Given that the American Academy of Pediatrics has taken such a rigid stand on television viewing before age two, each parent was asked whether their child's pediatrician asks about media use, television use, or video use in any way during regular check-ups or "well-baby" visits. A full 71% of parents have never been asked about media usage by their child's pediatrician. Of the eight parents whose pediatricians do regularly ask about media habits, two parents explained that their doctor asks about media usage but doesn't necessarily tell them *not* to put their children in front of the television. One parent explained that her pediatrician says "less than 30 minutes a day" while other parents are told "zero television;" in fact, two parents mentioned the AAP by name while three others quoted the organization's "no television under the age of two" mantra. Only two parents expressed that their pediatricians took the issue quite seriously,

and yet both parents still occasionally allow their children to watch. A mother of a 22-month-old male explained it this way:

> He [the pediatrician] pushes it pretty hard – that's kind of his soapbox – but when it came down to we couldn't cut his fingernails without him [her son] screaming, or watching it for 10-15 minutes, I was just like "15 minutes isn't going to do [anything to hurt him]." But I know that part of the concern with younger kids is that they're not learning, they're just vegging, and they say that if you talk to them – you know, when dirt falls on Thomas [The Tank Engine, you say], "oh, no!" you know "he's stuck!" or whatever – and then it is less so that he can just completely zone out and veg.

Clearly this mother understands why there is some risk involved with putting a child under two in front of the television screen, but finds that it can also be a great help sometimes when managing her child, regardless of her pediatrician's strict anti-television policy.

In addition to being asked about conversations with pediatricians regarding media use, parents were also questioned about whether they talk to *other* parents about baby videos in particular. An overwhelming 93% of parents have discussed the use of such videos with other parents at one time. While 14% of the parents interviewed heard both positive and negative comments from other parents about the use of baby videos, 82% of parents reported hearing only positive comments from other parents. In fact one parent of a 25-month-old male recalled hearing the Baby Einstein DVDs referred to as "magic":

> I have a friend whose son has to have asthma treatments and that's the only way they can get him to do [the treatments], like hold the stuff in front of his nose and breathe it in… put one of those [Baby Einstein DVDs] in and he'll just sit there for 20 minutes while they hold it in front of his face. So they are kind of like magic.

Many mothers also mentioned that other parents recommended baby videos – Baby Einstein in particular – when they were pregnant. A mother of an 18-month-old female explained:

> I remember when I was pregnant people would say, "You've got to get some Baby Einsteins" or, "Make sure you register for Baby Einsteins."

Some parents reported that when talking with other parents, it was almost an assumption that "everyone" used baby videos. For example, one mother of a 12-month-old explained:

> Actually, when I told someone that I used the *Baby Signs* or the Baby Einstein *First Signs* video, their comment to me was, "Oh, that's not the one I use, I use *Signing Time*.

Another parent of a 19-month-old male explained:

> I believe every parent I know owns them – owns several of them – and everybody registers for them and we all use them to get our child to sit and veg out for a few minutes.

An interesting implication of the "everybody has Baby Einstein" mentality is what could be termed "the badge factor." For Extreme Parents, especially, showing baby videos to a child seems to be viewed as an essential part of "good" parenting; if you don't have Baby Einstein, you are not a good parent. It is as if parents are stating, "My child watches Baby Einstein, what about yours?" or as if those parents who do not own such videos have inferior parenting skills. These videos have become part of the parenting self-concept. In the new millennium, it seems almost taken for granted that baby videos are part of parenting paraphernalia – for "good" parents, at least.

Overall, parents gave the impression that in talking to other parents, the Baby Einstein brand was viewed as "the gold standard" in the baby video market. Regarding Baby Einstein, one mother of a 12-month-old female said:

> My impressions that I get from other people is that it's sort of the industry leader – this is where you go if you want to educate your baby. It's sort of a standard I guess.

Obviously the Disney Company would be ecstatic to hear that parents generally view their particular product so positively, though the parents interviewed for this project don't necessarily buy into the "educational" usefulness of baby videos, as is discussed below.

Brainy Baby and Baby Einstein: Parent's Impressions

Marketing

When questioned about the impressions gained from the marketing and advertising of baby video companies, overwhelmingly parents responded that they believed the companies want consumers to *think* the products are educational. One parent of a 12-month-old male directly addressed the name of the company as a metaphor for "genius":

> I feel like when the names say it all, like "Baby Einstein," I feel like the promise they're making is that your baby will be smarter or will learn quickly… you'll be giving your baby some advantage because by the time they start preschool they'll already know all these things.

Some parents specifically referenced the "classics" to which babies would be exposed via many of the baby videos. One mother of an 18-month-old female explained:

> I know they try to say that the Einstein's supposedly going to teach your child things and help them learn things, and they want to bring in classic type of things, like art.

Another mother of a 19-month-old female noted:

> Well, honestly the appeal to me is knowing that they're watching something that has classical music – it's not very highly stimulating… and they're getting an introduction to objects and sounds and words.

Many parents began their responses with "Supposedly…" or "They're trying to…" or "They say they are…" which was then followed by an explanation of how these companies communicate that their products are educational. As a mother of a 22-month-old male explained:

> I think they obviously purport to increase your child's intelligence, not intelligence necessarily, but maybe to further their knowledge in basic things like letters, numbers, shapes.

Another mother of a 19-month-old male agreed:

> Based on the advertisements I would say that they tell you that they are going to learn things and that they are going to be stimulated – that the music helps them and that… they're going to give them higher thinking and things like that. I definitely think they're pushing that they're good for them and that they're going to help them.

While most parents expressed that companies like Brainy Baby and Baby Einstein advertise their products as educational, however, they were quick to explain that they are not sure that is actually the case.

Educational Benefits

Of the 22 parents who explicitly addressed the educational benefits of baby videos to their children, they were split into two groups: Ten believed that no learning takes place from videos, and the other 12 parents believed that some learning can take place with videos, but that the videos themselves are not a child's only "teacher." Some parents in the first group (the "no learners") got straight to the point, such as one mother of a 21-month-old male who explained, "I don't think that he'll know his ABCs from watching a video" and another mother of a 19-month-old male who said, "I know on the previews for the Baby Einstein videos [it says] they'll be smarter and do better in school, and I don't think so." These parents were fairly straightforward in their disbelief of the perceived advertising claims.

The "No Learners"

Many parents in the first group ("no learners") did not appear to feel too strongly about the issue – and indeed many of them regularly showed baby videos to their own

children – and expressed that they might be useful in some way, just not as teaching tools. Some of these parents did not see any negative effect in using the videos per se, and instead used them as a convenient tool to keep their children entertained and occupied. A parent of 19-month-old female twins explained:

> [Baby videos] are more appropriate in that they only showed usually one thing at a time, they moved more slowly – that sort of thing. I think the advertising spin has been "use these as a way to talk to your child and introduce these concepts." But [when asked about the educational benefits] I was like, "Well, I never really thought that they taught anything." I mean honestly, truly they bought me 10 or 15 minutes to take a shower sometimes. And I felt that they were probably the least inappropriate things they were going to see on TV.

This mother was impressed with the basic nature of the videos, the slow pace and the appropriate content, but was not convinced that there was any inherent educational benefit to her children when they watched. The benefit, rather, was that she could get her children to pay attention to the content long enough to allow her to take a shower.

While a second mother agreed that the pace and the repetitive nature of the videos were ideal for her child, and that there was no redeeming educational value to the videos, she was not a fan of the overall concept:

> I can't tell you that I love these DVDs. They're kind of brainwashing! I mean, they're using classical music to make us like it. I think they're very smart because they use the repetitive – you know, kids like, at this age, I think they like things that keep coming. They're taking advantage of us, and to a certain extent I feel myself giving up.

While this mother believed there was no educational quality to the DVDs, she almost felt helpless to *not* buy and use the videos with her child, because her child loved the repetitive nature of the content. She appeared to grudgingly accept that her child was entertained by the product, and would put such videos on when she needed time to study.

Again, the benefit was not to the *child* per se, but to the mother who needed some "quiet time."

Some mothers in the "no learning" group explained their beliefs about the use of baby videos within the larger context of television use in the "under-two" crowd. One mother of a 25-month-old male explained:

> I think they obviously try to make it seem like "oh, this is the greatest thing you could every do for your child" and I know that *no* TV is the greatest thing you could do for your child… and they even have parents come on and talk about how "oh, my child, she pointed to something and said 'octagon'" like they're learning so much, but really they would be learning so much more from the parents. I know that they promote themselves as this great thing you can do for your child, but I kind of see through that.

While this mother appeared a little more concerned than some of the others about the effect of television on her young child, only one mother expressed that viewing these videos could actually be *harmful* in some way. This mother of a 19-month-old male explained why she used the videos with her older child, but not her current toddler:

> At the beginning I thought that they were great, but I have read way too many things that say they're not, and that they might even be hurting them, which may be part of why I haven't shown them the second time around.

Clearly this mother does not see any educational benefit to these videos. These two parents appear more concerned than the others about the effects of television under age two, but they are the exception rather than the rule.

The "Learners"

The second group of parents believed that while the use of videos should not be the only educational tool used by parents of under-two's, perhaps the videos have some capacity to teach. One parent of a 22-month-old male explained it this way:

> I don't believe that they can work magic on your child or whatever, but it's part of a supplemental thing. Just as long as you're reading to them at home and things like that I think they're probably useful in some way.

Another mother of a 21-month-old male agreed, and focused on the "additive" effect of using baby videos:

> I'd guess that it can be entertaining, it can be interactive if you choose for it to be, and that there may be some residual value to your child – there's some learning that takes place. But we have usually found that the child was interested in the [subject matter] before we bought the video. If it was an alphabet video, it was because intense interest had been shown about the alphabet recently, and so we thought it would be cool to get an alphabet video… and so it's mostly been more like additive to whatever else we were doing, or just pure entertainment where we were like, "If you learn something, that's great!"

Other parents agree with this apparent "it can't hurt, but it might help" mentality, such as this mother of an 18-month-old female:

> Well, I've seen the advertisements and I would go for "educational" rather than just a cartoon [video], but I'm not like, "Ooh, that's going to teach my child everything she needs to know."

Some parents specifically mentioned that videos, while perhaps somewhat educational, are no substitute for interacting with your child. Several of these parents were apprehensive of using such videos as "babysitters," such as this mother of a 23-month-old male:

> The advertising makes it seem like they would learn from them [the videos], and I guess if they watched it all the time it might be something, but I also look at it as "that's my babysitter" and I don't agree with that.

Another parent of 24-month-old female twins believed that these videos were a useful tool to help her interact with her children:

> I've always thought the Baby Einstein stuff was not necessarily teaching them any of the academic things, but the music – that's just what I look at it as, like a music thing. It's fun – I like to talk to them about it. It's definitely interactive.

Overall it appears that the general belief of parents in this group is that baby videos such as those produced by Brainy Baby and Baby Einstein can be useful in some way even if they are not as "educational" as perhaps these companies purport them to be. The content is "safe" and age-appropriate, even if it is not teaching anything of value.

To Use or Not To Use?

Taking all of the parental responses into account, there appears to be several reasons why parents choose to either use or not use baby videos with their little ones. The nine parents who do *not* use baby videos do so for several reasons, though none of those reasons appear to be due to marketing or advertising faults on the companies' behalf. Instead, several of these parents do not use the videos because of the personalities and temperaments of their own children – these children simply don't pay attention to anything on television. One mother of a 21-month-old male says that the longest her son has ever paid attention to the video screen is about five minutes of a football game, explaining that "it's not a draw for him," while another mother of a 23-month-old male said that when the television is on:

> He runs around and plays but he might stop and look at it for two minutes or whatever… so I'd rather interact with him and teach him than [use] a video.

Another mother of a 12-month-old male made a similar observation:

> The beginning of *Spongebob* is the only thing that he ever pays attention to – that beginning song. He runs to the TV, he stands there, and as soon as that song is over he's back doing what he's doing.

Rather than being disinterested in the television itself, according to three parents who were interviewed, some children will only watch television when their older siblings watch. As the older children do not want to view content for "babies," the parents don't even purchase it. The mother of a 14-month-old female explained that her daughter

"might see 20 minutes a week of something they're [the older siblings] watching" but otherwise doesn't watch television. Only one mother of a 12-month-old male explained that she doesn't own any baby videos because her pediatrician advised against them.

Three of the parents interviewed for this project do not use baby videos because they run a "no-TV" household. One parent literally has no television in the home while the other two use them sparingly. When asked about her child's media use, the mother of a 12-month-old male explained that "he has been exposed to TV probably five times in his life" while the mother of a 21-month-old male explained that:

> From day one I've always wanted to limit his TV so he can be more active, like outside, than just sit and watch TV. My step son, he plays video games all the time so I didn't want it to be the same for him.

This mother seems to be concerned about her child establishing a pattern of media usage early in life, and thus limits the amount of time he watches any screen media.

Parents who *do* purchase and use baby videos appear to use them for several reasons, but the primary reason does not appear to be "because my baby will learn things;" as noted above, either parents believe that children learn nothing from these videos or they believe children might learn something, but not much of any consequence. In fact, only one parent of a 22-month-old male claimed to buy a baby DVD with the specific intent of using it as a teaching tool:

> I think I got Baby Einstein at a year because I was trying to teach him sign language, so every once in a while we'd use it just to let him see other kids use signs because that seemed to help him a lot.

Instead, as previously described, many parents appear to use the videos to distract their children so they can get things done around the house (see Table 5.2). In addition, several parents were given baby videos as gifts or had them from their older children, and simply

put them on one day to see if their baby reacted to them in any way. The mother of 24-month-old female twins explained that she originally bought the baby videos for her oldest son and then put them on "when they [the twins] were little" and since they loved the music, she continues to put them on.

Some parents continue to use these videos because they saw a positive reaction in their children while they were watching, and a few even believe their child is actively learning from the videos. A mother of a 16-month-old male explained that the *Signing Time* video was her son's favorite and that:

> He's learned a lot of signs. We do them with him, but every now and then he'll start to do a sign that I've never seen him do before. I've never taught him, and he's doing it… or we'll be doing it and I'll see him signing along and I'm like, "I've never seen you do that sign before!"

One mother of a 19-month-old female gave several examples of her child interacting with and learning from educational media:

> One of the reasons I do allow her to watch it as much as she does is she interacts with it the entire time. When they say "stand up and do this" she's doing it, she's talking back to the TV, she's pointing out who people are, when they do the letter of the day, she says the letter, she counts with them, she does everything. Very interactive… she repeats the words they say. She picks up stuff quickly, but a lot of things she's learned, she's learned from TV… I find it very funny that she watches the *Around the House* video with Marlee Matlin signing everything in the corner – every word in there. And she knows about 40 or 50 words in sign language. And I never even taught it to her! I mean, we'll be sitting there eating dinner and she's going [signing] "Table!" "Chair!" "Refrigerator!" She learned another language without our approval and I didn't even know about it… But what I keep telling myself is that if I didn't feel she was learning from it – and I feel that she is learning from it – that's the reason I allow it. If she sat with a daze and the jaw hanging down, and was a couch potato [I wouldn't allow it].

Although most of the parents interviewed did not provide such vivid examples of their children actively learning from the videos, this mother's account provides a clear example of why many parents do indeed use them.

Perhaps, however, the reason why parents use baby videos is simply because they exist; they're available and the perception is that "everybody's doing it." One of the most interesting comments touching on this subject came from a mother of a 12-month-old female, who summed up her thoughts on baby videos this way:

> We're in a culture now where it's the way you educate your baby. Because they're going to be watching TV anyway, so you might as well have them watching something that's going to develop their brain – assuming that the videos actually do develop their brain. Now I don't think that should be a substitute for interacting with your baby or teaching them on your own – showing them this rectangle or whatever fits into this rectangle and this color matches this color or whatever – but generally I feel like it's sort of "this is how we educate our kids now."

Indeed, one might also wonder if the seeming lack of interest on the subject from the majority of the children's pediatricians might lead parents to assume that exposing children to baby videos is truly part of today's culture, with no foreseeable negative consequences. Perhaps this obsession with educating kids from birth does have some negative implications that have yet to be explored, however, as one mother of a 15-month-old male noted:

> All I really know about the marketing is the names they've chosen and that emphasis [on learning], rather than "The Happiest Baby on the Block" or "The Friendliest Baby on the Block."

Perhaps the pairing of the "Baby Genius Edutainment Complex" and "Extreme Parents" (Quart, 2007) has lead to a culture of educating one's child at birth via the media, with an exaggerated emphasis placed upon learning *skills* rather than developing socially.

Summary

In general, parents interviewed in Phase Two of the project watch television and allow their children under two to watch as well. The majority own baby videos and many times use the videos to distract their children for a short time so they can get housework

done or have time to take a shower. Most of these parents have never been approached by their pediatrician with questions about their child's media use, and generally hear positive remarks about baby videos from fellow parents. Parents fell neatly into two categories: the "no learners" who believe baby videos to be entertaining but not educational, and the "learners" who believe that there is some educational benefit inherent in the videos, provided they are used in conjunction with other educational tools. Comments from parents regarding the advertising and marketing of baby videos appear to triangulate the results from Phase One: while these parents believe that the producers of the videos want consumers to believe the products are educational, parents are skeptical. Some parents choose not to use the videos because their children are genuinely not interested in the content while a small portion of parents do not show them because they run a "no TV" household. While many of the parents do show the videos to their children, they do not do so primarily due to any perceived educational benefit. Rather, many continue to show the videos to their children because they demonstrate positive affect when viewing or because they are under the impression that "everybody's doing it."

CHAPTER SIX

PHASE THREE RESULTS: THE QUASI-EXPERIMENT

This chapter presents the results from the final phase of this project. This phase consisted of the repeated measures quasi-experiment with multiple exposures to the stimulus, where children in the second year of life were asked to match six pictures taken from a Brainy Baby video (Apple, Airplane, Arm, Bear, Baby, and Balloon) with the correct letter of the alphabet using large "floormat" letters. Each child was given six opportunities to watch the video clip and then give responses to the pictures, though most children (due to temperament and lack of interest) did not utilize all six opportunities and instead only completed a few trials. The results that follow begin with demographic data of the children themselves, as well as their performance on the MacArthur Short Form Vocabulary Checklists. Next is the presentation of the trial-by-trial responses, and finally the results of the repeated-measures ANCOVA is presented.

Demographics and Vocabulary

Thirty children participated in Phase Three of this project. Each child was assigned a number 1 through 30 and will be referred to by that number for the remainder of the chapter. Demographic data can be found in Table 6.1. The average age of child participants was 19.17 months. The children were almost evenly split across gender: 16 males and 14 females. One-third were "only children" while the other two-thirds had siblings. Parents were verbally asked how frequently their children viewed television and

Table 6.1

Child Demographics

Variable	Frequency
Age:	
12 Months	4
14 Months	1
15 Months	2
16 Months	1
18 Months	2
19 Months	5
20 Months	2
21 Months	3
22 Months	3
23 Months	2
24 Months	4
25 Months	1
Gender:	
Male	16
Female	14
Number of Siblings:	
None	10
One	9
Two	8
Three	3
Television Viewership	
Never Watches TV	3
Occasionally Watches TV	18
Watches TV Every Day	9
Has Ever Seen a Baby Video	
Yes	21
No	9

rather than providing numerical answers, most parents responded with more vague answers, such as "not very much." Even when pressed, many parents were reluctant to give specific answers; therefore, taking each parent's comments as a whole into consideration, each child was placed into one of the following "viewership" categories: "never watches television," "occasionally watches television," and "watches television every day." Parents who explained that their children watched, for example, "every now and then" or "once or twice a week" were coded as "occasionally watches television." Three children "never" watch TV, 18 watch "occasionally," and nine watch television every day. Just over two-thirds of the children in this study had seen a baby video before becoming involved in this project.

As noted previously, the recent controversial study by Zimmerman, Christakis, and Meltzoff (2007a) linking the viewing of baby videos with decreases in language in babies and toddlers utilized the MacArthur Short Form Vocabulary Checklist, and this study followed suit by asking parents to fill out the checklists for their children (see Appendix G). Depending on the age of the child, the checklist is slightly different. For children 12 to 16 months, the checklist asks parents to choose from two separate boxes for each vocabulary word: one if the child "understands" the word and another if the child "understands and says" the word. For children ages 18 to 25 months, parents were given a different checklist (with most of the same words as in the younger children's checklist) only asking if the child "says" the word in any understandable way. Parents of these older children were also asked to indicate whether their child has started speaking sentences or "combining words." Results appear in Table 6.2. On average, children

Table 6.2

Highlights of Children's Scores on the MacArthur Short Form Vocabulary Checklist[1]

Ages 12 – 16 Months (N = 8):

Average number of words children "understand": 19

Words with highest frequency of being understood:

Word	Frequency
Bath	6
Kiss	6
All Gone	5
Book	5
Outside	5

Average number of words children "say": 8

Words with highest frequency of being spoken:

Word	Frequency
Mommy	8
Uh Oh	6
Dog	5
Hi	5
Ball	5

Ages 18 – 25 Months (N = 22)

Average number of words children "say": 42

Words with highest frequency of being spoken:

Word:	Frequency
Mommy	22
Uh Oh	22
Ball	22
Bye	22
No	22

Frequency of children "combining words":

Not Yet	5
Sometimes	8
Often	9

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[1]Vocabulary checklists differed for different age groups. Parents of the younger children (12-16 months) were asked to note any word their child either "understood" or "understood and said" while parents of the older children (18-25 months) were asked to note any word their child "said" and to check a box regarding how often their child combined words. The two vocabulary checklists can be found in Appendix G.

in the younger age group understand 19 words and speak 8 words. Children in the older group speak 42 words, with nine children "often" combining words, eight "sometimes" combining words, and 5 "not yet" combining words. Not surprisingly, the only word spoken by every child in this study was "Mommy," followed closely by "Uh oh" (N = 28).

Overall scores on vocabulary tests were not significantly correlated with performance on the pretest or any of the posttests. The Pearson correlations for each of the three vocabulary tests and each experimental testing session appear in Table 6.3. There was no relationship between the number of words understood/spoken and performance on the picture-letter pairing experimental tests. Scores on the younger group's terms they "understand" were, however, significantly positively correlated with whether or not they viewed baby videos, $r = .779$, $p = .023$, but none of the "spoken" word scores for either age were so correlated. This result would appear to somewhat indicate the opposite of what Zimmerman et al. (2007a) found, in that this study found a positive association (for children between 12 and 16 months) between the use of baby videos and the number of words understood. However, as noted above, there were no such significant associations found (positive or negative) between the use of baby videos and the number of words actually spoken.

Trial-by-Trial Responses

One of the goals of Phase Three was to address the third and fourth research questions. Recall that Research Question 3 was "Do infants between ages one and two learn from Brainy Baby's *Letters* DVD?" and Research Question 4 was "How many repetitions are necessary before the infant begins to display comprehension of the

Table 6.3

Pearson Correlations: Vocabulary Tests and Performance on Experimental Trials

		12-16 Months: "Understand" Scores	12-16 Months: "Understand and Says" Scores	18-25 Months: "Says" Scores
Pretest	*r*	.41	.21	-.03
	Sig	.32	.61	.91
Post1	*r*	-.06	.29	.02
	Sig	.88	.49	.93
Post2	*r*	-.18	-.01	-.03
	Sig	.78	.98	.88
Post3	*r*	a	a	.06
	Sig			.85
Post4	*r*	a	a	.56
	Sig			.11
Post5	*r*	a	a	.44
	Sig			.32
Post6	*r*	a	a	-.29
	Sig			.71

[a] These cells did not have a high enough sample size to compute a correlation, i.e., not enough children in this age group (12-16 months) made it as far as posttest 3 and beyond.

material presented in the DVD?" To begin to address both of these questions, it is necessary to analyze responses and response patterns for each picture (Apple, Airplane, Arm, Bear, Baby, and Balloon) for each trial.

First, there was a significant positive correlation between a child's age and the number of posttest trials the child attempted (r (28) = .545, p = .002). See Table 6.4. In the table, the number found in each cell represents the number of children of that age who successfully completed that posttest. For example, for age 12 months (N= 4), two 12-month-olds completed one posttest, and two 12-month-olds completed two posttests. Paired samples t tests were conducted with all trial means. Only one t-test revealed a significant difference in means between the pretest (M = 2.23, SD = 1.42) and posttest 2 (M = 1.5, SD = 1.30), t(25) = 2.122, p = .044. Thus, scores at posttest 2 were significantly worse than scores at pretests. The 95% confidence interval for the mean difference was .02 to 1.44.

Children's responses to each of the six pictures were recorded for each posttest trial they completed. Figure 6.1 displays the average number of correct responses for each letter, for each trial. At pretest, children were between 27% and 40% correct in their picture-letter pairings (by chance, one would expect a 33% correct response rate), with the smallest number of children correctly pairing "Apple" with "A" and the largest number of children correctly pairing "Balloon" with B. At posttest 1 (N= 30), the "percent correct" averages remained the same as at pretest for three pictures: "Apple," "Airplane" and "Balloon." The score for "Bear" increased, while the scores for both "Arm" and "Baby" actually decreased from the pretest. At posttest 2 (N= 26), the scores for all six pictures decreased from posttest 1. Scores at posttest 3 (N= 15) increased from

Table 6.4

Number of Posttest Trials Completed, Grouped by Age (Frequencies)

Age (months)	Posttest 1	Posttest 2	Posttest 3	Posttest 4	Posttest 5	Posttest 6	n for that age
12	2	2					4
14		1					1
15	1	1					2
16			1				1
18		1	1				2
19		3	1	1			5
20				1		1	2
21		1	1		1		3
22					1	1	3
23	1				1		2
24		2	1			1	4
25						1	1
							N = 30

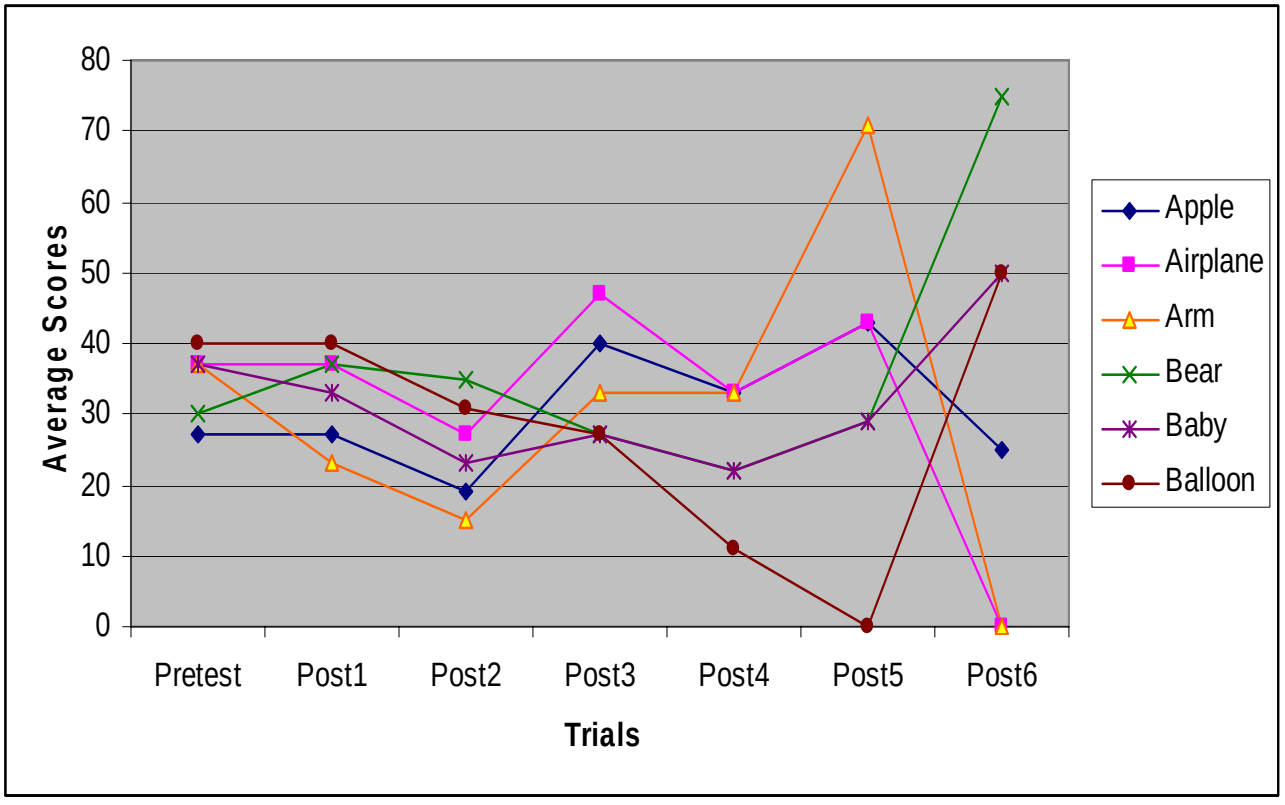

Figure 6.1
Correct Response Averages Per Picture Per Trial (Expressed in %)

posttest 2 for “Apple,” “Airplane,” “Arm,” and “Baby,” but decreased for “Bear” and “Balloon.” At posttest 4 (N= 9), the scores decreased from posttest 3 for every picture except “Arm,” for which the score remained the same as in posttest 3. Scores at posttest 5 (N= 7) all increased from posttest 4, except for “Balloon,” where no children got the correct answer. During the final posttest (N= 4), the scores for all three “B” pictures increased from posttest 5, while only one child got “Apple” correct and none of the four children who made it to posttest 6 got either “Airplane” or “Arm” correct.

At first blush, an analysis of the data presented in Figure 6.1 appears to show some increase in correct answers from the first posttest trial to the sixth (i.e., learning), but a closer examination reveals that not to be the case. An examination of each child’s performance (for each letter, for each posttest trial) illustrates the clear lack of consistency among answers from trial to trial. Figures 6.2, 6.3, and 6.4 track

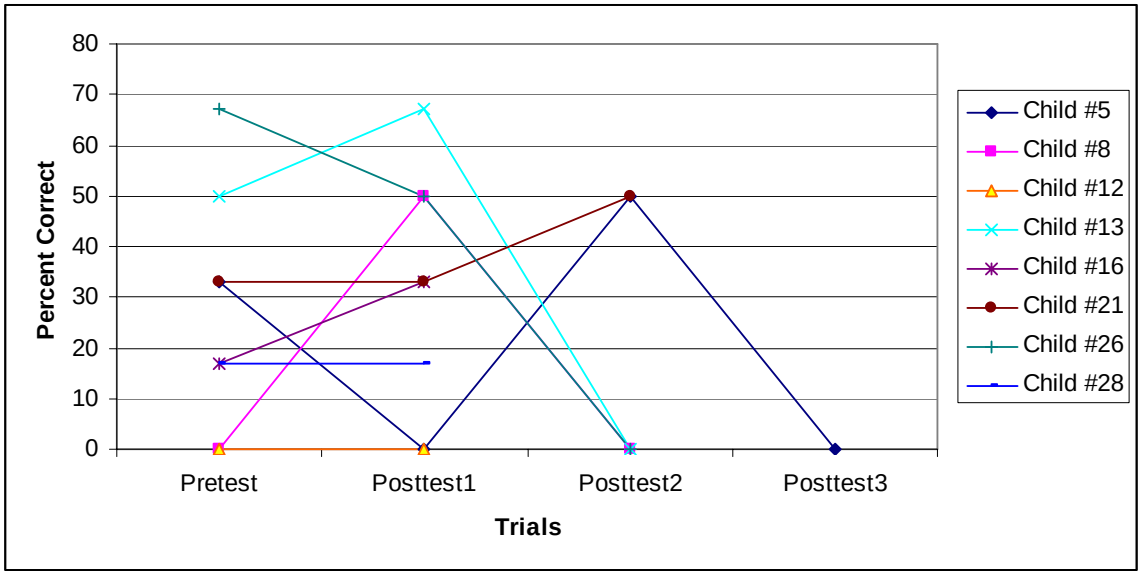

Figure 6.2
Percentage of Correct Answers for Children 12- 16 Months (Per Child, Per Trial)

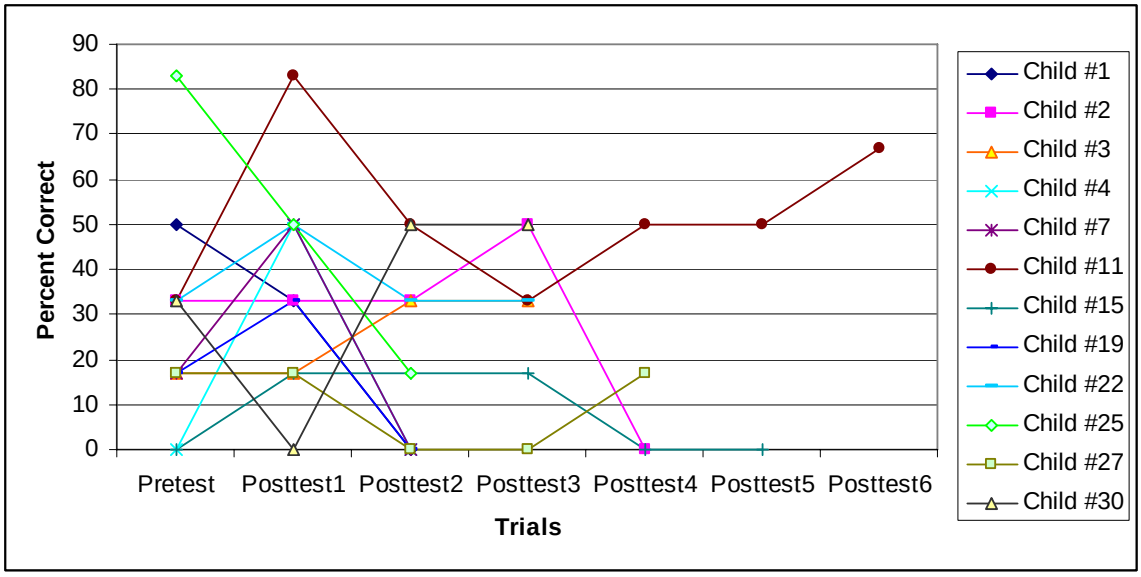

Figure 6.3
Percentage of Correct Answers for Children 18-21 Months (Per Child, Per Trial)

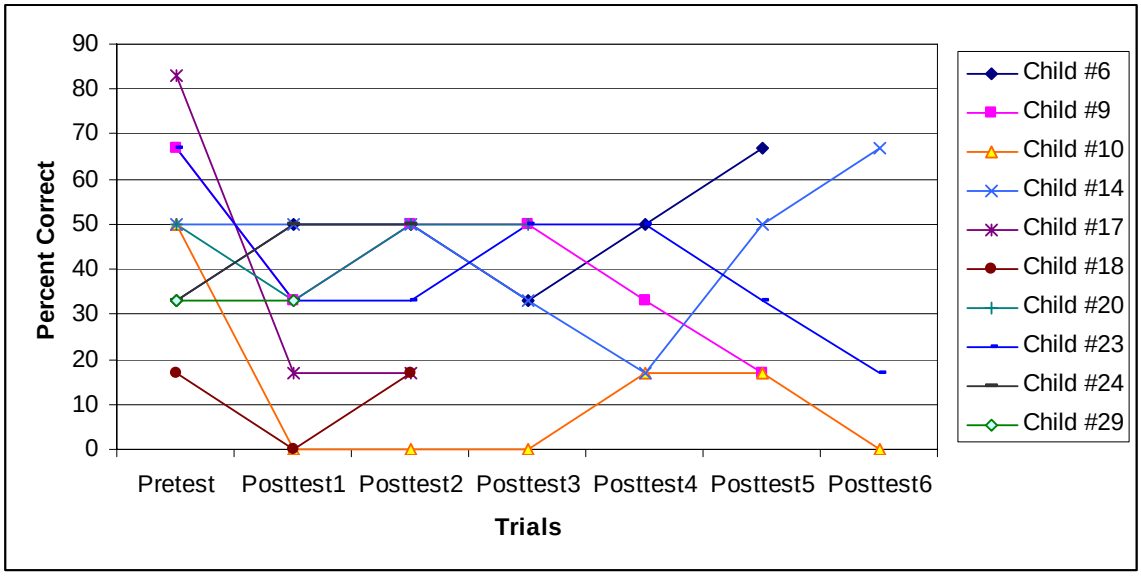

Figure 6.4
Percentage of Correct Answers for Children 22-25 Months (Per Child, Per Trial)

each child's performance during each trial (pretest and all posttests attempted). Figure 6.2 represents the responses of all children in the 12 to 16 month age group (N=8). None of the children in this age group made it past posttest 3. Child number 21 is the only child who showed a consistent increase in scores. While some children's percentage correct increased from pretest to posttest 1, their percentage correct dropped in successive posttest trials.

Figure 6.3 represents the responses of all children in the 18 to 21 month age group (N=12). Few children in this age group show any kind of increase in scores. Child number 3's percentage of correct responses increased from posttest 1 to posttest 2, but the score remained unchanged for posttest 3. While child number 11 displays a sharp increase from pretest to posttest 1, this increase is followed by a drop in scores for posttests 2 and 3, and then an increase again during posttests 4, 5, and 6. Child number 27 shows the same percentage correct at pretest and posttest 1, drops to 0% correct for posttests 2 and 3, and then returns to the same percentage correct at posttest 4 as in posttest 1. Figure 6.4 displays the responses of all children in the 22 to 25 month age group. Child number 6 shows a steady increase in scores from posttests 3, 4, and 5 while child number 14 shows an increase from trial 4 to 5 to 6. Initially, such increases appear encouraging; however, these figures do not tell the whole story.

Another way to examine response patterns is presented in Tables 6.5 through 6.10. These tables track which children gave correct and incorrect answers from posttest to posttest. In the first column on each of these figures, the child is listed by number. Each successive column displays whether the answer given by that child for each posttest trial was correct, incorrect, or not attempted. Children do not appear in the same order

Table 6.5

Response Patterns for “Apple”

	Trials						
Child #	Pretest	Post1	Post2	Post3	Post4	Post5	Post6
13	☑	☑	X	●	●	●	●
22	☑	☑	X	☑	●	●	●
2	☑	X	☑	☑	X	●	●
25	☑	X	X	●	●	●	●
26	☑	X	X	●	●	●	●
3	☑	X	X	X	●	●	●
14	☑	X	X	X	X	☑	X
23	☑	X	X	X	X	X	X
28	X	☑	●	●	●	●	●
6	X	☑	☑	☑	☑	☑	●
11	X	☑	☑	☑	☑	☑	☑
8	X	☑	X	●	●	●	●
17	X	☑	X	X	●	●	●
20	X	☑	X	X	●	●	●
29	X	X	●	●	●	●	●
12	X	X	●	●	●	●	●
16	X	X	●	●	●	●	●
30	X	X	☑	X	●	●	●
5	X	X	☑	X	●	●	●
24	X	X	X	●	●	●	●
1	X	X	X	●	●	●	●
4	X	X	X	●	●	●	●
7	X	X	X	●	●	●	●
18	X	X	X	●	●	●	●
19	X	X	X	●	●	●	●
21	X	X	X	●	●	●	●
9	X	X	X	☑	☑	X	●
27	X	X	X	X	X	●	●
15	X	X	X	☑	X	X	●
10	X	X	X	X	X	X	X
Total ☑	**8**	**8**	**5**	**6**	**3**	**3**	**1**
N	**30**	**30**	**26**	**15**	**9**	**7**	**4**

☑ = the child matched the picture correctly with the letter “A”
X = the child matched the picture incorrectly with the letter “B” or “C”
● = the child did not attempt this picture during this trial

Table 6.6

Response Patterns for “Airplane”

	Trials						
Child #	Pretest	Post1	Post2	Post3	Post4	Post5	Post6
29	☑	☑	●	●	●	●	●
24	☑	☑	☑	●	●	●	●
6	☑	☑	☑	☑	☑	☑	●
11	☑	☑	☑	☑	☑	☑	X
22	☑	☑	X	X	●	●	●
25	☑	X	X	●	●	●	●
26	☑	X	X	●	●	●	●
17	☑	X	X	☑	●	●	●
30	☑	X	X	☑	●	●	●
23	☑	X	X	☑	X	X	X
14	☑	X	X	X	☑	☑	X
3	X	☑	☑	X	●	●	●
13	X	☑	X	●	●	●	●
8	X	☑	X	●	●	●	●
1	X	☑	X	●	●	●	●
20	X	☑	X	X	●	●	●
27	X	☑	X	X	X	●	●
28	X	X	●	●	●	●	●
12	X	X	●	●	●	●	●
16	X	X	●	●	●	●	●
2	X	X	☑	☑	X	●	●
9	X	X	☑	☑	X	X	●
15	X	X	☑	X	X	X	●
4	X	X	X	●	●	●	●
7	X	X	X	●	●	●	●
18	X	X	X	●	●	●	●
19	X	X	X	●	●	●	●
21	X	X	X	●	●	●	●
5	X	X	X	X	●	●	●
10	X	X	X	X	X	X	X
Total ☑	**11**	**11**	**7**	**7**	**3**	**3**	**0**
N	**30**	**30**	**26**	**15**	**9**	**7**	**4**

☑ = the child matched the picture correctly with the letter “A”
X = the child matched the picture incorrectly with the letter “B” or “C”
● = the child did not attempt this picture during this trial

Table 6.7

Response Patterns for “Arm”

	Trials						
Child #	Pretest	Post1	Post2	Post3	Post4	Post5	Post6
6	☑	☑	☑	X	☑	☑	●
23	☑	☑	X	X	X	☑	X
29	☑	X	●	●	●	●	●
28	☑	X	●	●	●	●	●
26	☑	X	X	●	●	●	●
13	☑	X	X	●	●	●	●
17	☑	X	X	☑	●	●	●
30	☑	X	X	☑	●	●	●
9	☑	X	X	☑	X	☑	●
14	☑	X	X	X	X	☑	X
10	☑	X	X	X	X	X	X
22	X	☑	☑	X	●	●	●
11	X	☑	☑	X	☑	☑	X
8	X	☑	X	●	●	●	●
7	X	☑	X	●	●	●	●
19	X	☑	X	●	●	●	●
12	X	X	●	●	●	●	●
16	X	X	●	●	●	●	●
24	X	X	☑	●	●	●	●
25	X	X	X	●	●	●	●
1	X	X	X	●	●	●	●
4	X	X	X	●	●	●	●
18	X	X	X	●	●	●	●
21	X	X	X	●	●	●	●
3	X	X	X	☑	●	●	●
2	X	X	X	☑	X	●	●
20	X	X	X	X	●	●	●
5	X	X	X	X	●	●	●
27	X	X	X	X	☑	●	●
15	X	X	X	X	X	X	●
Total ☑	**11**	**7**	**4**	**5**	**3**	**5**	**0**
N	**30**	**30**	**26**	**15**	**9**	**7**	**4**

☑ = the child matched the picture correctly with the letter “A”
X = the child matched the picture incorrectly with the letter “B” or “C”
● = the child did not attempt this letter during this trial

Table 6.8

Response Patterns for "Bear"

	Trials						
Child #	Pretest	Post1	Post2	Post3	Post4	Post5	Post6
25	☑	☑	☑	●	●	●	●
26	☑	☑	X	●	●	●	●
2	☑	☑	X	X	X	●	●
20	☑	X	☑	☑	●	●	●
17	☑	X	☑	X	●	●	●
1	☑	X	X	●	●	●	●
5	☑	X	X	X	●	●	●
9	☑	X	X	X	☑	X	●
10	☑	X	X	X	X	☑	X
29	X	☑	●	●	●	●	●
16	X	☑	●	●	●	●	●
21	X	☑	☑	●	●	●	●
23	X	☑	☑	☑	☑	X	☑
14	X	☑	☑	X	X	X	☑
4	X	☑	X	●	●	●	●
15	X	☑	X	X	X	X	●
11	X	☑	X	X	X	X	☑
28	X	X	●	●	●	●	●
12	X	X	●	●	●	●	●
24	X	X	☑	●	●	●	●
22	X	X	☑	☑	●	●	●
3	X	X	☑	X	●	●	●
13	X	X	X	●	●	●	●
8	X	X	X	●	●	●	●
7	X	X	X	●	●	●	●
19	X	X	X	●	●	●	●
18	X	X	X	●	●	●	●
30	X	X	X	☑	●	●	●
27	X	X	X	X	X	●	●
6	X	X	X	X	X	☑	●
Total ☑	**9**	**11**	**9**	**4**	**2**	**2**	**3**
N	**30**	**30**	**26**	**15**	**9**	**7**	**4**

☑ = the child matched the picture correctly with the letter "B"
X = the child matched the picture incorrectly with the letter "A" or "C"
● = the child did not attempt this picture during this trial

Table 6.9

Response Patterns for “Baby”

	Trials						
Child #	Pretest	Post1	Post2	Post3	Post4	Post5	Post6
9	☑	☑	☑	X	X	X	●
25	☑	☑	X	●	●	●	●
1	☑	☑	X	●	●	●	●
7	☑	☑	X	●	●	●	●
21	☑	X	☑	●	●	●	●
20	☑	X	☑	☑	●	●	●
5	☑	X	☑	X	●	●	●
18	☑	X	X	●	●	●	●
17	☑	X	X	☑	●	●	●
27	☑	X	X	X	X	●	●
11	☑	X	X	X	X	X	☑
16	X	☑	●	●	●	●	●
14	X	☑	☑	☑	X	☑	☑
26	X	☑	X	●	●	●	●
4	X	☑	X	●	●	●	●
24	X	☑	X	●	●	●	●
13	X	☑	X	●	●	●	●
29	X	X	●	●	●	●	●
28	X	X	●	●	●	●	●
12	X	X	●	●	●	●	●
30	X	X	☑	X	●	●	●
8	X	X	X	●	●	●	●
19	X	X	X	●	●	●	●
3	X	X	X	☑	●	●	●
22	X	X	X	X	●	●	●
23	X	X	X	X	☑	☑	X
10	X	X	X	X	☑	X	X
2	X	X	X	X	X	●	●
15	X	X	X	X	X	X	●
6	X	X	X	X	X	X	●
Total ☑	**11**	**10**	**6**	**4**	**2**	**2**	**2**
N	**30**	**30**	**26**	**15**	**9**	**7**	**4**

☑ = the child matched the picture correctly with the letter “B”
X = the child matched the picture incorrectly with the letter “A” or “C”
● = the child did not attempt this picture during this trial

Table 6.10

Response Patterns for "Balloon"

	Trials						
Child #	Pretest	Post1	Post2	Post3	Post4	Post5	Post6
21	☑	☑	☑	●	●	●	●
9	☑	☑	☑	X	X	X	●
25	☑	☑	X	●	●	●	●
24	☑	☑	X	●	●	●	●
13	☑	☑	X	●	●	●	●
19	☑	☑	X	●	●	●	●
16	☑	X	●	●	●	●	●
20	☑	X	☑	☑	●	●	●
23	☑	X	☑	☑	☑	X	X
1	☑	X	X	●	●	●	●
17	☑	X	X	☑	●	●	●
10	☑	X	X	X	X	X	X
14	X	☑	☑	☑	X	X	☑
7	X	☑	X	●	●	●	●
26	X	☑	X	●	●	●	●
4	X	☑	X	●	●	●	●
2	X	☑	X	X	X	●	●
11	X	☑	X	X	X	X	☑
29	X	X	●	●	●	●	●
28	X	X	●	●	●	●	●
12	X	X	●	●	●	●	●
18	X	X	☑	●	●	●	●
5	X	X	☑	X	●	●	●
30	X	X	☑	X	●	●	●
8	X	X	X	●	●	●	●
3	X	X	X	X	●	●	●
22	X	X	X	X	●	●	●
27	X	X	X	X	X	●	●
15	X	X	X	X	X	X	●
6	X	X	X	X	X	X	●
Total ☑	**12**	**12**	**8**	**4**	**1**	**0**	**2**
N	**30**	**30**	**26**	**15**	**9**	**7**	**4**

☑ = the child matched the picture correctly with the letter "B"
X = the child matched the picture incorrectly with the letter "A" or "C"
● = the child did not attempt this picture during this trial

in each table; they are sorted by their answers for each picture, beginning with children who gave correct responses at pretest.

When examining each table, it is clear that is *not* the same children getting the same correct answers during successive posttests. So while the total "percent correct" averages appear to increase, for example, for the picture "Arm" from posttest 2 to posttest 3, when one examines Table 6.7 (Response Patterns for "Arm") closely, it is clear that while children numbers 6, 22, 11, and 24 correctly paired "Arm" with "A" at posttest 2, it was *different* children – numbers 17, 30, 9, 3, and 2 who got "Arm" correct at posttest 3. While perhaps one could speculate that the group of children who got the correct answer at posttest 3 "learned" that "Arm" went with "A," at the same time one would have to be concerned that the all of the children who got the correct answer at posttest 2 got it *incorrect* at posttest 3. This demonstrates a lack of consistency and the pure randomness of answers across the board.

Examining response patterns to the six pictures separately initially appears to indicate that a few children "learned" from trial to trial. However, when one tracks individual children from picture to picture, again the responses are random. For example, a quick glance at Table 6.5 and the response patterns for "Apple" appears to illustrate that children #6 and #11 "learned" that "Apple" goes with "A"; they both got the answer incorrect at pretest, and correct at each subsequent posttest. However, when followed from picture to picture, these children did not "learn" any other of the other picture-letter pairings: they both already knew "Airplane" at pretest; #6 knew "Arm" at pretest while #11 gave both correct and incorrect responses from trial to trial; and #6 never got "Bear," "Baby," or "Balloon" correct while #11 gave inconsistent answers for all three.

An additional concern when examining these results is that there are fewer participants in each successive trial, which artificially inflates the "percentage correct" results. For example, while technically "75%" of children got the correct answer for "Bear" at posttest 6, only four children actually completed this posttest, so 75% only represents three children. This drop in participants from posttest to posttest also presents a problem with the inferential statistical analyses, as is discussed below.

Overall Posttest Performance

An additional method for analyzing posttest performance is to determine if the children's overall "percentage correct" score is statistically different from chance. An overall percentage correct score was computed for each child, based upon the total number of correct answers given divided by the total possible number of correct answers, given the number of trials each child completed. Table 6.11 displays each child's score along with the number of trials the child completed. As is noted in the table, nine of the children's overall scores were greater than chance (ranging from 36% correct to 56% correct). However, as is discussed in the trial-by-trial analyses above, a high overall score does not necessarily indicate *consistency* in scores from posttest to posttest (i.e., a child may be getting different picture-letter pairings correct at each posttest).

In this project, each child was given three options (letters A, B, or C) to choose from when asked each posttest question. Thus, purely by chance one would expect a correct response rate of 33%. Paired t-tests were computed to determine if the participants' scores were statistically different from chance. Results appear in Table 6.12. As the table shows, when the group was entered as a whole (N= 30), their scores were not statistically different from chance, $t(29) = -1.96$, $p = .06$, indicating that all together, the

Table 6.11

Overall Percentage of Correct Answers For Each Participant[1]

Child #	Number of Trials Completed	% Correct
1	2	17
2	4	29
3	3	28
4	2	25
5	3	17
6	5	50*
7	2	25
8	2	25
9	5	37*
10	6	6
11	6	56*
12	1	0
13	2	33
14	6	44*
15	5	10
16	1	33
17	3	17
18	2	8
19	2	17
20	3	44*
21	2	42*
22	3	39*
23	6	36*
24	2	50*
25	2	33
26	2	25
27	4	8
28	1	17
29	1	33
30	3	33

[1] Each child's overall percentage correct score was calculated based upon the number of individual posttest trials completed

* These children had an overall score greater than chance (33% correct)

Table 6.12

Paired T-Tests Comparing Percentage Correct Scores with "Chance"[1]

T-Test Pair	Mean	SD	t	Sig.
Overall Sample:				
% Correct For the Group	.28	.14		
vs.				
% Correct by Chance	.33	.00	-1.96	.06
Split by Gender:				
% Correct For Males	.30	.16		
vs.				
% Correct by Chance	.33	.00	-.67	.51
% Correct for Females	.25	.12		
vs.				
% Correct by Chance	.33	.00	-2.41	.03
Split by Age:				
% Correct for 12-16 Months	.24	.13		
vs.				
% Correct by Chance	.33	.00	-1.98	.09
% Correct for 18-21 Months	.27	.13		
vs.				
% Correct by Chance	.33	.00	-1.66	.13
% Correct for 22-25 Months	.33	.17		
vs.				
% Correct by Chance	.33	.00	-.10	.93

[1]The probability of getting correct answers purely by chance is 33%; these t-tests compared the participants' "percentage correct" scores with 33% to determine if the scores are statistically different from chance.

group did not display any distinguishable learning. When the group was split by gender, the males' scores were not statistically different from chance, $t(15) = -.668$, $p = .51$, but the females' scores were in fact statistically different from chance, $t(13) = -2.41$, $p = .03$. As the difference in means indicates, however, this result shows that the females performed statistically *worse* than chance on the posttests. Lastly, the group was split by age and compared to chance: 12-16 months, $t(7) = -1.98$, $p = .10$; 18-21 months, $t(11) = -1.66$, $p = .13$; and 22-25 months, $t(9) = -.10$, $p = .93$. None of these differences in means was significant.

Inferential Statistics

Rather than solely relying on "percentage correct" scores for each child, the use of a Repeated Measures ANCOVA can give a more statistically relevant answer to the research questions. However, in order to account for responses in all six trials, "missing" responses (from children who did *not* attempt the later trials) had to be recoded because a sample size of only four children (i.e., those who made it all the way to posttest trial 6) is not large enough to properly compute a Repeated Measures ANCOVA. Missing values can be handled in several ways, and for this study two separate methods were used resulting in two separate analyses.

For both analyses, the raw scores of correct responses (out of a possible 6) for each child at pretest was used as the covariate for the ANCOVA. The raw scores for all six posttest measures for each child were input as repeated measures. For the first analysis, all "missing" responses were recoded as zeros (i.e., indicating that a child did indeed attempt the trial but gave all incorrect responses). The epsilon ($\varepsilon = .739$) for Mauchly's test of sphericity indicated that the sphericity assumption was violated for this

analysis, so the F-statistic with Huynh-Feldt correction is reported. This repeated measures ANCOVA was not significant, $F(3.69, 103.44) = .548$, $p = .687$. For the second analysis, all "missing" responses were recoded with the means for that variable (i.e., the mean of all children who completed each trial). Again, the epsilon ($\varepsilon = .703$) for Mauchly's test indicated that the sphericity assumption was violated, so the F-statistic with Huynh-Feldt correction is reported. This repeated measures ANCOVA was also not significant, $F(3.51, 98.37) = .705$, $p = .573$.

As both variations on the repeated measures ANCOVA for all posttest trials were not significant, the next analysis only took into consideration the first three posttest trials. As half of the children in the sample completed all three posttests (N= 15), the sample was large enough to complete the test without having to recode missing values. Sphericity was not violated in this analysis and the repeated measures ANCOVA was also not significant, $F(2, 26) = 1.136$, $p = .337$. As a last attempt to capture some "learning" from trial to trial, several ANCOVAs were completed that utilized the pretest as a covariate and the first five posttest trials by themselves, thus a total of five additional ANCOVAs were run. The test could not be run on posttest 6 because of the small sample size. The results appear in Table 6.13. Again, sphericity was not violated and none of the ANCOVAs was significant.

Additional Research Questions and Hypothesis

While the repeated measures ANCOVAs have demonstrated that there was no statistically significant "learning" or comprehension occurring during this project, there are still research questions remaining to be addressed. Research Question 5 asked: Is the

Table 6.13

Analysis of Covariance for Each Posttest Using Pretest Scores as a Covariate[1]

Posttest Trial Number	*DF*	*F*	Sig
Posttest 1	(2, 26)	.596	.558
Posttest 2	(2, 22)	1.159	.332
Posttest 3	(2, 11)	2.632	.116
Posttest 4	(1, 6)	.050	.830
Posttest 5	(1,4)	.130	.737

[1] Note that the ANCOVA for posttest 6 could not be computed with a sample size of 4

duration of look (eyes on screen) related to the overall comprehension score? The overall mean amount of time children actively watched the screen during the video was 178 seconds. The means for individual trials can be found in Table 6.14. The length of look after the pretest was significantly correlated to both the length of look after posttest 1 ($r(24) = .661$, $p = .000$) and posttest 2 ($r(13) = .688$, $p = .005$), but not correlated to the length of look after any other posttests. The lengths of look after posttest 1 and posttest 2 were also significantly correlated with each other ($r(13) = .714$, $p = .003$), but no other length of look times from other trials were significantly correlated with each other.

A Pearson correlation was performed on each trial separately to determine if there was any significant relationship between the number of seconds a child viewed the video

Table 6.14

Mean Length-of-Look Times in Seconds Prior to Each Posttest

Viewing Prior to Trial:	N	Mean	SD
Posttest 1	30	213.97	20.07
Posttest 2	26	202.5	31.37
Posttest 3	15	162	67.79
Posttest 4	9	164.11	70.57
Posttest 5	7	151.57	62.98
Posttest 6	4	172	38.48

and the score on the posttest immediately following the viewing. The results appear in Table 6.15. As the table shows, none of the correlations was significant.

Recall that Research Question 6 asked, "Once a child displays comprehension of the material, does the memory for the learned material remain over time?" As no child in the sample appeared to display consistent comprehension (as measured by scores from posttest to posttest), no child was visited a second time for a follow-up. Thus, this research question becomes moot.

The hypothesis in this study predicted older infants would comprehend the material more quickly than younger infants. As a first step to address this hypothesis, correlations between age group (12-16 months, 18-21 months, and 22-25 months) and performance at each trial were run in order to highlight any significant relationships. Correlations show a significant relationship between age and score on pretest (r (28) =

Table 6.15

Correlations of "Eyes on Screen" for each Viewing and Scores on Posttests

Eyes on Screen (EOS) and Posttest	Pearson *r*	Sig.
EOS after Pretest x Posttest 1 Score:	.024	.899
EOS after Posttest 1 x Posttest 2 Score:	-.247	.224
EOS after Posttest 2 x Posttest 3 Score:	-.268	.334
EOS after Posttest 3 x Posttest 4 Score:	.024	.952
EOS after Posttest 4 x Posttest 5 Score:	.170	.715
EOS after Posttest 5 x Posttest 6 Score:	-.668	.332

.369, $p = .045$) but no significant relationships with any of the posttests. Thus, the hypothesis was not supported.

Summary

Overall, Phase Three of this project did not find any detectable learning from the Brainy Baby *First Impressions: Letters* DVD in the short term. There was a significant positive correlation between a child's age and the number of posttest trials attempted, but this did not translate into a significant positive correlation between a child's age and actual performance on the posttest trials. Thus, older children did not perform any better than the younger children on the posttests. The analysis of each child's trial-by-trial

responses to each of the six pictures revealed a clear lack of consistency of responses from trial to trial and from picture to picture. Responses to the picture-letter pairings appeared to be random; children in this study did not do any better than chance (i.e., no learning was observed). None of the ANCOVAs were significant, again indicating that no learning took place throughout the study. Performance on posttests was not significantly correlated with performance on the MacArthur Short Form Vocabulary Checklists, nor were the individual posttest trial scores significantly correlated with the "eyes on screen" attention measure for each posttest. In sum, none of the variables in this study correlated significantly with posttest scores, and the posttest scores themselves did not indicate that any learning of the material was present. A discussion of these findings appears in Chapter Seven.

CHAPTER SEVEN

SUMMARY OF FINDINGS, DISCUSSION, AND FUTURE RESEARCH

The purpose of this project was to examine the claims made by creators of some infant videos that their content is somehow educational. In order to accomplish this, a quasi-experiment was conducted with children in the second year of life to determine whether they could learn from repeated viewings of an educational video distributed by the Brainy Baby Company. To put the experimental portion of the project in its proper context, an analysis of the marketing and advertising of both Baby Einstein and Brainy Baby was conducted as well as interviews with parents of children in the companies' target demographic. This chapter briefly summarizes the findings from each of the three phases, followed by a discussion of the findings from each phase, and culminates with a discussion of limitations to the study and directions for future research.

Summary of Findings

Phase One: The Marketing Analysis

Overall, the impressions given by both Brainy Baby and Baby Einstein via their marketing and advertising efforts fell into three broad categories: educational, credible, and aspirational. *Brainy* Baby and Baby *Einstein* capitalize on their "genius"-sounding names, and various synonyms were used throughout the advertising to represent the educational nature of baby videos, such as "discovery," "curiosity," "learning," and "enrichment." Both companies also went to great lengths to convince customers of their credibility, with Baby Einstein focusing on their Disney parentage and Brainy Baby

highlighting their history in the industry and the qualifications of their founder. Both websites feature their many awards, focus on the developmental appropriateness of their products, and try to relate to parents via casual, everyday speech. Lastly, the overall message of the ads from both companies can be considered aspirational in that they feature perfect children, perfect parents, and perfect parent/child relationships. The ads and websites evoke high class ideals and elite culture, such as art and classical music, and appear to privilege some races, religions, and genders over others. This is illustrated in the emphasis on Caucasian, Christian mothers as consumers while celebrating famous men as the "inspiration" for many of the videos themselves.

Phase Two: The Parental Interviews

Almost two-thirds of the 28 parents interviewed in phase two reported that their child has at one time been exposed to television, and almost 70% of parents claimed to own a baby video. Only four of the parents always watch television with their child; the other 86% of the total sample of parents who let their child watch alone perform tasks like cooking, cleaning, and taking a shower while their child watches. Overwhelmingly parents reported that their pediatrician does not ask them about their child's media habits, despite the AAP's recommendation, and that other parents think very positively about baby videos. Of those who have discussed the use of baby videos with fellow parents, 82% reported only hearing positive comments. However, parents also explained that while companies such as Baby Einstein want consumers to *believe* that their products are educational, that might not actually be the case. Many of these parents, however, continue to expose their children to such videos. Of parents who talked about the

educational benefits of the videos, 55% believe them to be potentially beneficial in combination with other "teachers" about the world.

Phase Three: The Quasi-Experiment

The last phase of this study involved 30 children in their second year of life who participated in a repeated measures pretest-posttest quasi-experiment with multiple exposures to the stimulus. There was a significant positive correlation between age and the number of posttest trials a child attempted, but none of the inferential statistics regarding pretest and posttest performance were significant. As the results demonstrate, there is no indication of learning taking place throughout this phase, despite some children watching the educational video six times. Responses to the six picture/letter pairings at pretest and at each of the posttests were random, and no child demonstrated a consistent pattern of correct answers. The duration of time a child spent actively looking at the screen while the video was playing was not related to the child's overall score at each posttest; in fact, some children watched the video almost all the way through and never got a correct answer at posttest. Lastly, the hypothesis that older children would learn faster than younger children was not supported.

Discussion of Findings

Phase One: The Marketing Analysis

It was noted previously that the theoretical framework for the marketing analysis phase of this study incorporated aspects of niche theory and brand equity. Recall that niche theory (Dimmick, 2003) explained that the key for any company is to recognize competitors and then make wise marketing decisions that allow your company to emerge in the most advantageous position – without spending too much money fighting your

competitors for consumers. Both Brainy Baby and Baby Einstein appear to be fighting for the same consumers (i.e., White, female parents who want to give their child a "leg up") however they go about doing so using different strategies. Baby Einstein sends the message that their products are educational, that they're credible, and that children who use the products become "ideal" or perfect (and the parents who buy them are also perfect) in a much more implicit manner than Brainy Baby. While Brainy Baby consistently refers to their product as educational and references "learning," Baby Einstein focuses on "discovery" and curiosity. Baby Einstein relies on its Disney parentage to communicate credibility, while Brainy Baby has to explain that they were "first" to create these products. Baby Einstein shows consumers romanticized images of the perfect parent/child dyad, bonding and ostensibly discovering the world together, while Brainy Baby more explicitly explains, "Since no parents asks, 'Got anything that'll make my kid dumber?" Indeed they are fighting for the same consumer, but while Baby Einstein appeals more implicitly to a romanticized notion of parent/childhood, Brainy Baby explicitly communicates that they will educate your baby.

At the same time, Dimmick's (2003) theory of the niche also stresses the notion of coexistence within an industry, whereby companies within a product category create niches that overlap somewhat with competitors – something he termed "niche breadth." In this way, the companies promote their industry as a whole without competing for scarce resources (i.e., consumers) and can coexist. When examining the advertising and marketing of the two companies studied in this project, one can also see this dimension of the theory at work. Neither company mentions the other in their ads or on their websites, thus supporting the notion of a somewhat non-competitive "industry" of supplying babies

with educational tools for their development. As McDowell (2004) noted, the mere fact that the companies do not allude to each other "could be construed as a deliberate niche approach in that it nurtures coexistence rather than competition" (p. 223). These two companies almost present a unified front, communicating to parents that they exist only to help educate young, eager minds. Of course with a big name like Disney on their side, the Baby Einstein brand lends credibility to the industry as a whole.

It is also important to note that while only two companies were analyzed in this project, there are several others beginning to emerge as industry leaders, most notably Nickelodeon (makers of "Curious Buddies" DVDs), The Baby School Company Inc. (makers of the "So Smart" videos), Seattle-based children's media company BrainCandy, and even Sesame Street Workshop with their controversial "Sesame Beginnings" DVDs (Oldenburg, 2006). Indeed, now there is even a 24-hour "all baby" cable/satellite channel, BabyFirstTV. Thus, the message to consumers appears to be that not only is the Baby Genius Edutainment Complex here to help, they're here to stay. This previously unheard-of baby video industry is now a power to be reckoned with as they pursue their ideal customer – the "diaper demographic" – through their "extreme parents."

Within a product category, such as the baby video industry, companies are also concerned with brand equity (Keller, 1993; 2003), striving to enhance the value of their brand name. These companies want consumers to make strong, positive associations with their brand. This concern for brand equity is certainly seen throughout the advertising and marketing included in this study. While (as noted above) each of these companies brands itself in different ways – Brainy Baby more explicitly and Baby Einstein more implicitly –they both clearly communicate their brand's value by making positive associations in all

three categories uncovered in the analysis: educational, credible, and aspirational. Taking the advertising at face value, a parent could assume that the products offered by Baby Einstein will make their child more curious (helping them to "discover" the world), that they were created by a mom "just like them" to expose their child to music and the arts, and that they are safe because they are backed by the "child friendly" Walt Disney Company. Parents examining Brainy Baby's advertisement and website could assume that their products are truly educational – as they, unlike Baby Einstein, actually label their products as such – and that by exposing their child to these videos (the "first in the industry"), they are giving their child an advantage when they begin formal schooling. Reading between the lines of the ads from both companies, parents can assume that by using such products, not only will they create the perfect child, but the parents themselves will become "super-parents" and form a loving, lasting, perfect bond with their child. All of these positive associations can only add value to the brand equity of each of these companies.

Further adding value to the brands are beliefs that parents can take away from the advertising and marketing about the "Mozart effect" and the guiltless nature of the products themselves. Recall from Chapter One that the so-called Mozart effect theorized that exposing children to classical music would make them retain more knowledge than children who did not hear the music. This theory has been largely debunked. However, the cultural myth lives on, and while the support for any such effect for young children is virtually nonexistent, the appearance of books, DVDs, and music CDs such *as The Mozart Effect Music for Babies: A Bright Beginning* and *Mozart for Mommies and Daddies – Jumpstart your Newborn's IQ* have fed into the myth of an exaggerated effect

on infant cognition from listening to classical music. Of course, the Baby Genius Edutainment Complex has capitalized on this incorrect – but widely-held – belief, producing videos that feature classical music from start to finish, and even highlighting such composers as Mozart himself in their libraries of titles. Surely this adds to the brand equity of the companies.

The companies analyzed here capitalize on the "guiltless" media product image they exude. Baby Einstein DVD's are referred to as "Digital Board Books" (in fact, it's written directly on each of their DVDs), further distancing the company's products from the AAPs recommendation of no *television* for children under two. The use of this terminology can be read as a very strong branding strategy, aligning the company with the idea of "reading" and actual children's literature – which is generally regarded as greatly beneficial to young children (Cullinan & Bagert, 1996) – rather than electronic media, which often times has a more negative connotation attached. Both companies' insistence on their respective websites that their products are meant to be used interactively, or as an opportunity to learn together with your child, appear to combat the negative attention surrounding the "using television as a babysitter" mentality. Seiter (1996) explained that "every middle class mother knows that children should not be watching television; they should be doing something else – something more stimulating, more educational, more creative" (p. 141) and these companies have addressed that concern. Their products are educational, stressing creativity and the arts – nothing a parent should feel guilty about.

Gothie (2006) noted that if companies such as Baby Einstein and Brainy Baby are indeed offering "guilt-free" video time, then it is in their best interests to offer their

products to consumers with the greatest guilt: the middle class. Indeed, as noted in the results in Chapter 4, the very placement of the ads in "middle-class" magazines such as *Good Housekeeping* (rather than, for example, *Martha Stewart Kids*) speaks to the audience they are trying to capture. Cross (1997) believes that owning products such as those from the Baby Einstein line appeals to the middle class because they are the "perfect symbol[s] of the status-conscious middle-class family" (p. 139). Parents can relish the notion that these products are not mindless television garbage; they are educational products that will dispense elite culture to eager young minds. Seiter (1998) explained:

> Upper middle class parents want their children to like things that are 'better to like;' they struggle to teach them the tastes for classic toys, the aesthetics of natural materials, and the interest in self-improving 'educational' materials favored by their class – and to spurn children's consumer culture as mass, TV-based, commercial, and plastic (p. 298).

Parents can overcome their anxieties about putting their young children in front of a television by popping in a Baby Einstein DVD rather than relying on the commercial television networks for "guilt free" content. As Gothie (2006) succinctly explained, "the *notion* of baby Einstein is much more powerful than the products themselves could ever be" (p. 45, italics mine). Indeed these companies, by presenting themselves as educational, credible, and aspirational, feed into parents' need to believe that they are actively helping their children when they put them in front of a *Baby Shakespeare* DVD.

Phase Two: The Parental Interviews

The second phase of this project was largely done to triangulate the findings from Phase One and to gather sufficient information about the children participating in Phase Three. After utilizing the constant comparator method to analyze the marketing and

advertising of Brainy Baby and Baby Einstein, it seemed logical to ask parents to comment on what they took away from any such marketing or advertising to which they had been previously exposed. As far as triangulating the findings in Phase One, it appears that parents are indeed receiving the same messages that the marketing analysis revealed, particularly those messages that fell under the "educational" umbrella.

As noted in Chapter 4, many parents were left with the impression that baby videos are meant to be educational. One parent remarked, "I feel like the promise they're making is that your baby will be smarter or will learn quickly" while another said, "Based on the advertisements I would say that they tell you that they are going to learn things and that they are going to be stimulated." This clearly mirrors the messages categorized in Phase One, particularly those that communicated not only "learning" but also a sense of "discovery" or "curiosity." However, recall that almost half of the parents who directly addressed the educational benefits of such videos believed that no such learning actually takes place. Instead, they view the content as harmless and engaging, but not necessarily educational. The overall feeling from these parents was summed up nicely by one mother who stated, "I felt that they were probably the least inappropriate things they were going to see on TV." As noted above, these parents believe the products feature safe, guilt-free content, but not necessarily content that inspires learning.

An interesting finding stemming from the interviews is that parents are aware from the advertising that baby videos are meant to be used with your child, but that very few of them actually follow such guidelines. In fact, only four of the parents "always" watch with their child. The marketing analysis in Phase One revealed as part of the "aspirational" category that these companies are pushing the idea of "togetherness" or

bonding via their products, as if parents can form a perfect bond with their children if only they use a baby video to help them. Parents interviewed in Phase Two, however, tend to use the products as a way to keep their children occupied so that they can accomplish household chores such as cooking and cleaning.

Just a few years ago, parents might have felt more guilt about plopping a child in front of a television screen in order to get things done around the house. As Seiter (1998) explained, once the issue of "children and television" became a controversial issue,

> Experts assigned mothers the job of censoring, monitoring, and accompanying the child's viewing. If a mother heeded the experts' advice, she lost the free time the television provided; if she did not, she used television as a babysitter only at the cost of feeling guilty about it (p. 311).

But no longer do parents have to feel such guilt – they have "educational" baby videos to keep their child occupied. Even if a parent does not necessarily believe in the ability of a Brainy Baby *Left Brain* DVD to educate her baby, she might be tempted to put in on for her child so she can take a shower in peace, telling herself that it is not harming her child and that maybe there is a chance it could help. So despite the claims of baby video producers that these products are meant to be watched by both parent and child, the reality is that children are most likely watching alone while mom or dad makes dinner. The interviews tapped into a very odd belief system about these videos: parents call them "educational videos" but generally don't believe them to be educational. Perhaps the term "educational," when associated with baby videos, has come to be defined differently than when applied to traditionally "educational" items. Parental reference to them as educational is more tongue-in-cheek; they don't expect their child to become an "Einstein" after watching them, but at the same time can alleviate any guilt they feel and say to others, "It's okay that my infant is watching a DVD – it's educational!"

It does appear that parents across the board were hearing mostly positive comments from fellow parents about baby videos, with the Baby Einstein name featuring prominently in such discussions. In fact, it appears that most parents view Baby Einstein as the "gold standard" in the baby video industry; many parents had never even heard of the Brainy Baby, Baby Genius, Brain Candy, and Curious Buddies video libraries, but they had all heard of Baby Einstein. Despite the AAP's recommendation, the vast majority of pediatricians, however, are not addressing the crucial issue of screen media before the age of two at all with these parents.

Nevertheless, parents in this study, even if they don't get the message from their child's pediatrician, are apparently getting the message somewhere, and nowhere is this more obvious than when they were pressed to put a number on the amount of time their baby spends with the small screen. Not one parent volunteered a specific amount of time their child watches, which speaks to the "guilt" factor – they know they shouldn't put their child in front of the television, but for one reason or another, they do it anyway. Thus, perhaps they were wary of "telling on themselves" when asked. This could reflect the social desirability bias often found in studies that use self-reports. Parents understand that it may not be socially appropriate or acceptable by others' standards to admit exposing their children to television – most every parent does it, but they believe that they shouldn't. Thus, they were overly cautious in answering this question, lest they be perceived as a "bad" parent.

Phase Three: The Quasi-Experiment

Due to the results obtained in the first two phases of this project, the quasi-experiment performed in Phase Three now has some context: these baby videos are

advertised as educational, coming from credible sources, and can help parents and babies become more "ideal." Additionally, many parents buy them not necessarily because they purport to be educational, but because they are "safe" programming that might not help, but probably will not hurt. With that in mind, perhaps the results of Phase Three are not so surprising or alarming: in essence, this phase of the project found that children did not learn from the Brainy Baby *First Impressions: Letters* DVD in the short term.

Chapter Two outlined that attentional inertia research shows that when children maintain a look at television for more than 15 seconds, they are less distractible and can remember more of the content. Maintaining sustained attention to the screen was not a problem in this study; thus attentional inertia research would indicate that children should have been able to give correct answers at each posttest. However, as is highlighted in Chapter Four, not only was there no correlation between each "eyes on screen" measure and its companion posttest score, posttest scores across the board showed no learning. One interpretation of these findings is that rather than the previous attentional inertia studies being flawed in some way, there was another barrier to learning in this study: the video deficit effect.

The results from the trial-by-trial analysis and the failure of any of the inferential statistics to reveal any statistically significant findings clearly support Anderson and colleagues' "video deficit effect." Chapter Two outlined that in its most basic form, this video deficit refers to the fact that very young children learn less from television than from real-life models or experiences (Anderson & Pempek, 2005). Studies involving imitation (e.g., Barr & Hayne, 1999), language learning (e.g., Kuhl et al, 2003), and the reproduction of emotional responses (e.g., Mumme & Fernald, 2003) have all

demonstrated either a complete lack of learning via video, or significantly less learning from video versus a live model. For some reason, infants and toddlers have difficulty learning from televised models, though no researcher has exactly pinpointed why this is the case. Several theories have emerged to explain this video deficit – such as the perceptual encoding impoverishment theory and the dual representation hypothesis – and the results of the current study appear to support such explanations.

Chapter Two explained that the perceptual encoding impoverishment theory suggests that for very young children, the two-dimensional input from television is "impoverished" compared to three-dimensional (or "live") input. Thus, perhaps the failure of the children in this study to learn the picture-letter associations from the video was simply an issue of poor perceptual encoding of the information presented to them televisually. Recall that in Johnson and Aslin's (1996) research, they determined that key elements in infants' perception are depth cues, something obviously lacking when one tries to "learn" from a two-dimensional television screen. Barr et al. (2007) also explained that very young children have trouble making the transfer from two dimensions to three dimensions. However, the pictures used in the study were designed to be simply two-dimensional replicas of "screen shots" from the video, so the transfer should have been easier for children to make (i.e., two-dimensions to two-dimensions).

The results of this study also show clear support for the dual representation hypothesis, which focuses less on the actual content of the video and more on the cognitive capacity of the child audience. According to DeLoache's (1995) definition of the dual representation hypothesis, children who participated in this project fall into an age group in which the lack of understanding of the dual reality of symbols is a major

roadblock to learning from televised media. The participants suffer from a "dual representation" difficulty in that they do not make the link between what they see on the television screen and what they are presented with in three-dimensions. They do not see the video as presenting them with relevant information about the world.

While the children in this study might have responded meaningfully in some way to what they saw on the screen during the video, it did not necessarily translate into the use of the televised image as a source of information about the real situation they were confronted with at posttest. In fact, when coding the videotapes of children's trials, coders noted that several children responded in some way to the video itself: some talked back to the video screen, touched the screen, repeated the words spoken in the voiceovers, rocked or danced to the music, and imitated the actions of the children on the screen. These observations mirror those made by Lemish (1987) in her seminal "Viewers in Diapers" study. Here, one would expect a child who is so obviously engaged with the content to successfully match pictures and letters at posttest, but that was not the case. DeLoache's dual representation hypothesis may be the explanation for such a seeming mismatch between engagement with the video and poor performance on posttests.

A few of the older children in the sample (closer to age two) did display a basic understanding that the letters and pictures used at posttest were the same ones shown and used by the children in the video. Coders noted anecdotally that one or two children appeared to have an "ah ha!" moment while the video was playing that the floormat letter sitting in front of them was the same letter being used on the television screen. For example, Child number 15 (age 21 months) picked up the letter "A" during the second viewing of the video when the airplane was on the screen, saying "A!" aloud.

Interestingly, this was the only picture-letter pair that the child correctly matched during the subsequent posttest. However, the child gave incorrect answers to "Airplane" during all successive trials, so perhaps the one correct answer was a fluke.

Other children noticed that the pictures being used at posttest were the same objects seen in the video. For example, child number nine (age 22 months) pointed to the DVD player when shown the pictures of the airplane and the arm at the first posttest, which the coder took as an understanding that the picture being shown at posttest was the *same* as the one just seen in the video. However, the child still chose the wrong letter to match both pictures with at posttest. These children were the exception rather than the rule but one could argue that for these few, a basic understanding of the dual nature of the symbols they were seeing on the video was emerging. Nevertheless, these children still performed poorly at posttest. Thus, the question still remains: if children are obviously engaged with the content, why is no learning discernable at posttest? Surely the dual representation hypothesis provides one explanation, but perhaps the lack of learning is not entirely the fault of the child participants' dual-representation difficulty.

There are several issues that should be addressed surrounding the video used in quasi-experiment that could explain, in part, the lack of learning. The video used in this project was billed as age-appropriate for children as young as eight months old. However, the voiceovers used did not employ what is classically known as "motherese" or "infant-directed speech," a style of speaking to very young children that captures their attention, communicates affect, and can aid in language acquisition (Soderstrom, 2007). Characteristics of infant-directed speech include higher pitch and greater variability in pitch (McRoberts & Best, 1997), the lengthening of vowels and pauses (Albin & Echols,

1996), and other exaggerated speech patterns. These characteristics were not readily apparent in the video used in this study, perhaps diminishing the educational capacity of the content.

Another more general concern about the content and language used in the video is regarding phonetics; the pronunciation of the letter itself doesn't always "match" the pronunciation of the word paired with it. For example, "A" is paired with both "Apple" and "Airplane;" the A's in both of these words are pronounced differently from one another, and neither word matches the traditional pronunciation of the letter A. This could lead to confusion for infants just learning to speak and recognize letters and sounds. Future work using letter/word combinations should make every effort to ensure this type of "mismatch" does not occur.

In addition, recall from Chapter Two that scholars are still debating whether overt formal features or comprehensibility drive attention to televised media. Anderson and Pempek (2005) highlight research that appears to show that beginning around age 18 months, comprehensibility of content is key, but before that age formal features can drive attention. Valkenburg and Vroone (2004) also found an attentional shift from salient formal features to more non-salient content-based features between 18 and 30 months of age. Given this research, for more than half of the participants in this project, formal features were of utmost importance. Some of the auditory features of the video used in this study may have captured participants' attention (such as the music, the child voiceover, and the children yelling out the names of the letters during the "review" portion of the DVD) but features such as applause, laughter, and sound effects – features that will typically grab children's attention – were absent. In addition, visual effects such

as special effects and animation were also absent. So perhaps for all of its simplicity, the way the information was presented on the video was just not interesting enough for children to recall the specifics when asked to do so at posttest. The preference for visual elements should be addressed in future research, as it may have implications for posttest performance.

It is clear, however, from observing several of the older children interacting with the video, that *while the video was playing* children were engaged with the content. As noted above, children would talk back to the video, repeat the words and letters announced by the voiceovers, and dance along with the music. The Brainy Baby website indicated that research from several fields of inquiry was consulted when crafting their DVDs, so one can only guess that this "interactivity" was by design. If this is indeed the case, it appears that the creators of the DVD have incorporated the lessons learned from studies about children's programs such as *Sesame Street* and *Blue's Clues*: that the Children's Television Workshop Model (Mielke, 1990) of including content experts, television producers, and educational researchers in the production of educational media for young children is the key to getting children to learn from television. Working together, these professionals can craft media particularly suited to the youngest viewers, capturing their attention and encouraging them to participate in the learning process.

Research on both *Sesame Street* and *Blue's Clues* show significant positive educational results. Thirty years of research on the impact of viewing *Sesame Street* found that children who engaged with the content demonstrated positive "school readiness" outcomes across a broad range of subject areas – some effects lasting a decade or more (Fisch, Truglio, & Cole, 1999). *Blue's Clues* was broadly designed to teach

preschoolers "thinking skills" and was purposefully created to empower, challenge, and build the self esteem of its audience with a "play to learn" model (Anderson, Bryant, Wilder, Santomero, Williams, & Crawley, 2000). The program has been lauded for its "call and response" style with children, which encourages interactivity between the program content and the audience (Schmelzer, 2006). Research with both programs found that even after a single viewing, preschool children can learn (e.g. Anderson et a., 2000).

It is possible, then, that the lack of learning in the current study is not the fault of the DVD producer, but rather that children in the sample age group are simply too young to learn from television. *Sesame Street* and *Blue's Clues* show us that it is possible to learn from television during the preschool years, but perhaps before age two the video deficit it just too strong, no matter how much research is consulted in crafting educational DVD content for infants and toddlers. Future research should attempt to discover the crucial turning point after which learning from televised media becomes possible. Research completed as part of the Early Window Project (Wright, Huston, Murphy, St. Peters, Pinon, Scantlin, & Kotler, 2001) investigated whether young children can learn novel words from video and found that the biggest gains in learning from educational television such as *Sesame Street* happened in the year between ages two and three. Thus, perhaps this "magic" point at which media becomes truly educational occurs somewhere between 24 and 36 months.

Practical Implications

Beyond theoretical implications – such as providing support for the video deficit effect, the perceptual encoding impoverishment theory, and the dual representation

hypothesis research – the results of all three phases of this project have practical implications for both the Baby Genius Edutainment Complex as well as parents. These implications are discussed briefly below.

While both Brainy Baby and Baby Einstein's advertisements have lead to FTC complaints in the past, both companies have made an effort to change their advertisement strategies to reflect concerns that they cannot provide hard evidence to back up any claims that their products are educational. However, perhaps the analysis presented in Phase One of this project can communicate to both companies one reading of their current ad campaigns: that they are still coming across as educational, but in a way most likely *not* to be censured by the FTC, via utilizing synonyms for "educational" and implicitly highlighting learning. However, whether this impression given to consumers is necessarily ethical – given the dearth of evidence in this study and in others that babies can learn from video – is beyond the scope of this project.

The results of the interviews with parents in Phase Two gave considerable insight into how the parents in this study felt about television in general, and baby videos in particular. Other parents can perhaps take the comments and reactions from their peers to heart, realizing that the majority of parents interviewed as part of this study do in fact let their one- to two-year-olds watch television and videos, and many admit using the videos as a "babysitter" in order to have some "grownup" time to themselves. Perhaps this will lessen any feelings of guilt or inadequacy as a parent for those readers.

Phase Three results, showing a lack of learning from the *Letters* DVD, can inform the ongoing debate about educational baby videos both in the boardroom and in the living room. Given the results, both the creators of the videos and their consumers can begin to

(or continue to) look with a skeptical eye at the educational promises being made both implicitly and explicitly about these products. Perhaps there is some educational benefit to the video used in this study, but it was not apparent with the children's performance in this research. As such, the Baby Genius Edutainment Complex must be careful to not exaggerate educational claims about their videos, and parents should perhaps lower any expectations they have of their children gaining much in the way of learning from such products. That being said, there are other issues highlighted by the results of this study that can be of practical use to the companies that produce these videos, such as the age range the products are marketed to, and the interactive use of the products between parent and child. Both are discussed below.

The range of ages for which these products are produced may be part of the reason why something touted as "educational" does not appear to inspire any learning. As Amy Jordan, educational television expert at the Annenberg School for Communication, explained in an interview, the range of ages that media products are listed as "appropriate" for should be carefully selected. She explained, "To be truly educational, you have to have a very narrow audience" (quoted in Guernsey, 2007, p. 120). Infants and toddlers undergo major changes emotionally, socially, and cognitively as they develop, and as such something "educational" for a 2-year-old may not make any sense to an 18-month-old. However, focusing on the learning needs of very narrow age ranges is certainly not in the best financial interest of media companies who need to justify spending millions of dollars on their products' development, production, and sales (Guernsey, 2007). Thus, consumers are left with products like the DVD used in this project – Brainy Baby's *First Impressions: Letters* – which is listed as age-appropriate

for eight months to five years. Perhaps therein lies the problem: just because it is "appropriate" for that age group does not necessarily mean it is "educational" for all kids in that age range. Producers of infant DVDs should take note of this issue.

As is highlighted in the analysis from Phase One, one message to parents from the advertising is that the products are meant to be used *with* your child, and not as a babysitter. While it was apparent from parental responses in Phase Two that this "sharing" does not always take place, it is important that parents know that the greatest likelihood of their child learning from video stems from the interaction of parent and child with the video. While the results of this study indicate that when a one- to two-year-old child is asked to recall picture-letter pairings after watching a video *alone* she will most likely give an incorrect answer, perhaps the child would have been more successful had the parent been involved in an active discussion of the content while it was playing. Singer and Singer (1998) explained that the attention a parent gives to the television screen can affect whether a child learns from the content, so perhaps that is the key with educational baby videos as well. In fact, a recent study by Barr, Zack, Garcia, and Muentener (2008) found that when parents watch television with infants ages 12 to 18 months and provide labels, descriptions and questions about content, infant looking time was significantly higher than when parents do not interact. These results suggest that parent interaction is associated with infant attention to television, so the next step is assessing parental interaction and *learning* from television. While future research will bear this out, parents should at least be aware that the potential for learning may exist within the active sharing of video content between parent and child.

Limitations to the Study

All research projects such as the current study suffer from limitations. This section will outline some limitations in the first and third phase. Phase One limitations focus on the method while Phase Three limitations focus on the sample, the short-term nature of the study, and the definition of learning used in this study.

By design, Phase One of the study took an inductive approach to the analysis of the advertising and marketing in order to allow categories to emerge from the data without being limited to a predetermined set of categories. To some scholars, such a methodology can be viewed as a limitation. This type of research, of course, is interpretive and although much of the resulting analysis was triangulated by the interviews with parents, some critics may still question the reliability of the analysis. Perhaps, however, quantitative purists can be satisfied in the future; now that this study has laid some groundwork for examining advertising and marketing of the Baby Genius Edutainment Complex, future studies in the area can be more structured, using multiple coders, calculations of intercoder reliability, and stricter protocols for examining raw data.

The quasi-experimental phase of this project suffered from some limitations as well. First, the design was not a true experiment, with no random assignment and no control group. Thus, the results cannot be generalized to the infant population as a whole. Instead, this research should be viewed as exploratory, or an important first step in uncovering the learning curve associated with very young children's educational media consumption.

The sample itself can also be viewed as a limitation. In the realm of infant research, the sample size of 30 is acceptable; in fact, recent published studies with infant participants have a sample size of between 24 (Goertz, Kolling, Frahsek, Stanisch, and Knopf, 2008) and 39 (Santesso, Schmidt, & Trainor, 2007). It can be quite difficult to recruit participants for research involving very young children, as they do not yet attend preschool and generally do not belong to any organizations. However, in many communication studies a sample size of 30 for experimental research would be viewed as inadequate; in order to aim for generalizability sample sizes in quantitative communication research are usually considerably larger than the sample used in this study. Beyond the size of the sample, however, an additional concern is for the homogeneity of the sample. Only one child was non-Caucasian and the majority of child participants came from homes with highly educated parents with a household income of more than $50,000 per year. Future studies of this nature should make every effort to recruit a more diverse sample.

Another limitation to the study was the fact that not all of the child participants completed all six posttest trials. While this could hardly be helped as many of the children became fussy or disinterested, it made statistical analyses quite difficult. Future studies should account for this drop-off during successive trials.

While the "big question" of "can infants learn from television?" was the impetus for this project, the method used only captured part of the equation. This project assessed the capacity to learn in the short term, over a very few exposures to the content. While no learning was discernable in the short term, there is still the possibility that given days or weeks with the DVD, the participants would have displayed some learning of the content.

Future work should focus on more longitudinal research to determine if and when learning from a video is possible in infancy. This recommendation is discussed further in the next section.

Future Research

The main focus of the current project was Phase Three – the quasi-experiment – while the other two phases provided much-needed context to the study and background on the participants. Thus, the future research discussed here mainly builds off of the quasi-experimental results. The current study was very much exploratory, although research in the areas of the video deficit and the dual representation hypothesis appeared to point to a slim chance of uncovering any learning in this project. However, in the literature search no other research was uncovered in which the baby videos available to the mainstream consumer were tested for their educational value. Accordingly, this project makes a unique contribution to the field, although no significant results were uncovered. It is the very lack of significant findings that supports the video deficit and points to the need for further research in this field.

First, future research can utilize the same methodology as the present study, but recruit participants from older age groups. As studies of language acquisition (Wright et al., 2001) and the dual representation hypothesis (Troseth & DeLoache, 1998) appear to suggest that it is some time between a child's second and third birthday when she can begin to learn from video, this is the perfect age group to test as a follow-up to this project. While the current study showed no learning between ages one and two, perhaps children between ages two and three will understand enough about the dual nature of the symbols they see on the DVD to move past the video deficit and learn the picture-letter

pairings. Once children can be identified who actively learn from the DVD, a learning curve can be established that demonstrates the age at which learning becomes possible.

Second, stemming from comments made by several parents regarding their babies learning sign language from various videos, future work should consider utilizing such a video as the apparatus of interest. While previous research, such as imitation studies (e.g., Barr & Hayne, 1999) and object retrieval studies (e.g. Troseth & DeLoache, 1998), has demonstrated that children learn much more from a live model than a televised one, there is also a dimension of this research that suggests that when a child perceives the model on-screen as a social partner, learning can take place (e.g., Troseth et al., 2006). Indeed, preschool programs such as *Blue's Clues* and *Dora the Explorer* use this very technique (i.e., mimicking a social interaction) to encourage children to learn. Perhaps there is something about the sign language videos that sets them apart from other "educational" infant videos whereby they communicate to viewers that they are an important social partner, and thus infants and toddlers are able to learn from them. Conceivably, the kinesthetic aspect of physically forming letters in sign language could also aid in recall. Future work should investigate the anecdotal claims made by parents by testing the short- and long-term effects of viewing such videos on the learning of American Sign Language in infancy and toddlerhood.

As noted previously, children in this study did not display any learning in the posttests, but several children were so engaged with the content of the video that they parroted the voiceovers (i.e., repeating "A… apple" immediately following the voiceover), pointed and laughed at certain content, danced to the music playing throughout the video, and generally appeared to enjoy the experience. Though this

seeming enjoyment did not translate to correct answers at posttest, the obvious engagement with the content is something not to be discounted out of hand. The definition of "learning" as "recall" is perhaps limiting the possible detectable evidence that children before age two gain something positive from their viewing experience.

As defined in this study, the children learned the material if they could recall the picture-letter pairing. When one speaks of "educational" *preschool* programming, often the content presents skills such as reading, counting, or problem solving. Perhaps, however, the term "educational" when applied to baby videos means something very different. Baby Einstein's advertising focuses on "curiosity" and Brainy Baby's website explains that they want babies to develop a "love of learning," so perhaps just the fact that babies pay attention to the screen and potentially absorb some of the content is enough to be called "educational" in a sense. Infants learn in "baby steps," and while the children's performance on the posttests in this study didn't show learning (defined as "recall") perhaps there was some educational benefit to those children who were talking back to the screen, dancing along with the music, and seemingly enjoying the content. If so, this type of learning was not captured by the dependent measures.

In future work, the term "learning" can be defined more liberally. Perhaps it takes longer for a child before the age of two to realize that the "apple" she pointed to and named during the video refers not only to that specific apple but to apples of all kinds (and that apple goes with "A"), but she has "learned" something nonetheless if she can consistently name the apple on the screen. This should somehow be accounted for when assessing learning from a video. Whether a child can take her knowledge about the apple on the video and apply it to the real-life apple she is having for snack is the next big step,

and she might not hit this threshold until after age two. Nevertheless, it is clear from observing such a child that some primitive form of learning has taken place, although not the type of learning captured by the posttests in this study. Thus, future work should take both verbal and non-verbal behavior while viewing as indications of some form of learning from a video. Scholars in the future should broaden the scope of what determines "learning" in the under-two's; even if these viewers do not learn a *skill* per se, perhaps they are taking away something from these videos that can be beneficial

Along similar lines are the different operationalizations of "learning" as it is used in this study and the idea of "comprehension" studied by Anderson and colleagues and Valkenburg & Vroone (2004). When these researchers study very young children's understanding of mediated content, they look for signs of comprehension of the material; they alter the comprehensibility of the video in some way and test to see if the children are sensitive to the changes. While these types of comprehension tests tap into the same overall phenomenon of young children's understanding of media that this project taps into, a measure of comprehension of content only demonstrates that children are sensitive to the storyline – not that they are necessarily learning from it. Still, perhaps a measure of comprehension (in addition to measures of attention) is a necessary precursor to measuring learning. Common sense would point out that if the viewers cannot understand the narrative, they have little chance of learning anything from it. Fisch's (2004) "capacity model" also points to this issue: a young child's brain only has so much capacity for taking in new information. Thus, if the child is spending all her mental effort trying to understand the storyline as it is presented in the video, there is little mental capacity left for *learning* the material; learning takes a back seat to deciphering the

narrative. Perhaps future work in this area should first test comprehensibility of the stimulus, and then test learning. Once children who clearly comprehend the material are singled out, maybe significant learning can be uncovered.

This project utilized a methodology that focused on learning from a baby video in the short term. As noted above, perhaps repeated viewings of the video over the long term would have produced significant results. Therefore, future research should take a close look at how receptive children under two are to the information presented in baby videos over a longer period of time. Some promising research in language acquisition in infancy such as Newman and Ribar (2006) appears to suggest that some learning can take place from video over the long term. Newman found that 12-month-old children can learn novel words (tested by a "head turn" procedure) from speech overheard on video after being exposed to the video ten times over a two week period. Though Newman cautions that the evidence only shows that infants can distinguish between a word they heard on a video versus a word they did not, it nevertheless points to the possibility that children in the second year of life can learn something after repeated viewings of a video, over a period of days and weeks. Future research with mainstream educational baby videos should test whether repeated viewings of videos over several weeks can have such an effect with children under two.

Additional longitudinal research should focus more on the societal or cultural implications of such a successful baby video industry. Beyond the question of whether or not children before age two can learn skills of some kind from the individual videos they view, perhaps asking questions about what children are learning about electronic media *in general* can help inform this area of research. For example, future research should

investigate whether the baby video phenomenon has replaced other parent/child interaction, such as reading books to very young children. If there is indeed a cultural shift from actually reading to children to putting them in front of "Digital Board Books," are there dangers associated with such a change? The age-old argument for reading to a child was to instill a love of reading in the child, and to teach them to value books and literature. Indeed studies have shown that children who are read to as infants and toddlers perform better in elementary school (Gentile & Walsh, 1999). If parents are replacing "reading" time with "video" time, what exactly are children learning to value? Will this affect later performance in school, or is it just another indication that our society is going "digital"? Surely there are implications to such a societal shift that deserve further explication. Future research should investigate this phenomenon.

While the current study focuses on the booming market of educational videos crafted for infants and toddlers, the recent addition of a 24-hour "baby network" to many cable and satellite lineups across the country also deserves further attention. BabyFirstTV claims that it is "not traditional TV – it's a brand new educational tool" that provides 80% original programming (the other 20% comes from companies such as Brainy Baby and So Smart) for an additional $4.99 to the monthly cable or satellite bill (BabyFirstTV, 2008). During all of their programming, the channel incorporates a color-coded programming guide to tell parents exactly what type of educational value each segment has, from yellow for "creative thinking," to blue for "math," to red for "language." Content-wise this network deserves a closer look. Is it falling into the same trap as Baby Einstein and Brainy Baby of labeling content "educational" without any research to back up such claims (thus opening itself up to trouble from the FTC)? Or is their content

somehow truly providing educational material to babies in new and unique ways? Future research should not only analyze the content, perhaps comparing it to other members of the Baby Genius Edutainment Complex, but also experimentally test any claims of learning. Providing parents with a 24/7 electronic babysitter for their infants that promises to be educational could have unforeseen, and lasting, negative effects that need to be investigated.

Lastly, future research in the area of infants and toddlers and their learning from video should take full advantage of the insight gained from infant brain studies. Utilizing the tools and methods perfected by scholars in the field of neuroscience could provide never-before-seen insight into how the developing brain responds to televised media, and perhaps whether there is any cause for concern when exposing young infants to television. Emerging research in this area does, in fact, show that the infant brain responds differently to live versus televised action. After a study by Jarvelainin, Schurmann, Avikainen, and Hari (2001) found that live and televised actions are processed differently in the *adult* brain, Shimada and Hiraki (2006) extended this research to study whether the same was true in 6- to 7-month-old infants. Using a near-infrared spectroscopy (NIRS), a recently developed noninvasive neuroimaging technique, the researchers found that sensorimotor activity in the brain was more pronounced when viewing live action than when viewing the same action on a television screen. These researchers suggested that the reason for this discrepancy is that television offers a different reality in the infant observer's brain compared to the live setting, and thus the brain responds differently to both. The implications of this research have far-reaching effects into the study of not only infant attention to television, but also perhaps research

examining why children under age two have such a hard time learning from televised models. Perhaps research focusing on brain activity while watching can shed some light on the video deficit effect in children under two.

Summary and Post Script

In sum, this study found no detectable learning taking place in the short term using quasi-experimental methodology. The results not only make theoretical contributions to the ongoing discussions of the video deficit effect, but are important in practical circles as well, informing debates among parents and producers alike about the benefits of educational videos for babies. As discussed above, Phase Three of the study does have a few limitations that can be addressed in future research, such as sample issues and definitional challenges. Future work in this area, however, can go in several exciting directions, from extending the current study to older children, to longitudinal research, to observational studies, to research on the infant brain's reactions to baby videos. While the current study was exploratory in nature, it was an important step in furthering knowledge about the Baby Genius Edutainment Complex's affect on their target audience: the Diaper Demographic.

Integrating the findings from all three phases of this study reveals some overall themes that speak to the "baby video phenomenon." Pulling together the analyses of the advertising messages as well as the audience (both parents and children), and the investigation of the products' usefulness as educational tools, highlights the overall belief – indeed, one might call it cultural myth – that the videos are educationally beneficial, even in the face of opposing evidence. Beginning with the all-but debunked idea of the "Mozart effect" that nevertheless continues to permeate the industry, there is almost a

collective amnesia of sorts surrounding these products: parents see that the videos are advertised as "educational," and even though they don't believe such claims they show it to their children anyway, all the while telling themselves that perhaps there is some educational benefit to them. Logically, it makes no sense, but if a parent can feel less guilty by exposing her children to something "safe" that just might have some residual benefit, perhaps she can take a shower without the anxiety of feeling like a "bad parent."

In addition to touting the educational merits of the videos, the companies analyzed in this project appear to promote their products as substitutes for books. Baby Einstein capitalizes on the idea of their product as a "Digital Board Book," giving parents further reason to feel good about exposing their children to video before age two, and Brainy Baby founder Dennis Fedoruk refers to his products as "tools that parents can use with their children, much like a book, to introduce academic basics" (Boodman, 2007, p. HE01). Particularly when combined with the message that these videos are meant to be used *with* your child – even if parents do not actually follow that edict – the videos begin to be conceptualized as the same as, if not better than, reading to your child. As discussed above, this notion could potentially have far-reaching effects in ways not yet conceived.

The bottom line is that this industry exists to capitalize on the seeming national preoccupation with creating intelligent children as early as possible, and it has become a multi-million dollar enterprise. Even after the publication of the Zimmerman et al. (2007a) study suggesting a link between viewing Baby Einstein videos and a decrease in language development – and the subsequent media firestorm surrounding its release – Baby Einstein products continue to fly off of the shelves. This speaks to a continued

societal belief in the merits of the baby video industry, even in the face of research that shows the potential for harm to young children.

This project addressed only part of the overall puzzle of whether children under age two can learn from video. From conversations with parents who participated in the Phase Two interviews, the "burning question" seems to be, "Should I or shouldn't I?" Beyond the potential guilty feelings associated with putting their children in front of the television, parents truly want to know: Do these videos help or hurt? While the results of this study only partly address that question, future research will most likely make this less of a "black or white" issue (i.e., they either help or they hurt) and venture into more of a gray area despite the AAP's recommendation of *no* screen time under age two. The results of this study appear to reflect the feeling expressed by many parents that while the videos might not help educate their child, they probably do not hurt either. While the children who participated in this study may not have learned the picture-letter pairings successfully, overall they appeared to at least enjoy watching the video, as evidenced by their verbal and non-verbal responses while the video was playing. Of course, until future research can accurately gauge both the short-term and long-term effects of watching television before age two, this issue should continue to be debated in the academic community.

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Appendix A

Brainy Baby Print Advertisement (from the FTC complaint filed by CCFC)
© Brainy Baby, LLC

Appendix B

Baby Einstein Print Advertisements

Baby Einstein "Piano" advertisement
© Baby Einstein

Baby Einstein “Dad and Baby” ad
© Baby Einstein

Baby Einstein “Bubbles” Ad
© Baby Einstein

Appendix C

Home Pages for BrainyBaby.com and BabyEinstein.com

Brainy Baby Home Page

Baby Einstein Homepage

© Baby Einstein

Appendix D

Qualitative Content Analysis Guide

Type of appeal: Logical, Emotional, or Ethical – is this ad creating a need for something? What is it that separates these ads from those that appeal to others?	Appeals: need for affiliation, need to nurture, need to achieve, need for prominence – happy families (need to belong), rich lifestyles – aspirational, elite people or experts	How do they present their product? *What* exactly is being advertised? Is it a literal representation of the product or is it a metaphor? Who is the subject? What is the object?	*Where* and *when* did the ad appear? Why might it have appeared there and then rather than elsewhere	In what ways does it utilize features of the particular *medium* used? What part is played by the use of sound and/or light?	*Where* is it set in space and time? Who are the participants? What do they do? What is the kind of parent in the text?	Describe the overall design – how are the various components of the ad arranged, where are we asked to gaze – how are we directed by the design of the ad?
What graphic mode(s) is/are used – camera angles – where does this place the reader – neutral? Is the subject given authority through a low angle?	What key objects are featured?	What part is played by *words* (choice of words, typography/ typeface, voiceover)? Direct address? Short, active words, persuasive words	Which features are *foregrounded* and which are *backgrounded?*	Design: symmetry, rel. btwn pictures & words, white space, angle of photos, lighting, color	Figures: facial expressions, hairstyles, color, body shape, body language, clothes, sex, age, race, education, job, relationships	What is going on in the ad & what significance does this action have – narrative & plot? Basic theme?
Symbols & signs – what role do they play in stimulating positive feelings about or desire for the product?	Language: how used- metaphor, metonomy, repetition, alliteration, comparison & contrast, sexual innuendo, definitions – provide information, create emotional response, present the message authoritatively, humorously, etc	What significance might all of these features have for the intended viewers/ readers/ listeners?	What key inferences must the viewers/ readers/listeners make to make sense of the ad?	What appears to be the *intended audience*? What suggests this? Who are the imagined users of this product?	How else does the ad seek your involvement? With what is the product *associated?* How does the ad establish its credibility	What does the product seem to symbolize? What does the ad seem to suggest about gender roles, class/status, age, ethnicity or self-identity? What cultural assumptions and values seem to be involved?
What role does it play in American society & culture? What political, economic, social & cultural attitudes are reflected in the ad – what else besides the item is being sold in the ad? Propose a standard? (beauty, body type, gender role, parenting, work, leisure)	What do you regard as the most likely *preferred interpretation* offered in the ad? What scope does there seem to be for alternative interpretations	What information do you need to make sense of the ad – allude to certain beliefs, reflect a certain lifestyle? Assume info & knowledge of person looking at ad?	What mood is created? What are the feelings it stimulates? Atmosphere, ambience – how does it create this mood?	What is the purpose of the ad? What does the advertiser hope to achieve? Is this explicit? Common ad strategies: ideal kids, life-like settings, sounds good, cute celebs, family fun, excitement	Basic format? (A slogan or striking image to capture attention, body of ad with more factual info & logo reinforces brand identity)	What continuities/ discontinuities are there across the range of ads?

Appendix E

Parental Interview Protocol and Demographics

Child's name: _____
Child's gender: _____
Child's birth date: _____
Child's sibling(s) & age(s): _____ _____ Male/Female
_____ _____ Male/Female
_____ _____ Male/Female

1) Does your child watch television programs?
- If yes, do they watch every day? Why does your child watch? During what times of the day? How long does he/she watch? What types of programs does he/she watch? Does your child have a "favorite" television program? What is that program? Why do you believe it is his/her favorite?
- If no, why not?

2) Do you own any "Baby DVDs" or videos?
- If yes, what companies' products (Baby Einstein, Brainy Baby, Sesame Beginnings, etc.)? Does your child watch these programs at home? Away from home (at others' homes, daycare, etc.)? In a typical day, does your child watch these programs? How many days per week does your child watch these videos/DVDs? Does your child have a "favorite" video/DVD?
- If no, why not? (*skip to question #5*)

3) If yes to #2: Did you buy them yourself or were they given as gifts?
- If you bought them, where did you purchase them (retail store, Amazon.com, etc.)? Approximately how old was your child at the time of purchase?
- If they were given as gifts, approximately how old was your child at the time?

4) If yes to #2: When your child watches these videos, do you remain in the room with them?
- If so (or "sometimes"), do you notice your child interacting with these videos or responding to these videos in any way? Do you notice him/her paying attention to specific types of content (i.e. animation, music, etc.)?
- If not (or "sometimes"), what types of tasks do you perform while your child watches these programs?

5) Just thinking about the advertising or marketing of Baby DVDs and videos, what impressions are you given about the effects of showing your child these products? Does this marketing affect whether or not you show your child these videos?

6) Have you ever discussed the use of these products with your pediatrician? What did the doctor say?

7) Have you ever discussed the use of these products with other parents? What did they say? What are their opinions about these products?

Parental Demographic Questionnaire

These questions are strictly voluntary. You may leave blank any question you do not want to answer.

1) In what year were you born? 19_____

2) What is your gender? A. Male B. Female

3) Race - How would you identify yourself? **Please circle all that apply:**

A. African American/Black
B. Asian/Asian American
C. Caucasian/White (Non-Hispanic)
D. Hispanic/Chicano(a)/Latino(a)
E. Native American
F. Other _____

4) What is your occupation? _____

5) What is your highest level of schooling?

A. Did not graduate from high school
B. High school graduate
C. Some college
D. College graduate
E. Finished a graduate or professional degree

6) What is your annual household income? Please check one:

____ Less than $9,999
____ $10,000 – 19,999
____ $20,000 – 29,999
____ $30,000 – 39,999
____ $40,000 – 49,999
____ $50,000 – 59,999
____ $60,000 – 69,999
____ $70,000 – 79,999
____ $80,000 – 89,999
____ $90,000 – 99,999
____ Over $100,000

7) On a typical day, do you watch television or videos? A. Yes B. No

(If "No," please skip to question 10)

8) If yes, how many hours per day would you estimate that ***you*** watch television/videos?

_____

9) If yes, I watch:

A. Programs made for "grown ups"
B. Programs made for children or babies
C. A mixture of "grown up" programs and children's programs

10) Do you see yourself purchasing baby videos/DVDs for your family in the future?

A. Yes B. No

11) Do you see yourself purchasing baby videos/DVDs for others in the future?

A. Yes B. No

Appendix F

Parental Consent and Permission Form

I give my consent for me and my child, _____, to participate in a research study titled "Learning From Infant DVD Content by 12-, 18-, and 24-Month-Olds" which is being conducted by Erin L. Ryan, M.A. as part of her doctoral dissertation work under the supervision of Dr. Janet Frick, Department of Psychology, University of Georgia (706-542-6790) and Dr. Alison Alexander, Associate Dean of the Grady College of Journalism and Mass Communication (706-542-1704). I understand that our participation is voluntary, we can refuse to take part in this study, we can stop participating at any time without penalty, and we can ask to have information about us removed from the research records or destroyed.

The following points have been explained to me:

1. The reason for this research is to examine whether children under the age of two can learn from an infant-directed DVD.
2. The benefit that I may expect from participation in this study is being able to observe my child's responses to the visual stimuli presented in the study, and contribute to scientific understanding of infant development. In addition, my child might learn some of the basic object-letter pairings contained in this study.
3. The procedures for the study are as follows: my baby will be videotaped while he/she chooses which letter of the alphabet matches with certain pictures and while he/she watches a four-minute clip of a Brainy Baby DVD. There are three parts to the task.
    a. First, my baby will sit in my lap or in a child seat at a table and he/she will be shown a series of pictures. My baby will be asked to indicate what letter (A, B, or C) goes with each picture.
    b. Next, my baby's attention will be directed to a laptop computer screen, on which a four minute video clip will be shown. My baby's attention to the screen will be observed. We can take a break if the baby becomes fussy or fidgety.
    c. Following this, my baby will be presented with the same pictures and alphabet letters as before and will be asked to indicate which letter goes with each picture.

The purpose of this is to see whether children under the age of two can learn to make object-letter associations with the help of a DVD. Any of this can be stopped early if the baby becomes tired or fussy.

Either before or after the session, I will be asked a few questions about my baby's television/video viewing and infant DVDs/videos in particular. This interview will be audio-taped. I will also fill out a brief survey asking questions about our family and our television/video viewing. I can skip any questions I would rather not answer. The total duration of participation for the interview and survey portions of this study will be approximately 20 minutes.

4. No discomforts or stresses are foreseen as a standard part of this research. However, on occasion, babies become fussy, hungry or sleepy. If this happens, I am free to pause the session in order to comfort my child, or stop the session early.
5. No risks from participating in this research are foreseen. I understand that my baby's data will not be used if there is a technical malfunction or if the baby is not interested in looking at the pictures.
6. The results of this participation will be confidential, and will not be released in any individually identifiable form without my prior consent, unless otherwise required by law. An exception to confidentiality involves information indicating child physical or sexual abuse which must be reported as required by law, or if the researchers are legally required to provide information. Sessions will be videotaped, but these tapes will not be made public without your permission (see below). I am free to watch my baby's videotape after the session. Videotapes will be stored in a locked cabinet. With your permission, some clips from videotapes may occasionally be used for educational or research purposes. All videotapes from this study will be stored indefinitely.

I give consent for my child's video being shown in classrooms to students for educational purposes, or at professional conferences where this research is discussed. My child's full name will not be disclosed on the video tape.
Video _____ (please initial)

7. The researcher will answer any further questions about the research, now or during the course of the project, and can be reached by telephone at (706) 369-9285 or through email at erinryan@uga.edu.

I understand the procedures described above. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

_____

Name of Researcher Signature Date

Telephone: 706-369-9285 Email: erinryan@uga.edu

_____

Name of Parent or Guardian Signature Date

Additional questions or problems regarding your child's rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

Appendix G

MacArthur Short Form Vocabulary Checklists

MacArthur Short Form Vocabulary Checklist: Level I

Make no stray marks.
Erase any changes cleanly.

Improper Marks ⊘ ⊗ ◒ ⊙

Proper Mark ●

Child's Name _____ Sex _____

Birthdate _____ Today's Date _____

VOCABULARY CHECKLIST

For words your child understands but does not yet say, mark the first column (understands). For words that your child not only understands but also says, mark the second column (understands and says). If your child uses a different pronunciation of a word, mark it anyway.

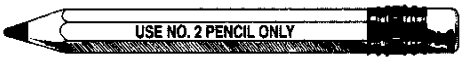
	Understands	Understands and says		Understands	Understands and says		Understands	Understands and says
choo choo	○	○	chair	○	○	wait	○	○
meow	○	○	couch	○	○	break	○	○
ouch	○	○	kitchen	○	○	feed	○	○
uh oh	○	○	table	○	○	finish	○	○
bird	○	○	television	○	○	help	○	○
dog	○	○	blanket	○	○	jump	○	○
duck	○	○	bottle	○	○	kick	○	○
kitty	○	○	cup	○	○	kiss	○	○
lion	○	○	dish	○	○	push	○	○
mouse	○	○	lamp	○	○	sing	○	○
car	○	○	radio	○	○	smile	○	○
stroller	○	○	spoon	○	○	night	○	○
ball	○	○	flower	○	○	today	○	○
book	○	○	home	○	○	all gone	○	○
doll	○	○	moon	○	○	big	○	○
bread	○	○	outside	○	○	broken	○	○
candy	○	○	plant	○	○	dark	○	○
cereal	○	○	rain	○	○	fast	○	○
cookie	○	○	rock	○	○	hurt	○	○
juice	○	○	water	○	○	pretty	○	○
toast	○	○	babysitter	○	○	soft	○	○
hat	○	○	girl	○	○	I	○	○
pants	○	○	grandma	○	○	me	○	○
shoe	○	○	mommy	○	○	how	○	○
sock	○	○	bath	○	○	who	○	○
eye	○	○	don't	○	○	away	○	○
head	○	○	hi	○	○	out	○	○
leg	○	○	night night	○	○	other	○	○
nose	○	○	patty cake	○	○	some	○	○
tooth	○	○	please	○	○			

MacArthur Short Form
Vocabulary Checklist: Level II (Form A)

Make no stray marks.
Erase any changes cleanly.

Improper Marks ∅ ⊗ ◒ ⊙

Proper Mark ●



Child's Name _____ Sex _____

Birthdate _____ Today's Date _____

VOCABULARY CHECKLIST

Children understand many more words than they say. We are particularly interested in the words your child SAYS. Please mark the words you have heard your child use. If your child uses a different pronunciation of a word, mark it anyway.

baa baa ○	hat ○	sky ○	all gone ○
meow ○	necklace ○	party ○	cold ○
ouch ○	shoe ○	friend ○	fast ○
uh oh ○	sock ○	mommy ○	happy ○
woof woof ○	chin ○	person ○	hot ○
bear ○	ear ○	bye ○	last ○
bird ○	hand ○	hi ○	tiny ○
cat ○	leg ○	no ○	wet ○
dog ○	broom ○	shopping ○	after ○
duck ○	comb ○	thank you ○	day ○
horse ○	mop ○	carry ○	tonight ○
airplane ○	plate ○	chase ○	our ○
boat ○	trash ○	dump ○	them ○
car ○	tray ○	finish ○	this ○
ball ○	towel ○	fit ○	us ○
book ○	bed ○	hug ○	where ○
game ○	bedroom ○	listen ○	beside ○
applesauce ○	bench ○	like ○	down ○
candy ○	oven ○	pretend ○	under ○
coke ○	stairs ○	rip ○	all ○
cracker ○	flag ○	shake ○	much ○
juice ○	rain ○	taste ○	could ○
meat ○	star ○	gentle ○	need ○
milk ○	swing ○	think ○	would ○
peas ○	school ○	wish ○	if ○

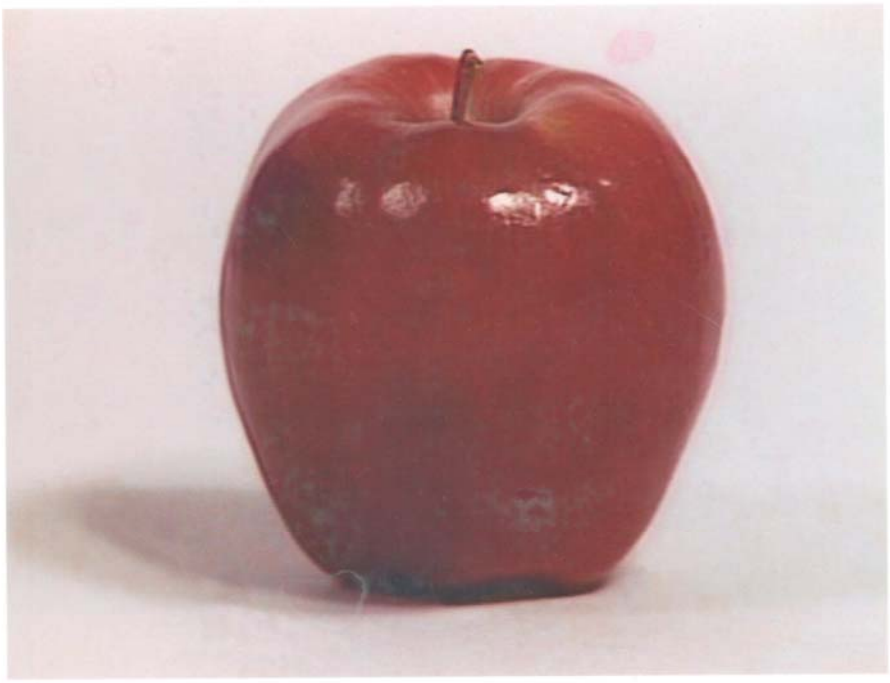
Has your child begun to combine words yet, such as "nother cookie" or "doggie bite?"

○ Not Yet ○ Sometimes ○ Often

Appendix H

Still Pictures from the *Letters* Video Used in Quasi-Experiment

Apple:

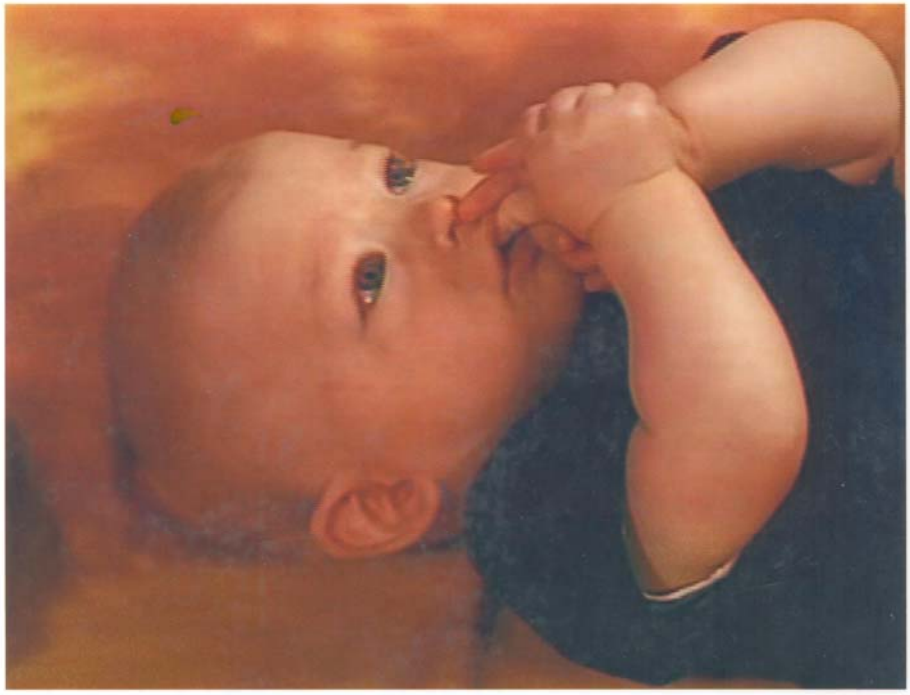


Airplane:

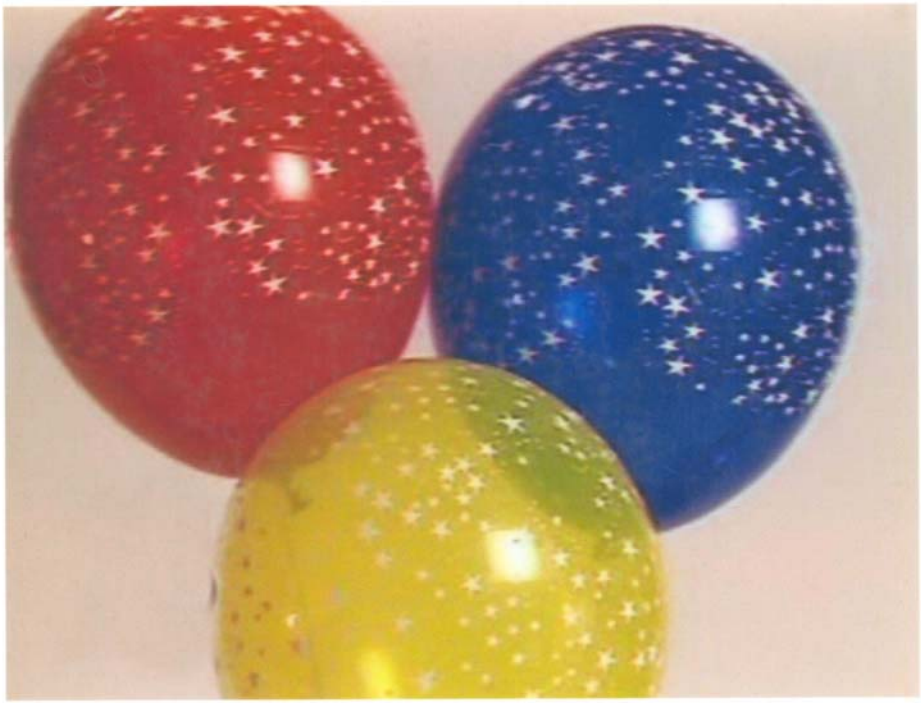
Arm:

Bear:

Baby:



Balloons:



Appendix I

Quasi-Experiment Trial-by-Trial Video Coding Sheet

Coding Sheet: Brainy Baby Study

Child's first name: _____ Age: _____ Date of testing: _____

PRETEST:	Hit	Miss
Apple	☐	☐
Airplane	☐	☐
Arm	☐	☐
Bear	☐	☐
Baby	☐	☐
Balloons	☐	☐

VIDEO1: Eyes on screen in minutes/seconds: _____

POSTTEST1:	Hit	Miss
Apple	☐	☐
Airplane	☐	☐
Arm	☐	☐
Bear	☐	☐
Baby	☐	☐
Balloons	☐	☐

VIDEO2: Eyes on screen in minutes/seconds: _____

POSTTEST2:	Hit	Miss
Apple	☐	☐
Airplane	☐	☐
Arm	☐	☐
Bear	☐	☐
Baby	☐	☐
Balloons	☐	☐

VIDEO3: Eyes on screen in minutes/seconds: _____

POSTTEST3:	Hit	Miss
Apple	☐	☐
Airplane	☐	☐
Arm	☐	☐
Bear	☐	☐
Baby	☐	☐
Balloons	☐	☐

VIDEO4: Eyes on screen in minutes/seconds: _____

POSTTEST4:	Hit	Miss
Apple	☐	☐
Airplane	☐	☐
Arm	☐	☐
Bear	☐	☐
Baby	☐	☐
Balloons	☐	☐

VIDEO5: Eyes on screen in minutes/seconds: _____

POSTTEST5:	Hit	Miss
Apple	☐	☐
Airplane	☐	☐
Arm	☐	☐
Bear	☐	☐
Baby	☐	☐
Balloons	☐	☐

VIDEO6: Eyes on screen in minutes/seconds: _____

POSTTEST6:	Hit	Miss
Apple	☐	☐
Airplane	☐	☐
Arm	☐	☐
Bear	☐	☐
Baby	☐	☐
Balloons	☐	☐

NOTES: _____