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Infant Attention to Foreground Television and Relationship to Joint Visual Attention

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INFANT ATTENTION TO FOREGROUND TELEVISION AND RELATIONSHIP TO JOINT VISUAL ATTENTION

A Thesis Presented

by

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ABSTRACT

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The research described here examines infant and parent attention to a familiar baby video. Also of interest, was if infant viewing behaviors influenced parent viewing behaviors, and vice versa. Subjects were 12-15 and 18-21 month-old infants who were observed watching a familiar baby video with one parent. Overall infants and adults spent less than one-third of the time watching the television. This measure varied greatly across dyads. However, there was a strong, positive relationship within dyads, suggesting that infants and parents may be influencing each other's viewing behavior. Further analyses revealed that there was a social component that influenced when infants and parents initiated and terminated looks to the television that extended above and beyond the common influence of the formal features of the program. Though this influence was mutual for both the infant and parent, overall, infants tended to 'lead' their parents' looks more frequently than parents' led their infants'.

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CHAPTER I

INTRODUCTION

Overview

Television has been a ubiquitous part of American culture since its introduction in the 1950s. It has also been the target of much scrutiny, particularly as its target audience has grown to include increasingly younger children.

The most current wave of criticism has been targeted toward the substantial increase in the number of media products developed for infants. The surge began in the late 90's with *Teletubbies* and has continued with the introduction of DVDs such as the *Baby Einstein* series. These products, and others like them, are targeted at infants from birth onward.

Soon after this rush began, the American Academy of Pediatrics (AAP) recommended that children under the age of two years should not be exposed to electronic screens (AAP, 1999; 2001). Regardless of the AAP recommendation, it was recently found that 70% of infants have watched TV before the age of 2, and 74% have watched videos or DVDs (Rideout, Vanderwater & Wartella, 2003). While it is unknown if parents are disregarding the recommendation or if they are just unaware of it, infants are still being exposed to television at high rates, which calls for further investigation into the effects it may have.

In trying to understand the effects of television, it is important to take into account the content being presented. Anderson and Evans (2001) make a distinction between foreground and background television. Foreground television is age-appropriate

programming that is potentially comprehensible to and elicits active attention from its target audience. Background television is age-inappropriate programming that most likely would not elicit attention from those outside its target audience. For the purposes of the present study, foreground television is any programming designed for infants (e.g., *Teletubbies*) and background television is programming aimed at older children or adults that is presumably too complex for infants to comprehend.

Past research has shown that background television elicits less attention from infants, and has a negative, distracting impact on infants' play as well as parent-child interactions (Schmidt, Pempek, Kirkorian, Frankenfield & Anderson, 2005). The effects of foreground television on these behaviors have not been assessed. However, some research on preschool-age children (e.g., Anderson, Bryant, Wilder, Santomero, Williams & Crawley, 2000) suggests that foreground television can have a positive influence.

The focus of this thesis will be on infants' attention to foreground television and its relationship to joint visual attention. The goal will be to assess infants' overall attention to foreground television using various measures of looking (i.e., percentage of time spent looking at the television, frequency of looks, length of looks), and to what extent infant and parent looking behaviors influence each other. It should be noted that the terms 'attention' and 'looking' will be used interchangeably as numerous studies have shown that when a young child is looking at the television, they are attending to it (e.g., Richards and Anderson, 2004).

How Attention to Television Develops

Infants first exhibit interest in television at about 9 months (Linebarger & Walker, 2005). From then until about age 5 there is a substantial, continuous rise in their level of attention, with a sharp increase occurring at 2.5 years. This may be due to an emergent cognitive schema for viewing television combined with overall increased comprehension (Anderson, Lorch, Field, Collins & Nathan, 1986; Anderson and Levin, 1976; Anderson and Lorch, 1983).

A key aspect of attentional development is attentional inertia, a term coined by Anderson, Alwitt, Lorch and Levin (1979). Generally speaking, attentional intertia is the idea that the longer a look at the television has been in progress, the more likely it is to continue, irrespective of content change (Anderson & Lorch, 1983). However, this is not to say that looking is indiscriminate. Hawkins and colleagues (2002) found that looks at the television by adult viewers were more likely to be maintained throughout content change when the transition was anticipated to lead to more entertaining content (e.g., the end of a commercial break leading into a television show).

Attentional inertia is defined by many short looks to the television, a moderate amount of medium-length looks, and a few very long looks (Richards and Anderson, 2004). The increasingly longer looks are accompanied by a deceleration of heart rate and a decrease to distraction on the periphery, both of which are indicative of increased attentional engagement (Richards and Turner, 2001; Richards, 2004). This finding is of particular importance for the current study as it provides a means of justification for using 'looking' as a proxy measure for attention.

How is Attention Maintained?

Formal Features

Formal features are attributes of television programming that result from a variety of production and editing techniques. These attributes include different camera techniques such as pans and zooms, varying editing techniques (e.g. the pacing of cuts), and also different auditory events such as music, sound effects, and voices. These attributes function independently of content, though typically certain types of content utilize certain formal features (i.e., several fast-paced cuts in an action sequence).

Huston and Wright (1983; 1989) theorize that early on, children's viewing is driven by formal features, but that with time, children rely less on formal features and more on content comprehensibility. For example, numerous studies have found that children look less when men are seen or heard on television (Alwitt et al., 1980; Anderson & Levin, 1976; Schmitt, Anderson & Collins, 1999). While there is nothing inherently uninteresting about men, it may be that children learn early on that when men are on television, it is typically a program that is uninteresting and incomprehensible to them (e.g., a news broadcast). This does not hold true for adult viewers (Schmitt et al., 1999). Conversely, when children or puppets are seen or heard, children's looking increases, presumably because those features represent content that is interesting and comprehensible to them (Schmitt et al., 1999; 2001).

Valkenburg and Vroone (2004) looked at television viewing in children ages 6 to 58 months to a variety of content. They found that from 6-18 months attention was driven by formal features. Thereafter (between 18 and 30 months) the authors suggest

that children begin to rely less on salient features and more on the comprehensibility of the content. Across all age groups attention to adult-oriented programming was low, further suggesting that at a certain age children's attention becomes governed by what they can comprehend.

Comprehensibility

Although formal features initially drive attention to television, research suggests children are also sensitive to the comprehensibility of the content presented. For example, if a child initiates a look toward the screen because s/he hears a relevant formal feature (e.g., a Muppet voice), but the content that follows is incomprehensible, there will be a decrease in attention.. Research suggests that the transition from perceptual salience to comprehensibility occurs sometime around eighteen months (Pempek et al, 2007).

Anderson, Lorch, Field and Sanders (1981) observed 2-, 3.5-, and 5- year-olds' attention to *Sesame Street* under four different conditions. The first was a normal episode, the second included segments with shots edited so that they occurred in random order, the third replaced the English dialogue with a foreign language, and the fourth replaced all the dialogue with backwards speech. All of the children paid more attention to the normal version, suggesting that comprehensible sequence and language are important drivers of visual attention. Because children were sensitive to comprehensibility at two years, the few studies that have followed-up on this finding focus on children 24 months and younger.

Richards and Cronise (2000) looked at children 6, 12, 18 and 24 months of age under two conditions. The first condition featured a clip from a *Sesame Street* movie and

the second condition featured a computer-generated audio-visual display interspersed with clips from the same *Sesame Street* movie. Across ages, they found the lognormally-distributed looking pattern characteristic of attentional inertia, however, only the two older age groups were sensitive to the comprehensibility of the stimuli.

Similarly, a study by Frankenfield et al (2004) assessed infant attention to the program *Teletubbies* using similar methods as Anderson et al., (1981), but with children aged 6, 12, 18 and 24 months. Children were shown a normal clip of *Teletubbies*, along with a distorted clip (either randomly edited or with dubbed backwards speech). The results suggest that the two older groups were sensitive to comprehensibility whereas the two younger age groups were not (Pempek, Kirkorian, Lund, Stevens, Richards, &Anderson, 2007).

Aside from incomprehensibility, what other factors may decrease visual attention? Perhaps not surprisingly, children will look away from the television if there is a distraction on the periphery (Anderson, Choi & Lorch, 1987). Lorch, Anderson and Levin (1979) also found that percentage of visual attention decreases if there are toys present while the child is viewing. In their study, 5 year-olds looking at Sesame Street decreased from 87% without toys to 44% with toys. The authors suggest that children listen to the audio content on a very superficial level but when specific characteristics that connote informative content are heard, children pay full attention to the television. When the content being shown is no longer informative or comprehensible, children divert their gaze back to the alternate activity.

Familiarity

Much of the research suggests that children are highly tolerant of repetition for television shows and videos that they enjoy (Mares, 1998). Crawley, Anderson, Wilder, Williams & Santomero (1999) showed an episode of Blue's Clues to 3-, 4-, and 5- year-olds who had no prior experience with the series. Over the course of five days, only 5 year-old boys showed a slight drop in looking. To further investigate this phenomenon, a content analysis was performed on the episode to distinguish educational content from entertaining content.

Upon the first few viewings children were more attentive to the educational content than to the entertaining content. However after three viewings, attention to educational content lessened, presumably due to the children's mastery of the information. Attention to entertaining content remained consistent (Crawley et al, 1999).

In another study, Barr and her colleagues (2003) looked at the effect of repetition on 12-15 month-olds' amount of viewing. In their study, infants age 12-15 months were shown a *Baby Einstein* video or an episode of Sesame Street in the home; half of the infants were familiar with the content they were shown. The results showed that that infants looked more at familiar videos than they did to unfamiliar videos (74% versus 53% for *Baby Einstein*; 60% versus 48% for *Sesame Street*). These data suggest that while familiarity is a governing factor in maintaining attention in preschool children, it is a driving force in sustaining infants' attention.

How the Presence of Others May Affect Viewing

Joint Visual Attention

While there is research detailing trajectories through which attention to television may develop autonomously, there is little information on how another viewer may influence another's viewing behavior. By 12 months, most infants begin to exhibit joint-attention behavior. These include gaze following, object-directed imitation, and social referencing. While much research has been done on these behaviors, none of it has considered the role television may have. Thus, it is unknown to what extent these behaviors affect infants' looking patterns at television.

A study done by Anderson et al (1981) found that peer presence substantially influenced viewing behavior in preschool children. In their study, 3- and 5-year-old children were observed watching an unfamiliar episode of *Sesame Street*. Children either viewed alone, or with one or two peers. The results showed that children influenced each other's viewing behavior in a synchronized way, such that when one child initiated or terminated a look to the television, the other child(ren) tended to mimic that behavior. This social influence extended above and beyond the common organization of the television. Moreover, the influence was mutual among the children; that is, no one child consistently 'lead' the behavior of the other children. However, Anderson and colleagues suggest that a group of children who are familiar with each other may exhibit a more imbalanced distribution of influence.

Given that infants are more likely to engage in joint visual attention with their mothers than with unfamiliar peers during play (Bakeman & Adamson, 1984), parents

influence on their children's television viewing may even be more substantial than that of the unfamiliar peers used by Anderson and colleagues. In order to understand how joint visual attention may affect television viewing behaviors, it is important to understand its origins.

Joint visual attention occurs when the infant, while interacting with an adult, observes a head turn on the part of the adult and turns to look in the same direction relative to the environment. In some cases, infants as young as 2 months have been documented as exhibiting joint visual attention (Scaife & Bruner, 1975). However, most of the literature suggests that it first occurs between 9 and 14 months (Slaughter & McConnell, 2003). There are three distinct theories as to how joint visual attention develops.

The first theory is known as the "common sense" view. This generally interprets joint visual attention as the child looking to see what their mother (or any other person) is looking at (Butterworth, 1991). While this does seem like a natural interpretation, it assigns a sophisticated theory of mind to a 12 month-old. That is, the infant must understand the relationship between the other and the object, and also the relationship between themselves and the other (Moore & Corkum, 1994).

The second theory posits a learning basis for joint visual attention. After enough instances, the infant learns that when he or she looks in the direction of their parent that there is usually an interesting sight in that direction. Thus, the child is conditioned to look in a particular direction when their parent does. Also, in addition to being reinforced by the interesting sight, they may also be reinforced by the parent. If the parent begins

encouraging joint attention verbally and/or by pointing at an object, followed by a head turn, after awhile the infant may begin to look in the direction the parent is looking without encouragement out of habit (Moore & Corkum, 1994).

The third theory suggests an evolutionary basis for joint attention. That is, there may be an innate orienting reflex that is triggered when an infant sees his or her parent looking at something, because often, someone's gaze is a reliable cue that something important or interesting is happening (Moore & Corkum, 1994)

Whatever its origins may be, once joint visual attention has developed it becomes more refined with age. Prior to 18 months, infants will only follow gaze direction if it is accompanied with a head turn. Also, infants under 18 months will not search behind them for the target of another's gaze (Moore and Corkum, 1994). However, at and beyond 18 months, infants are able to respond to more subtle cues, such as eye movement (Moore & Corkum, 1994). These findings suggest that there may be a domain-general change in infant's ability to engage in joint visual attention at 18 months.

Joint Visual Attention and Television

What sets the current study aside from most of the previous research on joint visual attention is that the objects of interest have typically been toys or simply a target point on a wall. While toys are clearly objects of interest to infants, they do not provide the same audiovisual experience that television does. The perceptually salient formal features specific to television have been shown to elicit attention from otherwise inattentive viewers, whereas a mark on a wall typically does not spontaneously elicit

attention. The question remains as to what extent the infants' attention will be driven by formal features of the television program versus their parents' pattern of looking.

Overview of Study

The goal of this study is to assess the amount of time infants spend looking at foreground television and to assess how infant viewing patterns may affect parent viewing behaviors, and vice versa.

In this study, parents were be asked to fill out a television home-viewing diary for two weeks, and to watch two DVDs at home with their infant for that two week period. Infants were broken down into two age groups, 12-15 months and 18-21 months. The parent and infant visited the University of Massachusetts Child Study Center two times subsequent to filling out the diary. The first visit was a half hour of free play with no television. The second visit consisted of a half hour of television (what they are shown depends on what condition they are assigned to) and fifteen minutes of free play. All sessions were videotaped and subsequently coded for infant and parent visual attention.

Expected Results

Overall Attention

Given that infants will be free to play with a wide variety of toys, their amount of overall viewing cannot be anticipated. Past research (e.g., Barr et al., 2003) suggests that the infants' who are familiar with the videos will pay more attention to them than those who are not. Although the infants in the current study were familiar with the videos they were shown, they were in a somewhat unfamiliar setting. Because the Barr study was

conducted in the home, few comparisons can be made from their study to the current study.

Anderson and Levin (1976) found that infants aged 12-18 months looked at an unfamiliar episode of *Sesame Street* about 10% of the time in a setting similar to that of the current study. However, infants in the current study were familiarized with the videos before they watched them in the lab. If familiarity of content is indeed an important factor in driving attention, then comparisons to Anderson and Levin (1976) may also be unwarranted.

Coviewing

Anderson et al (1981) found that in the presence of unfamiliar peers, preschool children's looking patterns were very similar; however there was no one clear driver of attention. Because this study will look at parent-infant dyad looking patterns, it is unknown whether or not looking patterns will be similar. Given the research on joint visual attention, it is expected that the oldest age group (18-21 months) will have a more similar looking pattern to their parents compared than the younger group (12-15 months)

CHAPTER II

METHOD

Design

The current study is part of a larger ongoing study. The larger investigation looks at the effect of certain media on parent-child interactions. As designed, this larger study will contain 150 infant-parent dyads broken down into 6 cells (roughly 25 per cell) by age and condition. The two age groups to be included are, 12-15 months, and 18-21 months. The three experimental conditions are (1) the *Sesame Beginnings* video group, (2) the *Baby Einstein* video group, and (3) a no video group.

Participants

The current study includes a 2 (age: 12-15 months, 18-21 months) x 2 (sex) x 2 (condition: *Sesame Beginnings*, *Baby Einstein*) design. The final sample included 68 parent-child dyads. In most cases, the participating parent was the mother (94%). Approximately 82% reported their child's ethnicity as Caucasian, 4% Hispanic, 6% African-American, 6% other; 3% of parents selected two or more ethnicities, indicating a mixed background. For a breakdown of the sample by age, sex, and condition, see Table 1.

Subjects were recruited from Springfield, MA (where the University of Massachusetts Child Study Center is located) and its' surrounding towns, providing a diverse sample of various ethnicities and socioeconomic backgrounds, as these areas vary from very urban, to upper-middle class.

Names and addresses of families who potentially had an infant within the range of 12-21 months were purchased from the Experian credit bureau. These names and addresses were researched via the internet in an effort to find a telephone number. Next, each family was sent a letter describing the study, along with two informed consents and a self-addressed stamped envelope. For the families without listed telephone numbers the recruitment process was limited to this mailing. For the others, a follow-up telephone call was made to further explain the study, answer any questions, and to determine if they wish to participate.

Once a willingness to participate had been established, families were asked to return one of the consent forms that were mailed to them. Upon its receipt, each family was sent out the relevant materials for their assigned condition. Three phone calls were made thereafter: the first to ensure the materials have arrived and also to answer any questions regarding the materials, the second to schedule the first appointment at the Child Study Center, and the third a day prior to their first visit to confirm the appointment.

Setting and Apparatus

All data collection took place at the University of Massachusetts Child Study Center in Springfield, MA. The room in which the experiment took place was 3.40 m x 2.94 m and was designed to resemble a typical family room. Furnishing included an armchair, a large pillow, a coffee table, a bookcase, a television stand, a 21” television, and a DVD player. For the child, the bookcase was stocked with a variety of age-appropriate toys including a shape-sorter, four rattles, a puzzle, a toy piano, toy kitchenware (i.e. a pot, a

plate, a bowl and a cup), jack-in-the-box, stacking rings, a teddy bear, three books, and two different kinds of blocks. For the parent, a variety of current magazines, along with a current newspaper were placed on the coffee table.

All sessions were videotaped using two video cameras. One camera remained stationary and positioned beneath the television stand. The second camera was placed in an adjacent room with a large one-way mirror and was operated by the experimenter, allowing for more adaptive videotaping. In addition to this second camera, the adjacent room also included the audio-visual equipment necessary for digital video recording as well as a video mixer the experimenter used to toggle between camera angles.

Stimuli

The stimuli for this experiment are from two different series of videos designed for infants. Two episodes of each series were sent to the parents according to their assigned condition.

Sesame Beginnings, a relatively new infant video series, is designed to enhance parent-child interaction by modeling effective and innovative strategies parents can integrate into everyday activities with their infants. At the beginning of each episode there is an informative clip for parents encouraging parent-child interactions both during and after the video. The two episodes we chose to use from this series are *Beginning Together* and *Make Music Together*, each roughly 25 minutes in length.

Beginning Together depicts various puppet parents and their children involved in everyday child-rearing activities (e.g., learning to walk). Each puppet segment is interspersed with live action sequences of parents and children. This takes the notion of

enhancing parent-child action a bit further in that real parents are modeling activities learned from the video with their own infant.

Make Music Together also involves puppet parent-child dyads, but in this episode they are experimenting with different sorts of musical instruments. This episode also includes live action segments.

Baby Einstein also claims to enhance parent child interaction. There is an informative clip encouraging parent child interaction, however it is listed as an extra on the DVD. The two episodes we chose from this series are Baby Beethoven: Symphony of Fun and Baby Monet: Discovering the Seasons, which range in length from 30-35 minutes.

Baby Beethoven: Symphony of Fun features a variety of colorful images, hand puppets, live action sequences set to the music of Ludwig Van Beethoven. *Baby Monet: Discovering the Seasons* goes through all four seasons using vivid images of each, along with artwork by Claude Monet. These images are set to the music of Antonio Vivaldi.

Questionnaires

At the completion of each laboratory session, parents were asked to fill out a short questionnaire. This questionnaire asked about demographic information, any visual or hearing difficulties the infant may have, and how videos are typically used in their home (Appendix B). The second questionnaire asked about the videos watched at home and/or shown in the lab. Specifically, it was used to assess parent and child reactions to the video(s). It also asked whether or not they viewed the extra chapters on the videos, and

also their attitudes about their daily interactions with their child, and whether or not they've changed since participation in the study began (Appendix B).

Video Diary

The video diary used here is modeled after the one used by Anderson, Field, Collins, Lorch, and Nathan (1985), which was found to be an accurate measure of home viewing in 5 year-olds. The viewing diary spans 14 days and consists of 15 minute time blocks from 6am to 11pm. Parents were given space to write the name of the program, whether or not it is designed for younger children, older children, or adults, and also who is in the room at the time of viewing (i.e., mother, father, sibling or other adult) (Appendix C). There is also a place on the back to note any additional viewing of the assigned videos. Parents were are also given a short, one-page diary to log any viewing of the provided DVDs in between sessions, though no additional viewing was asked of them (Appendix C).

General Procedure

Once a family had agreed to participate and their informed consent had been received, they were sent the appropriate DVDs (for the *Sesame Beginnings* and *Baby Einstein* groups) and a viewing diary. They were asked to fill out the diary for a two-week period and watch the two DVDs sent to them a minimum of four times per week each. At the end of the two-week period the parent-child dyad came in for their first session at the Child Study Center.

For all groups, the first session consisted of 30 minutes of free play. Parents were instructed to act as they would at home and that they are free to read and play with their

child. At that time they were also asked to sign the Session 1 consent form (Appendix A). At the end of this session, parents were asked to complete Questionnaire 1 (Appendix B) and the second laboratory session was scheduled. Parents were reimbursed for parking and given a t-shirt for their child as a token of appreciation.

During the second session parents were again instructed to act as they would in their own home, and were asked to sign the Session 2 consent form (Appendix A). During this session, a video was shown for roughly the first 30 minutes and was followed by 15 minutes of free play. At the completion of this session, the parent was asked to fill out Questionnaire 2 (Appendix B). Also, they were be reimbursed for parking, given a ten dollar gift card for a local grocery store, and debriefed.

Coding

After both sessions were complete, videotapes were returned to the University of Massachusetts' Children and Media lab for coding. Coding was done through several passes, each of which focused on a different behavior. These include quality of parent-child interaction, play episode length and maturity, and attention to television.

Attention to the television was only coded when the television was on. Television program 'start' and 'end' times were established by an experimenter prior to coding and were used as anchors to inform coders when to begin coding, and when to cease coding. Attention to the television was determined by whether or not the subject's eyes are on the screen. A look onset begins when the subject's eyes first orient to the screen. A look is ended when the subject looks away. Each tape was coded in two passes, one for the infant's looks and one for the parent's looks.

Reliability

Research assistants were trained on this coding procedure until they had a Phi correlation of .85 or above when compared to an experienced coder. After this has been achieved, they will be allowed to code other tapes from this study. In addition, about one-quarter of the tapes will be randomly chosen as "double-coding" tapes. These will be coded separately by two researchers and an intra-class correlation will be run on the number of looks recorded to ensure reliability. The standard for an acceptable level of agreement when using intra-class correlation is above .70 .

For the current study, four measures of IOR (Inter-observer Reliability) were calculated: (1) agreement among coders on child mean look length, (2) agreement on child percent looking, (3) agreement on parent mean look length, and (4) agreement on parent percent looking. Individual intra-class correlation coefficients are provided in Table 2.

Data Reduction

To calculate the proportion of look onset and offset following that occurred within dyads, four computer programs were written using the *Python* programming language. Each program performed the same function, but differed based on the content being assessed (i.e., one program to calculate the proportion of the child following the parent's look onset, another to calculate child following parent's offset, and so on). For parsimony, only one program will be described in detail: child following the parent's look onset.

The program was told the locations of the child and parent look files. Next, it read through the files line by line and coded one of three possible outcomes for each of the child's look onsets: 1.) no opportunity (for when the child already had a look in progress), 2.) taken opportunity (when the child looked at the television within three seconds following the parent's look onset) and 3.) failed opportunity (when the child did not look at the television within three seconds following the parent's look onset). Based on these numbers, the program calculated the child's proportion of following by dividing the number of taken opportunities by the total number of opportunities:

$$\text{Proportion of following} = \frac{\text{Taken Opportunities}}{\text{Taken + Failed Opportunities}}$$

Why Three Seconds?

Use of the three-second interval was incorporated to maintain consistency with past literature (i.e., Anderson et al 1981). Additionally, distributions of lag times (how long it typically took child to follow parent or vice versa) did not render any clear cut-off point (see Figures 1-4).

Formation of Artificial Dyads

In order to assess that look following did not occur to chance or as a result of the shared influence of the television, artificial parent-child dyads were formed.

Proportions for these dyads were calculated using the programs mentioned above; however, each child was paired with an adult that was not their parent, and each parent was paired with a different child. This pairing was done based on three criteria: (1) the age of the child, (2) the sex of the child, and (3) the program viewed in the lab.

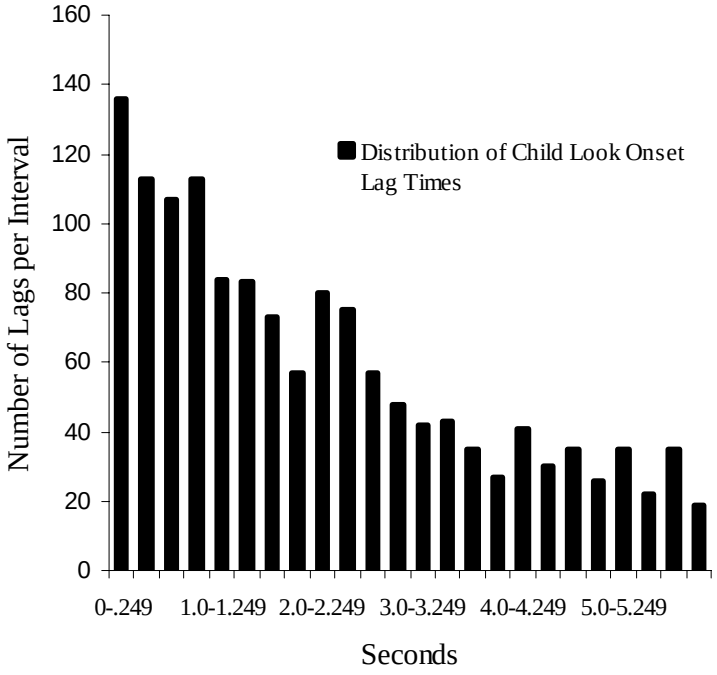

Figure 1. Distribution of Child Onset Lag Times.

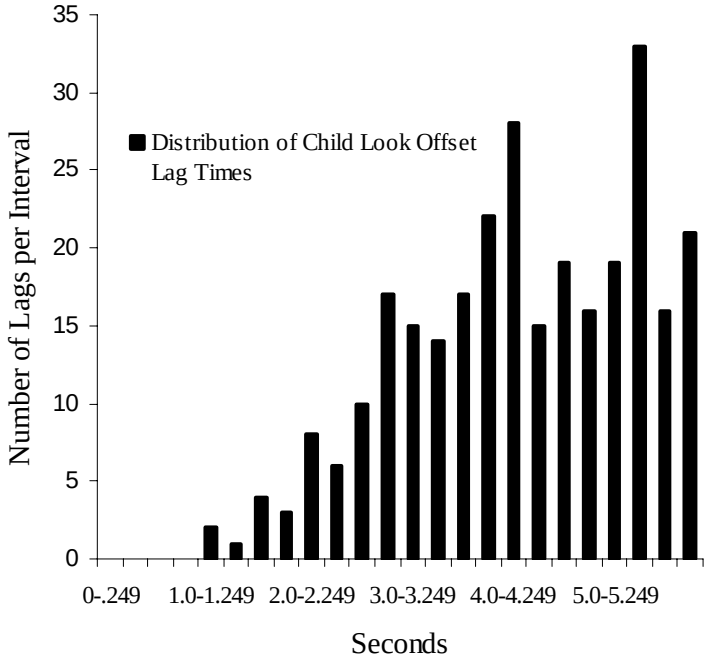

Figure 2. Distribution of Child Offset Lag Times.

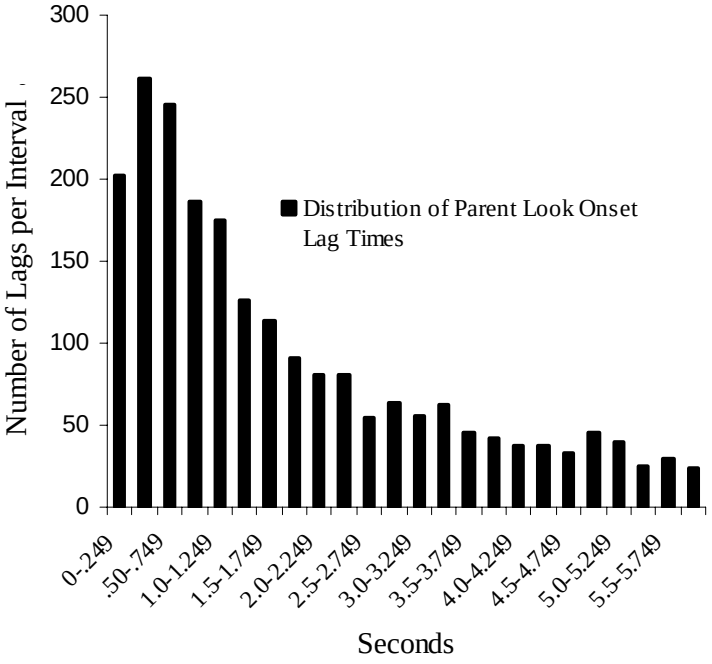

Figure 3. Distribution of Parent Onset Lag Times.

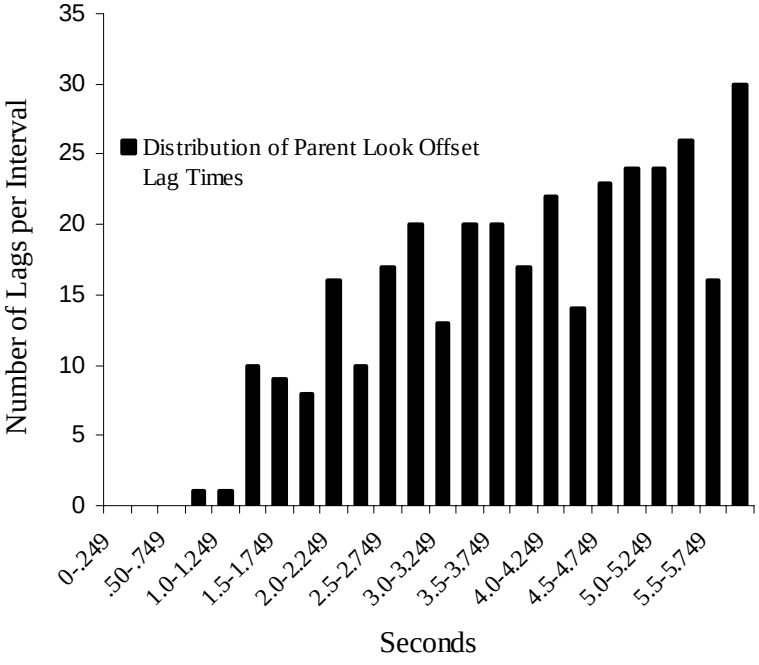

Figure 4. Distribution of Parent Offset Lag Times.

Table 1

Sample by Age, Sex, and Condition

	12-15 month-olds		18-21 month-olds		
	Male	Female	Male	Female	Total
Baby Einstein	9	12	8	5	34
Sesame Beginnings	13	8	9	4	34
Total	22	20	17	9	68

Table 2

Inter-observer Reliability Correlations

	Child *n* = 9	Parent *n* = 7
Mean Look Length	.77	.87
Percent Looking	.94	.93

CHAPTER III

RESULTS

Overall Looking

To assess overall looking at the videos, eight between-subject analyses of variance (ANOVA) were run. Age (12-15, 18-21 months), sex (male, female), and condition (*Sesame Beginnings*, *Baby Einstein*) were included as between-subject variables. The four dependent measures were number of looks, mean look length, percent looking, and mean longest look length. Analyses considered both child and parent looks. Descriptive statistics for these measures are listed in Table 1.

Due to the use of multiple statistical tests, an alpha level of .01 was used throughout this thesis.

Number of Looks

Infants looked to and away from the television screen an average of 75 times during the program (*SD* = 39.99). Parents averaged 103 looks (*SD* = 60.71). There were no main effects or interactions in either analysis.

Mean Look Length

Infant mean look length was 6.92s (*SD* = 3.37). Parent mean look length was 4.30s (*SD* = 2.98). There were no main effects or interactions in either analysis.

Percent Looking

Infants spent 31% (*SD* = 19.20) of time looking at the television. Adults spent an average of 25% (*SD* = 15.43). There were no main effects of age, sex or condition. However, there was a marginally significant age x condition interaction for child percent looking F (1, 60) = 5.798, p = .019.

This interaction resulted from a cross-over effect such that with age, there was an increase in looking at *Baby Einstein* from 26% (*SD* = 19.43) at 12-15 months to 38% (*SD* = 21.6) at 18-21 months whereas there was a decrease in looking with age at *Sesame Beginnings* from 37 % (*SD* = 18.3) at 12-15 months, to 25% (*SD* = 14.3) at 18-21 months (see Figure 7).

It should be noted that there was wide variation in amount of looking, as percent looking ranged from 1.54% to 90.14% in infants and from 1.98% to 91.08% in adults. Each individual child and parent's percent looking is plotted in Figures 5 & 6 in order from least to most percent looking.

Longest Look Length

The longest infant looks averaged 60.96s (*SD* = 40.19). The longest parent looks averaged 38.62s (*SD* = 28.17). There were no main effects or interactions in either analysis.

Correlations

A bivariate parent-child correlational analysis was performed on percent

looking to assess similarity within dyads. Collapsed across all 3 between-subject variables (age, sex, condition) parent and child percent looking were significantly correlated, r=.634, p<.01.

Post hoc comparisons were done to assess whether the correlation may differ based on age, sex or condition. These comparisons were made by running six separate correlational analyses for each age (12-15 months, 18-21 months), sex (male, female), and condition (*Sesame Beginnings*, *Baby Einstein*). The resulting r values were converted into z scores using the Fisher z transformation and compared for statistical significance within each group (e.g., 12-15 months compared to 18-21 months, males compared to females, and *SB* compared to *BE*). Each individual correlation was significant at the p=.01 level, with the exception of *Sesame Beginnings* which was marginally significant. However, no two correlations were significantly different from each other. For individual r values and significance levels, see Table 4.

Look Following

The significant correlation of percent looking found within dyads indicates similarity of looking behavior by parents and their children. The wide variability in looking across children is to some extent matched by their parents. The analyses below are designed to determine whether this similarity is due to social influence or whether it is due to the common influence on both parent and child by the formal features of the television program (it is possible that both social factors and the television simultaneously have an influence). To assess this, four proportions were calculated for each parent-child dyad: child look onset following parent look onset, child look offset

following parent look offset, parent look onset following child look onset, and parent look offset following child look offset. A description of the procedure used to create these proportions is provided in the Method section of this thesis.

In order to separate social influence from common influence by the television, artificial parent-child dyads were created by pairing up a parent with a child other than his/her own and calculating the same four proportions. This pairing was done based on three criteria: the age and sex of the child, and the program viewed in the lab. These artificial dyads could be considered a proxy measure for the influence of the television because they reflect the proportion of times a disparate child and adult watching the same program looked or stopped looking within three-seconds of each other. In addition, the analyses in the next section were performed in order to determine whether the proportions were above those expected by chance.

Is there look following beyond chance level?

To assess if look following was above chance level, four repeated measures ANOVAs were run with age (12-15, 18-21 months), sex, and condition (*Sesame Beginnings, Baby Einstein*) as between-subjects variables and proportion type (natural, chance) as the within-subjects factor. Chance levels were calculated simply as the proportion of three second intervals in which a look onset or offset occurred for each individual. Each ANOVA considered one of the four types of following that could occur: child look onset following parent look onset, parent look onset following child look onset, child look offset following parent look offset, parent look offset following child look offset. Due to the high number of tests, an $F^*(1, 60) = 7.08$, $p = .01$ was used as the criterion for significance. For descriptive statistics, see Table 3.

For all four ANOVAs a main effect of proportion type was found, such that the following that occurred within the natural dyads was significantly above that expected by chance. There was also a significant sex x proportion type interaction for parent look offset following child look offset F (1, 60) = 10.261, p = .002 (see Figure 4). Parents tended to follow their child's look offsets more frequently if the child was female (*mean* = .76, *SD* = .17) than if the child was male (*mean* = .63, *SD* = .24).

Is there common organization by the formal features of the television?

To assess if there was look following due to the common influence by the formal features of the television, four repeated measures ANOVAs were run with age, sex, and condition as between subjects factors and proportion type (artificial, chance) as the within subjects factor. Each ANOVA considered the four types of following that could occur: child look onset following parent look onset, parent look onset following child look onset, child look offset following parent look offset, parent look offset following child look offset. Due to the high number of statistical tests, an $F^*(1, 50) = 7.31$, p = .01 was used as the criterion for significance.

For child look onset following adult look onset, child look offset following adult look offset, and parent look offset following child look offset, there was a main effect of proportion type, such that the following that occurred within the artificial dyads was significantly above chance. However, parent look onset following child look onset was not significantly above chance.

Is there social influence beyond common influence by the television?

To assess this, four repeated measures ANOVAs were run with age, sex, and condition as between subjects factors and proportion type (natural, artificial) as the within subjects factor. Each ANOVA considered the four types of following that could occur: child look onset following parent look onset, parent look onset following child look onset, child look offset following parent look offset, parent look offset following child look offset. Due to the high number of statistical tests, an $F^*(1, 50) = 7.31$, $p = .01$ was used as the criterion for significance.

In all four cases, significantly more looking following occurred within the natural dyads than within the artificial dyads, suggesting that there is a social influence that goes beyond the common influence of the television.

Additionally, for parent look offset following child look offset there was a proportion type x sex interaction $F(1, 50) = 7.708$, $p=.008$. This interaction parallels the one previously mentioned such that more following occurred when the child was female among the natural dyads.

Mutuality of Influence

To assess if the social influence that occurred was mutual or if the parent or child were leading the other, two repeated measures ANOVAs were run with age, sex, and condition as between-subjects variables, and the two types of leadership (child leading parent, parent leading child) as the within-subjects variable. The first ANOVA considered look onsets, and the second considered look offsets. Due to the high number of tests, an $F^*(1, 60) = 7.08$, $p = .01$ was used as the criterion for significance.

For look onset, there was a significant main effect of leadership type F (1, 60) = 9.535 p=.003. This main effect was the result of larger amount of parent look onset following child look onset (i.e., child leadership) (*mean* = .46, *SD* = .17) than child look onset following parent look onset (i.e., parent leadership) (*mean* = .36, *SD* = .20).

For look offset, there was also a significant main effect of leadership type F (1, 60) = 65.18, p<.0001. This main effect resulted from a larger amount of parent look offset following child look offset (i.e., child leadership) (*mean* = .68, *SD* = .22) than child look offset following parent look offset (i.e., parent leadership) (*mean* = .40, *SD* = .20). There was also a leadership type x sex interaction F (1, 60) = 7.844, p = .007. This interaction resulted from an increased amount of child look offset following parent look offset (i.e. parent leadership) in male infants (*mean* = .41, *SD* = .22) and an increased amount of parent look offset following child look offset (i.e., child leadership) in female infants (*mean* = .76, *SD* = .17).

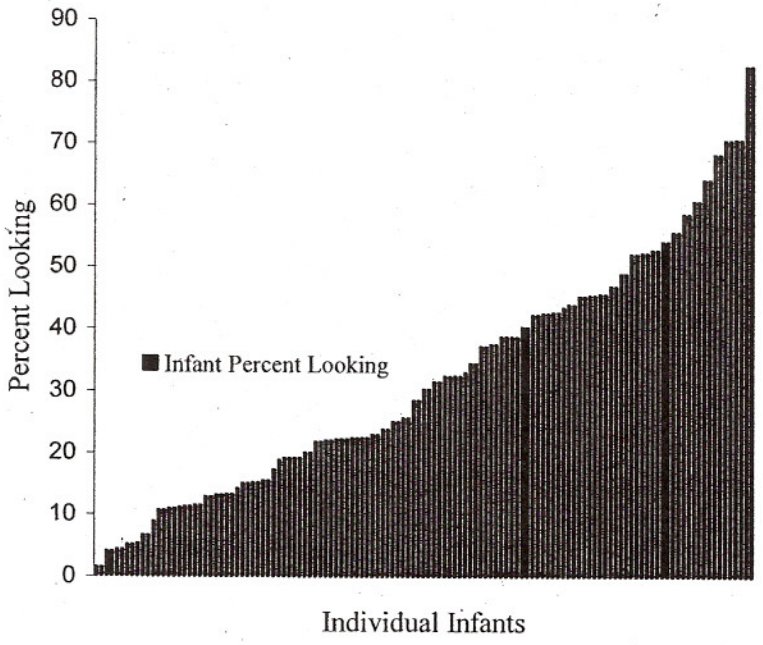

Figure 5. Range of infant percent looking observed in the laboratory.

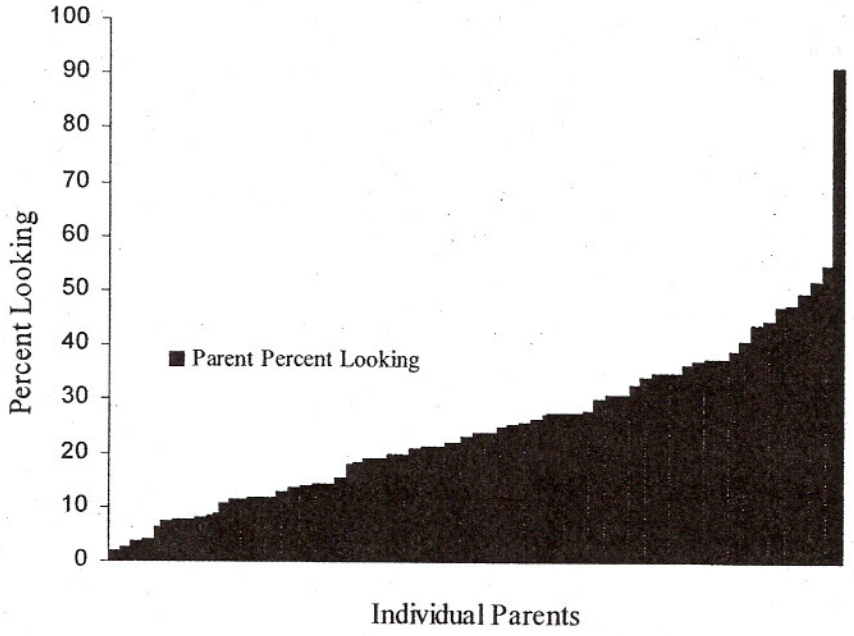

Figure 6. Range of parent percent looking observed in the laboratory.

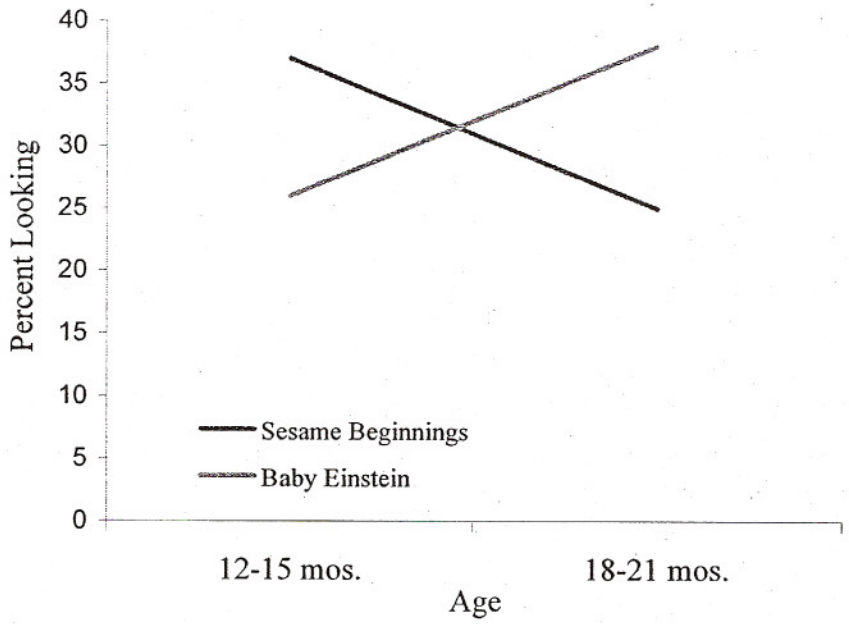

Figure 7. Age x condition interaction for child percent looking.

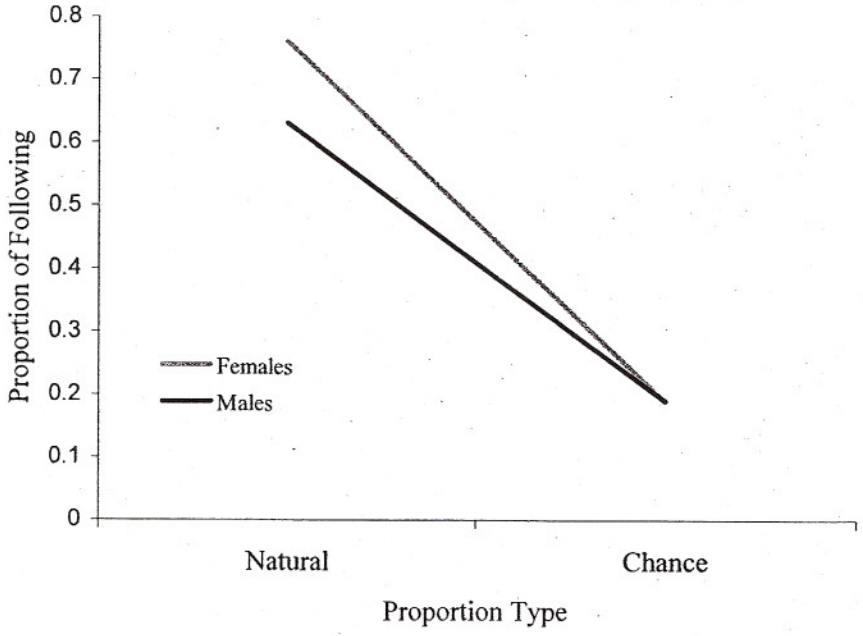

Figure 8. Sex x proportion type interaction for parent look offset following child look offset.

Table 3

Descriptive Statistics for Parent and Child Looking

	n	Mean # of Looks	Mean Look Length (Sec.)	Mean % Looking	Mean Longest Look (Sec.)
Child	68	75.42	6.92	31.20	60.96
		(39.99)	(3.37)	(19.20)	(40.19)
Parent	68	103.94	4.30	24.63	38.62
		(60.71)	(2.98)	(15.43)	(28.17)

Note. Standard Deviations in Parentheses

Table 4

Pearson Correlation Matrix for Parent-Child Percent Looking Correlations

	12-15 mos.	18-21 mos.				
Age	.64**	.59**				
			Male	Female		
Sex	--	--	.61**	.68**		
					SB	BE
Condition	--	--	--	--	.40*	.78**

Note. **p<0.01, *p<.05

Table 5

Proportion of Look Following for Natural and Artificial Dyads

		Child Following Onset	Child Following Offset	Adult Following Onset	Adult. Following Offset
Natural Dyad	68	36[ab]	.40[ab]	.46[ab]	. 68[ab]
		(.20)	(.20)	(.17)	(.22)
Artificial Dyad	59	.20[a]	.30[a]	.24	.44[a]
		(.15)	(.15)	(.17)	(.24)
Chance	68	14	.14	.19	.19
		(.07)	(.07)	(.11)	(.11)

Note. Standard Deviations in Parentheses. [a] - significantly above chance, [b]- significantly higher than Artificial dyads

CHAPTER IV

DISCUSSION

The goal of the current study was twofold. The first goal was to assess how much time infants and parents spend looking at the television when shown a familiar baby video and given the option to play and interact with each other freely. The second goal was to assess whether look initiation and termination resulted from social influence.

Infant Looking

Infants in this study spent about one-third of the time looking at the television. However, this measure varied greatly, with some infants hardly looking at all, and others watching nearly the entire time. There were no main effects of age, sex or condition on any of the measures of looking. There was a marginal age by condition interaction for percent looking such that with age, looking increased for *Baby Einstein* but decreased for *Sesame Beginnings*. However, because the content of the videos was not analyzed as part of the current study, any attempt to explain this interaction would be purely speculative.

In comparison, Barr et al (2003) found that 12-15 month-old infants tended to look about 74% of the time when watching a familiar baby video in the home. The disparity between the Barr findings and the findings from current study is likely due to the difference in viewing situation. In the current study infants were in a somewhat unfamiliar setting with a variety of toys they had experienced only one time previously; this toy novelty may have been more interesting than a familiar baby video.

Anderson and Levin (1976) observed infants looking at an unfamiliar episode of *Sesame Street,* in a setting similar to that of the current study. They found that infants aged 12-18 months looked at the screen approximately 10% of the time. The difference between Anderson and Levin's findings and those from the current study could be explained in two ways: 1.) until recently, *Sesame Street* was targeted to preschool age children, not to infants, thus rendering it less comprehensible to the young subjects, and 2.) infants in the Anderson and Levin study were not familiarized with the particular episode of *Sesame Street* shown in the laboratory, whereas infants in the current study were familiar with the program they viewed. Past research on infant viewing (e.g., Barr et al 2003) suggests that increased familiarity with a program leads to an increase in looking. The lack of comprehensibility and familiarity in conjunction, may explain the low levels of looking observed by Anderson and Levin (1976) compared to the present findings.

Adult Looking

Adults in the current study looked at the television about one-fourth of the time. This measure varied greatly from adults who hardly looked, to those who watched nearly the entire time. Burns and Anderson (1993) found that adult subjects looked at the television about one-half of the time when watching an age-appropriate program and provided with alternate activities (e.g., magazines, refreshments). Similar to the current study, this measure ranged from 1% to 83.4%.

The increased average amount of looking found by Burns and Anderson (1993) may have been due to an increased interest in adult-directed programming. Baby videos

such as those used in the current study may be less interesting to adults. Moreover, the parents in the current study were instructed to co-view the videos at home with their child, and it is likely that the parent had seen the program numerous times.

Parent-Child Influence on Looking Behaviors

Though adult and infant looking patterns varied greatly across dyads, there was a strong, positive within-dyad relationship. The relationship was maintained across age, sex and condition (though it was only marginally significant for the *Sesame Beginnings* group). The parent-child dyads were substantially influenced by both the common organization of the television program as well as each other's looking behavior.

Infant Following Parent

In regard to infant look onset, the findings suggest that although program formal features and familiarity are important drivers of attention, parent looking behaviors also seem to play a role in determining whether or not an infant will initiate or terminate a look. On the basis of prior research (e.g., Pempek et al 2007) one might expect infants in the older age group (18-21 months) to be able to comprehend at least some of the program content. However, if so, this added capacity did not increase attention.

Infant look terminations were substantially influenced by both the formal features of the television and by parent look terminations. According to Richards (2004) the more intensely an infant is attending to a central stimulus, the less susceptible s/he is to distraction on the periphery. The fact that with age, infant look terminations were not differentially influenced by parent look offset or the program formal features suggests

that level of engagement with the program may have not varied as a function of age in this study.

Parent Following Infant

Parent look onsets were seemingly uninfluenced by the television, as indicated by the proportion of parent look onset following child look onset in the artificial dyads being at chance. This suggests that the parents' look onsets were being led solely by their children's look onsets.

Parent look offsets were influenced by the television program, but were more strongly influenced by their infants' look termination, particularly if their infant was a female. The tendency of parents to follow their children may be the result of disinterest in the program or perhaps as an artifact of the laboratory setting such that there may have been an increased motivation to appear attentive to the child. Moreover, given that the experiment took place in a relatively unfamiliar setting, there may have been increased vigilance on the part of the parent. Or perhaps parents are generally more interested in what their child is attending to than in the TV program itself.

The fact that parents tended to follow female infant look offsets more frequently than male infant look offsets suggests that there is some difference in parenting style that is sex-related. However, findings from Olafsen et al (2006) suggest that female infants become socially adept sooner than their male counterparts; parents of female infants may be following their look terminations more due to an increased likelihood that the infant will interact, or directly in response to an effort to communicate on the part of the infant.

Who's Leading Whom?

Anderson et al (1981) found that preschool-age children had a mutual influence on each other's look initiation and termination that went above and beyond the common influence of the television. Though they found no distinct 'leader' in the groups, it was speculated that in a group of familiar peers there may be a primary leader of attention. Results from the current study suggest that although both infant and parent looking patterns were socially-influenced above and beyond the common influence of the television, parents followed infant look initiations and terminations significantly more than infants followed their parents.

Developmental Implications

The above findings suggest that a parent's looks to and away from the television influence infants' viewing behavior above and beyond the common influence by the television program. Huston and Wright (1983) argue that at younger ages, attention to television is driven by the salience of the formal features of the program. Although this idea is supported by the current study, it appears that parent behavior is playing a major role that has previously not been considered. Infants appear to be using cues from the television to guide looking behavior, but they also appear to be relying on their parent's gaze direction.

Research suggests that social referencing emerges around 12-15 months. One explanation for this provided by Moore and Corkum (1994) is that infants follow their parent's gaze direction because it often leads to an interesting sight. Infants in the current study exhibited this behavior when viewing television with their parent. One possibility

is that infants are learning how to watch television, at least in part, via observational learning. If infants use parent gaze direction as a way of determining whether or not something is 'interesting' then it could be that parent viewing behaviors influence infant viewing behaviors. This may help establish viewing style (i.e., whether or not they have several short looks, or a few extend looks), and viewing preferences (if the parent tends to look one particular formal feature frequently, e.g., Elmo's voice, they may be inadvertently training their infant to find Elmo 'interesting').

Although social referencing emerges at 12-15 months, research has shown that it becomes more refined with age. Whereas 12 month-olds are able to follow gaze direction when it is accompanied with a head turn, 18 month-olds are able to follow gaze using more subtle cues, such as eye movement. Based on this, it was hypothesized that the older age group (18-21 months) would exhibit more look following than the younger age group (12-15 months). However, the two groups did not differ on any measure of look following. The lack of age difference in the present study suggests that when the point of interest is dynamic in nature (e.g., television) past research on social referencing may not be applicable.

Future Directions

Future directions will be to gauge if the mutuality of influence on looking behaviors changes based on content. Of interest will be whether or not parents follow their infants' look on- and offsets, and vice versa, when the program is adult-directed (i.e., background television to the infant). Also, data from a control group (currently

being collected) will assess if the mutuality of influence changes when the content is unfamiliar.

Additionally, a content analysis of the baby videos is required to fully understand how the formal features of each program differ and how they may specifically be related to attention. The results of that analysis may help to provide a clearer explanation of the age by condition interaction found here.

Conclusion

The present thesis provides some insight into how much time infants spend looking at foreground television. However, because the few studies that have been conducted on the topic all vary in some way (e.g., viewing setting, level of familiarity with the content) the question of how much attention infants pay to foreground television has not been answered definitively.

With regard to the development of media literacy, in the past parent viewing behavior has not been considered one of the primary resources infants use when learning to watch television. The research presented in this thesis suggests that it may play a substantial role.

APPENDIX A

SESSION 1 CONSENT FORM

During your visit today, you and your child will be videotaped during 30 minutes of free play in our playroom. Your child will be free to play with an array of age-appropriate toys. Please feel free to interact with your child in any way you wish or to read any of the magazines or newspapers available. Your child will remain in the room with you throughout the entire session. Afterwards, you will be asked a few questions about your child's home environment. Before you leave, you will be given another viewing diary to record your child's TV viewing in the time until your next visit. Your child will receive a t-shirt as a small token of thanks. Compensation for the cost of parking in the lot behind the Child Study Center will be given to you before you leave today.

There is no discomfort or danger involved with this study, either to you or your child. There are no direct benefits from participating in this study, but the information we gain will increase our knowledge of how children's play and social interactions are affected by baby videos. All information about individuals is kept confidential. All of the toys presented to the children are age-appropriate, as designated by the manufacturer. Participation in this study is completely voluntary, and if at any point during the experiment you or your child wishes to terminate your involvement with the study, please let us know. If you would like to speak with the Principal Investigator of this study, contact Daniel Anderson, Professor of Psychology, at (413) 545-2069 (anderson@psych.umass.edu). If you would like to discuss your rights as a participant in our research study or wish to speak with someone not directly involved in this study, you may contact the Human Subjects Review Board at (413) 545-3428 (HumanSubjects@ora.umass.edu). We thank you for your participation and would be glad to answer any questions.

I understand the procedure and agree to participate with my child

_____.
(Child's full name)

_____

Parent/guardian's name (print)

_____ _____

Signature Date

SESSION 2 CONSENT FORM

During your visit today, you and your child will be videotaped throughout the entire 45-minute session. For the first 30 minutes, one of the *Sesame Beginnings* DVDs that you watched at home will be shown to you. The final 15 minutes will be a free play period without the TV on, much like in Session 1. Your child will be free to play with an array of age-appropriate toys or to watch the TV when it is on. Please feel free to watch the video and to interact with your child in any way you wish. You may also read any of the magazines or newspapers available. Your child will remain in the room with you throughout the entire session. Afterwards, you will be asked a few questions about your response to *Sesame Beginnings*. At the end of the session, we will explain to you in more detail what we are studying and you will be given a chance to ask any questions that you have about the study. You will receive $10 Stop & Shop gift card as a small token of thanks. Compensation for the cost of parking in the lot behind the Child Study Center will be given to you before you leave today.

There is no discomfort or danger involved with this study, either to you or your child. There are no direct benefits from participating in this study, but the information we gain will increase our knowledge of how children's play and social interactions are affected by baby videos. All information about individuals is kept confidential. All of the toys presented to the children are age-appropriate, as designated by the manufacturer. Participation in this study is completely voluntary, and if at any point during the experiment you or your child wishes to terminate your involvement with the study, please let us know. If you would like to speak with the Principal Investigator of this study, contact Daniel Anderson, Professor of Psychology, at (413) 545-2069 (anderson@psych.umass.edu). If you would like to discuss your rights as a participant in our research study or wish to speak with someone not directly involved in this study, you may contact the Human Subjects Review Board at (413) 545-3428 (HumanSubjects@ora.umass.edu). We thank you for your participation and would be glad to answer any questions.

I understand the procedure and agree to participate with my child

_____.
(Child's full name)

_____

Parent/guardian's name (print)

_____ _____

Signature Date

APPENDIX B

SESSION 1 PARENT SURVEY

Please answer the following questions. Whenever a question asks about "your child," it is referring to the child who is the focus of this study.

1)	How many years of education have you and your child's other parent *completed*? For example, this would be 12 if you completed high school, 13 if you completed one year of post high school training, 14 if you completed an associate's degree, 16 if you completed college, and so on.
	You: _____ Other Parent: _____
2)	What is your child's ethnicity? (*Check all that apply*)
	_____ White/Caucasian _____ Hispanic _____ Black/African Am. _____ Am. Indian/Native Am. _____ Asian Other _____
3)	Child's birth date _____ 4) Zip code _____
5)	What are the ages of other children in your home? (*Write ages below*)
	_____ Male _____ Male _____ Male _____ Male _____ Female _____ Female _____ Female _____ Female
6)	Does your child have any vision or hearing difficulties? ____ YES ____ NO
7)	How many hours is your child out of the home on each of the following days?

		Monday		
		Tuesday		
		Wednesday		
		Thursday		
		Friday		
		Saturday		
		Sunday		
8)	Does your child normally watch child videos at home? ____ YES ____ NO			
9)	Do you use children's videos at home as a form of entertainment for your child? ____ YES ____ NO			
	Do you use children's videos at home when you need a break? ____ YES ____ NO			
	Do you use children's videos at home to inspire discussion with your child? ____ YES ____ NO			
	What other ways do you use children's videos at home?			
10)	How often do you view children's videos together with your child? (*Please circle one*)			

All of the time	Most of the time	Half of the time	Once in a while	Almost never
1	2	3	4	5

SESSION 2 PARENT SURVEY

Please answer the following questions. Whenever a question asks about "your child", it is referring to the child who is the focus of this study.

1) What is your reaction to the video you saw today? (*Circle one answer*)

Very much disliked	Somewhat disliked	Neutral	Somewhat liked	Very much liked
1	2	3	4	5

Was there anything in particular that you liked or disliked?

_____

_____

_____

2) What do you think was your child's reaction to the video you saw today? (*Circle one answer*)

Very much disliked	Somewhat disliked	Neutral	Somewhat liked	Very much liked
1	2	3	4	5

Was there anything in particular that you think your child liked or disliked?

_____

_____

_____

3) If you were in the group that was asked to watch videos at home, what did you and your child think of the other video that we sent you?

_____

_____

_____

4) How much did you learn from the video that you just saw? (*Please circle one answer*)

a. Not much
b. A few things
c. Many things

5) How much do you think your child learned from this video? (*Please circle one answer*)

a. Not much
b. A few things
c. Many things

6) How would you use this video at home? (*Please circle one answer*)

a. I wouldn't use this video at home.
b. I would turn on this video for my child and leave the room.
c. I would turn on this video for my child and stay in the room but most likely not watch it myself.
d. I would watch this video with my child.

7) How do you think the video affected your interactions with your child? (*Please circle all answers that apply*)

a. It did not affect our interactions.
b. It made my child and I more likely to interact *while the video was on*.
c. It made my child and I more likely to interact *after the video was over*.
d. It taught me ideas or strategies for interacting with my child that I plan to use later.

What other ways do you think the video affected your interactions with your child?

_____

_____

_____

8) Did you watch the informative clip for parents that was included on the DVD?

____ YES ____ NO

9) How many videos, either given to you as a gift or purchased, do you have for this child that he or she watches at least occasionally? _____

Of these, how many are from the *Baby Einstein* series? _____

10) How does this video compare to other videos for infants that you know about?

(*Please circle one answer*)

a. I have not seen other videos for infants.
b. This video is worse than other videos for infants.
c. This video is about the same as other videos for infants.
d. This video is superior to other videos for infants.

11) Would you be likely or not likely to purchase another video in this series?

____ Likely ____ Not likely

12) Would you recommend this video to a friend that has a child the same age as yours?

____ YES ____ NO

Please place a checkmark in the box next to the answer that best applies.

1. How much attention do you think your child paid to the video today compared to when they watched it at home?

☐ More ☐ Less ☐ About the same

2. If your child was assigned to watch ***Sesame Beginnings*** videos:

How many times did you watch the *Together Time* chapters on the DVDs?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 or more

How many times did you watch the *Inside Beginnings* chapters on the DVDs?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 or more

3. If your child was assigned to watch ***Baby Einstein*** videos:

How many times did you watch the *Bonus Material* chapters on the DVDs?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 or more

How many times did you watch the *About Baby Einstein* chapters on the DVDs?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 or more

How many times did you or your child watch the *Languages* chapter on *Baby Monet*?

☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 or more

Answer each question by circling the response that best describes your interactions with your child *since your participation in this study began*					
1. Interactions with your child while **Feeding**:	Worse	Worse	Same	Better	Better
	1	2	3	4	5
2. Interactions with your child while **Playing with Toys**:	Worse	Worse	Same	Better	Better
	1	2	3	4	5
3. Interactions with your child while **Bathing**:	Worse	Worse	Same	Better	Better
	1	2	3	4	5
4. Interactions with your child while **Watching TV/Video**:	Worse	Worse	Same	Better	Better
	1	2	3	4	5
5. Interactions with your child while **Diapering**:	Worse	Worse	Same	Better	Better
	1	2	3	4	5
6. Interactions with your child while **Playing without Toys**:	Worse	Worse	Same	Better	Better
	1	2	3	4	5
7. Interactions with your child while **Dressing**:	Worse	Worse	Same	Better	Better
	1	2	3	4	5

APPENDIX C

TWO-WEEK VIEWING DIARY EXCERPT

Media Exposure Diary Instructions:

1. We are interested in how often infants are in the room while the TV is on, regardless of whether they are paying attention. Please use this viewing diary to record television and videos that your infant is exposed to over the next 14 days.

2. When your infant is in the presence of a TV program or video made especially for infants or preschoolers, please draw a line through the second column (labeled "Program made for preschool children or younger") next to the appropriate time blocks. Please indicate the name of the program or video in the third column.

3. If your infant is in the presence of a TV program or video for older children or for adults, please mark a line in the forth column corresponding to the appropriate time blocks. You do not need to record the name of the program or video.

4. For all exposure that occurs, please use the fifth column to check off any adult or caregiver (Mom, Dad, Other) who was in the room with the child.

5. In the final four columns, please indicate the age of any other children that were in the room while the TV was on.

Day 1 (6:00 am -2:29 pm) Date: _____										
Time	**Program made for preschool children or younger**	**Name of program or video**	**Program for older children or adults**	**Check off any adult <u>that was in the room</u>**			**Ages of other children in the room**			
				Mom	Dad	Other				
6:00-6:14 am										
6:15-6:29 am										
6:30-6:44 am										
6:45-6:59 am										
7:00-7:14 am										
7:15-7:29 am										
7:30-7:44 am										
7:45-7:59 am										
8:00-8:14 am										
8:15-8:29 am										

BETWEEN-SESSION VIEWING DIARY

Directions: Please fill out this sheet any time you play one of the videos we gave you for this child in the time before your next visit to our Center.

Beginning Together				**Make Music Together**			
Date Watched	**Please check off any adults in the room at the time**			**Date Watched**	**Please check off any adults in the room at the time**		
	Mom	**Dad**	**Other**		**Mom**	**Dad**	**Other**

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