

Media Use by Infants and Toddlers: A Potential for Play

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Introduction

Can the media serve as a tool for parents and caregivers to facilitate play among infants and toddlers? A common belief is that television and videos take the place of spending time with others and with playing. Another concern is that parents use television as a “babysitter”. This may conjure up an image of children spending numerous hours passively watching television or videos with no adult presence or interaction. Is this in fact what is really occurring? Can and do television and videos actually encourage parent-child interactions? Can children use media as a model to incorporate in their imitative play? Do the media enhance play or detract from play? The amount of time that very young children spend watching television and video programs is increasing (Anderson & Pempek, 2005), and unfortunately this most likely detracts from the amount of time they spend playing. We now have data indicating the media viewing habits of infants and toddlers, what factors influence these media viewing habits, and the effects of such early viewing on the development of cognitive and social/emotional skills. This paper will discuss research regarding infant and toddler media, and will place this in the context of children’s play and parent-child interactions.

Many professionals in the early childhood field are opposed to the practice of encouraging children under two years to view television or video programs (American Academy of Pediatrics, 2001). Children are particularly vulnerable and influenced by the messages conveyed through television while not being able to discriminate between what they see and what is real (Gerbner, Gross, Morgan, & Signorielli, 1994). According to Anderson and his colleagues (2003), recent surveys reveal a widespread presence of violence in today’s media, and many children spend an excessive amount of time

watching this violent media. Extensive research provides clear evidence that media violence increases the likelihood of aggressive and violent behavior in both short and long-term contexts. Short-term exposure increases the likelihood of physically and verbally aggressive behavior, thoughts, and emotions. Large-scale longitudinal studies present evidence linking frequent exposure to violent media in childhood with aggression later in life (Anderson, Berkowitz, Donnerstein, Huesmann, Johnson, Linz, Malamuth, & Wartella, 2003).

Additionally, researchers have found a significant association between the amount of television watched between ages 1 and 3, and subsequent attention problems at age 7 (Christakis, Zimmerman, DiGiuseppe, & McCarty, 2004). These results held when controlling for other factors that may explain this association, such as the amount of cognitive stimulation in the home. One-year olds watched an average of 2.2 hours of television per day and 3.6 hours per day at age 3. Ten percent of those children had attention problems at age 7.

Huston and Wright (1998) report how infants and toddlers spend their time on media. They also argue that what children attend to on television and video can have critical influences on their development. Very young children have a greater amount of individual variability in how they utilize their time in comparison to older children who are involved in school and in after school activities. If this variability in time use relates to significant consequences such as growth in social skills and school achievement, then understanding differences in television and video use in the infant and toddler years is crucial. Those differences in media use could include the content of the programs children watch, how often they watch, and the reason for watching. The effects of

television on many aspects of learning are more related to program structure and content than of the medium itself. If children are encouraged to view television primarily for entertainment, even if the content is well designed, they may learn relatively little from it because they do not engage in it purposefully (Huston & Wright, 1998).

According to a policy statement issued by the American Academy of Pediatrics (2001), possible negative health effects of television viewing on children include but are not limited to: violent or aggressive behavior; decreased school performance, poor body image, and obesity. The Academy also provides a list of parental guidelines and recommendations for children's television viewing such as watching television programs along with children and discussing the content, and encouraging more interactive activities that will promote proper brain development- talking, playing, singing, and reading together. The Academy suggests that parents delay all TV and video viewing until children reach age 2. Infants and toddlers are sensory learners; they need to touch, taste, look at, listen to, and explore objects, and have contact with people in their environment (Leach, 1997). Their interactions are what create learning. Motor development is also a significant learning task for these very young children. They need opportunities to push, pull, and manipulate objects, crawl, climb, and pull up to standing positions. These opportunities do not come from passively watching TV or video programs.

In contrast to many professionals in the early childhood field and the Academy's position, both child industry companies and parents have been encouraged by popular lore about potential "brain connection enhancement" to foster early age-relevant media exposure. Recently there has been an influx of DVD's, videotapes, and television shows

marketed directly at infant and toddlers. The majority of companies producing such media claim that viewing these videos and programs can provide young children with stimulating play and learning experiences. Additionally, these companies tend to define learning as narrowly as ABC's, 123's, shapes, and colors.

The intention of this chapter is not to increase infant and toddler's television viewing nor to suggest that media can or should take the place of play as it naturally occurs away from the screen. Instead, it examines existing research on infant and toddler TV and video viewing as it relates to play, and offers techniques that could help caregivers and very young children get the most out of media viewing experiences.

What Does the Research Tell Us About Infant and Toddler Media Viewing Habits?

Commercial rating systems such as Nielsen (1998) generally record the viewing habits of children over the age of two, but there is increasing evidence that infants and toddlers are being exposed to videotapes or television designed for and aimed to them more today than in the past (Anderson & Pempek, 2005). Not only do these young children view television and videos, they pay substantial attention to the programs made for them.

Infants as young as 6 to 12 months of age are watching television about 1-2 hours per day according to Hollenbeck and Slaby (1979). A Kaiser Family Foundation study in 2003 indicated that 74% of all infants and toddlers surveyed had watched television before the age of 2. During a typical day in America, 59% of children under age 2 watch television, and 42% watch a video or DVD (Rideout, Vandewater, & Wartella, 2003).

Similar to these findings, a more recent survey of parents conducted by Weber and Singer (2004) found that the mean age infants and toddlers began watching videos was 6.1

months and the mean age of television viewing was 9.8 months. The mean number of hours infants and toddlers watched television per day was 1.12 hours in addition to .41 hours for video.

Children's time spent viewing the media increases as their age increases. In 1991, Comstock and Paik found that one in four 2-year-olds spent 2-4 hours per day watching television. Nielsen Media Research (1998) specified that children as young as 2 years old were watching more than 3 hours of television daily. Woodard (2000) conducted a national survey including 145 families with 2- and 3-year-olds and found similar results. "Parents reported that their child watches an average of about 2 hours (159 minutes) each day. Children this age also watch nearly 1 1/2 hours (82 minutes) of videotapes." (Jordan & Woodard, 2001, p.7)

This is a seemingly enormous amount of media viewing for such young children. What is creating this trend? Is it simply the influx of programming aimed at these young viewers? Is it the vast amount of peer pressure that caregivers have to raise a "Baby Einstein", or are they so over-scheduled that they need to put children in front of a screen to "get things done"? Is it that babies and toddlers are so responsive to this media and enjoy it so much that parents don't want them to "miss out" by not watching it? Why are caregivers exposing children to this media to begin with--what are the real reasons why they feel compelled to have their children spend so much time watching video and TV versus playing? And, how will professionals in the early childhood field continue to respond to this trend?

What Perspective Do Parents Have About Infant and Toddler Media Viewing?

The Kaiser Family Foundation (2003) report showed that a large portion of

parents believe that educational media is “very important” to children’s intellectual development, including educational television (58%) and educational videos (49%). More parents (43%) think TV “mostly helps” children learn versus those that think it “mostly hurts” learning (27%), or that it doesn’t affect learning at all (21%). Parents’ attitudes on this issue of learning are positively related to the amount of time their children spend viewing media. Those in favor of this type of media allow more viewing time than those who do not. Additionally, parents recognize that children’s TV watching has a direct effect on their behavior. They are more likely to see positive behaviors such as sharing or helping, rather than negative behaviors which include hitting or kicking (Rideout, Vandewater, and Wartella, 2003).

A Parent Media Survey of 221 middle class Caucasian families finds similar results when examining the degree of parent satisfaction and comfort level with infant and toddler media (Weber & Singer, 2004). On a five-point scale, with one signifying not comfortable and five signifying very comfortable, 82% of the parents indicated that they were either comfortable or very comfortable with having their children watch television, and 81% were either comfortable or very comfortable having their child view videos. Eighty-four percent of the parents on a five-point scale were satisfied or very satisfied with the quality of television programs and 89% were very satisfied or satisfied with the quality of videos. Parents readily accept and even accommodate to this trend of infant and toddler media use. Why are they so accepting?

Demographic Predictors for Media Use by Very Young Children

A recent study investigating factors that determined how much time young children spent interacting with media, focused on potential demographic predictors of

media use by children ages 6 months to 6 years (Anand & Krosnick, 2005). Using data from a large-scale national survey sponsored by the Kaiser Family Foundation, Anand and Krosnick conducted multiple regression analyses that included predicting time spent watching television and watching videos and/or DVDs. Their findings indicated that a child's age, race, parents' education, and parents' marital status had significant effects. A child's gender, birth order, languages spoken at home, parents' employment status, and parents' age had only occasional, isolated effects and family income had no impact at all.

These researchers found that children's time spent watching television steadily increased as their age increased up to 4 years, with a slight decline after 4 years. Those children less than 1 year old viewed approximately 35 minutes of television per day, increasing to 55 minutes at 1 year, approximately 70 minutes at 2 years, and reaching over 70 minutes of viewing time at 3 and 4 years. It's possible that viewing time decreased after 4 years when video and computer games became available to them, or simply because these children are not home as much – they are now beginning to participate in preschool programs and may attend extra-curricular classes such as music or gymnastics.

Time spent watching video and/or DVD's increased up to 3 years; after which it declined. Children less than 1 year old viewed approximately 35 minutes of video or DVD's each day, with viewing time steadily increasing up to 45 minutes per day for 3 year olds. This steady increase in both TV and video viewing with age may relate to the child's ability to comprehend program content as well as the larger number of programs offered that are targeted to the preschooler versus the infant and toddler.

When investigating parents' education, Anand and Krosnick (2005) found that children of mothers and fathers with less education watched more television. In contrast, children of fathers with moderate levels of education spent more time watching video or DVD's in comparison to children of fathers with the most or the least education. Children who had fathers that worked part-time viewed less television than did children of unemployed fathers. However, children of retired fathers and mothers viewed more television in comparison to those with fathers and mothers who were unemployed. In addition, children with retired mothers watched more video and/or DVD's than those with older parents or with mothers who were unemployed. It seems that children living with retired parents engage in the most screen time. Perhaps these children are simply home more than others and media viewing is the most readily available choice for activity.

Parental marital status also played a role in television viewing habits. Researchers discovered that children living with a divorced parent or a parent who never married spent less time watching TV than children living with married adults. However, those children living with a separated parent spent more time watching videos and/or DVD's in comparison to children living with married adults (Anand & Krosnick, 2005).

In an earlier study, Jordan and Woodard (2001) also found differences in children's media use patterns according to demographics such as parental education, race, the presence of older siblings, gender, and income. Similar to the Anand and Krosnick (2005) findings, Jordan and Woodard reported that children who have parents with a high school education or less view television an hour more, on average, in comparison to children whose parents have more education. When examining race, children's media

use varied only to some extent. Two- to three-year-olds from nonwhite families spent 23 minutes more per day with TV and 13 minutes more per day with the VCR. For gender, parents reported that their daughters spend more time per day than their sons with videotapes (20 minutes) and television (17 minutes), and those children with older siblings in the homes watched, on average, 20 minutes more per day of TV versus children without an older sibling. They also found that children from families with lower incomes typically watch 30 minutes more of television and 22 minutes more of videotaped programming than children from higher incomes. It's possible that this is occurring because children from families with lower incomes have less opportunity for organized extra-curricular activities that require a cost, such as swimming, music, and gymnastics.

In a most recent study, the amount of television use among children from birth to 6 years was examined according to rules caregivers established (Vandewater, Park, Huang, & Wartella, 2005). Parents with "time rules" reported their children watching less television, while parents with "program rules" reported their children watching more television. The parents who had established program rules were more likely to have positive attitudes toward television and more likely to be present when their children were viewing. Interestingly enough, parents with both types of rules were more likely to see their children imitating positive behaviors from television, whereas parents with program rules only, tended to see their children imitating negative behaviors. It's possible, as well as concerning, that the programs these parents are allowing their children to watch include content that models and encourages this negative behavior they see their children imitating. Additionally, a higher education level was related to rules of both types, while

higher household income was only related to having program rules. To summarize, children with parents who restrict the amount of time they spend viewing programs, ultimately watch less TV collectively, and those parents who enforced program rules were most likely present while the child was watching.

In an earlier study investigating the influence of non-related caregivers versus related caregivers, 2-year-olds in care with relatives were found to watch television for longer periods of time than with non-related caregivers. It is interesting to note that children in care with non-relatives tended to watch more educational and age appropriate television programs and fewer adult programs compared to children cared for by relatives (Mullin-Rindler & Fucinga, 1995). Conceivably, the non-related caregiver may have a more immediate need to be concerned about the type of content children under his or her care are exposed to. The non-related caregivers, perhaps, believe that they are held accountable for what the children do while they are under their care and need to justify the type of program viewing that takes place.

Pierroutsakos, Hanna, Self, Lewis, and Brewer (2004) surveyed 100 parents with children ages 2 ½ to 24 months. In this study, parents were asked to complete a diary tracking infants' amount and type of TV exposure. Similar to studies previously mentioned, parents reported that their child was attentive to about 60 minutes of television per day, on average. However, they were exposed to about 120 minutes per day and not all programs viewed were appropriate for these young children. What is most revealing is that of those 120 minutes of media exposure, 50% included infant and toddler programming, 40% adult programming, and 9% preteen programming. These children are being exposed to inappropriate content that they are particularly vulnerable

to and influenced by (Gerbner, Gross, Morgan, & Signorielli, 1994), and this could potentially cause a variety of negative effects such as aggressive or violent behavior.

What Behaviors Do Infants and Toddlers Exhibit While Watching the Media?

While there has been a recent increase in research on the amount of media viewing among children under 2-years-old, the effects of and impact on child development remains understudied. This in part, may be due to the fact that children this age cannot articulate how and why they spend their time with media. In addition researchers may not be able to get accurate measures of these effects without using intrusive and expensive approaches such as longitudinal studies and intervention experiments (Jordan & Woodard, 2001; Schmitt, 2001.) A select number of research studies however, have been completed.

Lemish (1987) for example, conducted a participant-observation study including families with children ages 6 ½ to 29 ½ -months-old, for a period of 6 to 8 months. The objective was to study babies' viewing behavior in their natural environment. She discovered distinct phases in how children process television. Children ages 0- to 6-months-old attend to loud voices and sudden noises, whereas 6- to 10-month-olds are attracted to certain sounds (e.g., a character's voice, laughter). The 10-18 month-olds' pattern of attention focuses on music, content, and character awareness. What is of special relevance to this chapter is that Lemish reported data suggesting television *encourages* particular forms of play. By the first half of the second year, when babies heard certain sounds, they would stop what they were doing, and would run to the location of the television, to watch, sway, bounce and clap their hands, sing along with the television, and vocalize in excitement. She also found that once children viewed the

Sesame Street program repeatedly, they became familiar with and attentive to the characters in the program. Both mothers' reports and participant observations revealed that babies as young as 15 months were able to point out and name most of the major characters, as well as recognize the characters in other contexts such as books, toys, stores, posters, or clothing. Children showed preference to familiar content as well, favoring commercials and programs that included babies, young children, and familiar animals.

Earlier work by Meltzoff (1977) found that infants, only days old, could imitate the facial expressions of an adult. He also reported that 14-month-olds will imitate actions they see on television. Later, Meltzoff's (1988) research focused on whether TV viewing simply presented infants with a salient collection of moving patterns or whether they could readily pick up information shown in the 2-D representation and incorporate it into their own behavior. He wanted to learn more about infants' ability to understand the content of television to the extent that they could direct their behaviors within the context of their own environment, accordingly. Meltzoff studied this question by presenting a model via television for infants to imitate. The child's ability to imitate these TV models was explored at 14 and 24 months, under conditions of immediate and deferred imitation. In deferred imitation, infants were exposed to a TV portrayal of an adult manipulating a novel toy in a particular way but were not presented with the real toy until the next day.

Meltzoff indicated that 14 month olds were able to learn how to manipulate a toy they had never seen before by watching the television demonstration. Results demonstrated significant imitation at both 14- and 24- months old and that even the youngest group imitated after the 24-hour delay. This study adds to a growing body of

literature on pre-linguistic representational abilities: infants can relate 2-D representations to their own actions on real objects in 3-D space. The information picked up through viewing television can be internally represented over lengthy delays before it is used to guide a young child's actions within the context of their own natural environment. In sum, these results imply that even very young children have the potential to learn about different ways to play with toys or objects by watching the media.

Richards and Cronise (2000) also noted that one-year-olds are able to imitate what they view on television. He studied viewing behavior patterns (attention and heart rate) of infants ranging in age from 6 to 24 months showing the children two different samples: an excerpt from a *Sesame Street* movie and a computer generated display of randomly moving forms and sounds. Infants 12-months-old and younger showed the same visual behavior patterns and heart rate when watching either display. Eighteen and 24-month-olds watched the *Sesame Street* movie for longer periods of time and demonstrated heart rate patterns indicative of sustained and focused attention (Richards & Cronise, 2000). This suggests that children 18 months and older can begin to discriminate a comprehensible organized program such as *Sesame Street*, from a random display of visuals.

Further work on attention to television among children ages 6 to 58-months-old was carried out by Valkenburg and Vroone (2004). While children were in their homes, they showed them a video including six brief television segments that varied in complexity such as news, children's commercials, and *Teletubbies*. They indicated that very young children paid more attention to programs with simple content, *Teletubbies*, while older children paid greater attention to more difficult content, *Lion King II*,

supporting the premise that attention is highest for content that is within the child's level of comprehension.

Even though there is evidence that infants and toddlers have a different understanding of television in comparison to older children (Schmitt, 1977), the elements that attract their attention to TV have been found to be similar (Schmitt, Anderson, & Collins, 1999). Singing, movement, and portrayals of child TV characters such as babies, puppets or other nonhuman characters, enhances the attention of infants and toddlers while viewing. Weber and Singer (2004) also gathered data on the types of program features and activities that were most appealing to this age group. Comparable features mentioned most often include: music and songs, characters, animals, action or movement, dancing, animation, and babies with children.

Media viewing, according to the above studies, appears to have different effects on infants versus toddlers. If a caregiver is to use television or video and DVD programs as a tool to encourage play, choosing the appropriate type of program according to content and age suitability, is essential (Lerner, Singer, & Wartella, 2001). The amount of media viewing should remain limited and the caregiver should be present during this viewing time to encourage play, interact with the child, explain concepts, and ask the child questions while viewing.

Can TV and Video Programs Encourage Play and Social Interaction?

Eighteen-month-old Anthony holds up his talking stuffed animal named *Barney*, smiles as he looks up and says "Barney!". His mother is standing behind him as he enters into the "Playlab" for his toddler playgroup. She emphatically explains that Anthony loves Barney and lately they have been watching the *Dance with Barney* video together at

home, every day. She mentions that he likes to hold his Barney toy while they dance and sing along with the video together. Once Anthony enters into the Playlab classroom, he immediately asks to watch what he calls the “Barney Zoo” (*Barney – Let’s Go to the Zoo*) video. He moves his hips back and forth and sings along to the beginning theme song, as he watches the large purple dinosaur character on screen, hugging his Barney toy while watching.

Anthony’s experiences and actions while viewing a video program are very similar to what was found in an infant and toddler study (Weber & Singer, 2004). That is, this 18-month-old and his mother view the *Barney* video program together while interacting and playing with one another. The Weber and Singer (2004) data indicated TV and videotapes have the potential to encourage time together for parents and the very young. When referring to their children between the ages of 1-23 months, 47% of the parents in the survey said they watch children’s television programs with their child at each viewing and 39% watch each time while viewing children’s videos. Only 1% of parents said they never watched television or video programs with their child. As can be seen in Figures 1 and 2, the most frequent activities parents engaged in with their children while viewing TV and videos relate to different elements of play: singing, dancing, and pointing to what is taking place on the screen.

Insert Figure 1 and 2 about here

Related results of parent presence while infants and toddlers view media were presented in a Kaiser Family Foundation study of children ages 0-6 years old (Rideout,

Vandewater, & Wartella, 2003). The majority of parents (85%) reported that most of the time the child was watching television with someone else. Additionally, 69% of parents said they were in the room either most or all of the time their child was watching. In contrast, 45% of all parents said they would be very or somewhat likely to sit their child down with a video or a television program if they had something important that needed to get done. In a study by Schmitt (2001) examining 2-year-olds media viewing behaviors, nearly half of the toddlers' time viewing television was spent interacting with others, and one-third of their time was spent playing. Thus, the common portrayal of television watching among young children as a highly solitary activity is not completely accurate.

Very young children often engage in other activities while viewing media (Weber & Singer 2004). The most common activities children participated in while watching TV were: playing with toys (73%), eating and drinking (23%), moving in a swing or "exersaucer" (18%), crawling, walking, or running (11%) and/or looking at books (11%). Results for viewing videos were similar, with the most popular activities as: playing with toys (67%), eating and drinking (22%), dancing (12%), moving in a swing or bouncer seat (13%), walking, crawling, or climbing (11%), and/or looking at books (9%).

When Schmidt (2001) observed behaviors of 2-to 3-year-olds while viewing TV, she found similar results. The most frequent non-viewing behaviors were social interaction (39.2%) and playing (32.1%). Other behaviors included eating (7.6%), reading or being read to (2.2%), grooming (1.4%), and writing or drawing (1.3%). These children spent only 40.6% of their viewing time actually watching the screen. Fifty-eight percent of the children's social interactions were with another child, usually a brother or sister. Most common types of play included play with toys (59.4%) and

physical activity such as running around the room (15.1%). Approximately one-third of the time toddlers were physically active when they were in the viewing room. Schmidt (2001) reported that the 2 to 3-year-olds were as likely to interact with someone in their environment as they were to look at the TV, and sometimes they did both at the same time. The most common type of social interaction was talking, followed by looking at others. The 2-year-olds would also spend some of their viewing time sitting next to another person or cuddling with them, indicating that media viewing is not necessarily a passive and physically isolating activity.

Twenty-two-month-old Jenna is watching the *Little People*® “Big Discoveries” video attentively. One of the segments in the video is based on Sonya Lee’s™ (*Little People* character) day at the zoo visiting her animal friends. A few minutes after Jenna watches the segment, she gets up from the child size couch that she was viewing the television from, and quickly gathers a handful of *Little People* toy figures (including Sonya Lee) and a train that the toys fit inside of. She brings them back to the couch where she sets them down and begins to put the characters and animals into the train. She fills each car with a toy little person or animal and then drives the train in circles. Jenna stops the train, takes the figures out of the car, puts one little person in one hand and an animal in the other, and moves them back and forth to have them “talk” to one another. Jenna was imitating what she had just watched on the video program--engaging in early imitative imaginative play as prompted by viewing the *Little People* video. As observed further in the Playlab, once children were at the developmental stage where they engaged in pretend play and socio-dramatic play, these videos motivated them to develop

their own play scenarios using the characters or message that was conveyed through the story line.

Many animated television programs are product-based programs; the characters in the programs are readily available as toys in stores. The combination of product-based television and thematically related toys is potentially stimulating to imitative imagination -- play representations where the children use the toy or animated figure in a similar manner as shown in the television program (Greenfield et al, 1993; Singer & Singer, 1990; 2005).

Educational programs such as *Barney & Friends* and *Sesame Street* include fantasy elements and offer solutions to problems. They have been shown in research to foster imagination and creativity (Skeen, Brown, & Osborn, 1982). The presence of live actors in these programs can help convince young children that fantasy episodes can really occur. On many television programs, adult characters talk to the fantasy characters (*Mister Rogers Neighborhood, Sesame Street, Barney & Friends*) and this adds to the apparent realism of the puppets or animated characters on the program. Having live figures on a television program is important if they help in clarifying information and allow the children to process the story line more easily. Singer and Singer (1998) studied the effects of the children's program *Barney & Friends*, where there is the host Barney, and generally 4 children in each episode who, indeed, provide explanations and clarification of concepts on the program. Toddlers in experimental and control conditions were rated during their free play periods in the pre and post TV viewing by two trained independent observers for ten minutes over two points in time. Observers rated both groups on imaginativeness of play, persistence, and aggression. The

experimental group watched ten episodes of Barney daily, just before their free play periods, while the control group did not see the program at all. Parents filled out questionnaires about their children's language abilities, favorite toys and activities, and degree of television viewing. The toddlers who were exposed to *Barney & Friends* showed more imagination and were more socially appropriate than the control group (Singer & Singer, 1998). The children viewing *Barney* were actively involved with the show as evidenced by their tendency to dance along with the characters and to sing the songs from the show.

Teletubbies, was launched in Great Britain on British Broadcasting Company (BBC) in 1997, and is targeted to 1-year-old children. A series of studies appeared in a special report, *Television*, (Lohr, 1999) suggesting benefits for preschoolers who watch *Teletubbies*. For example, one study indicated that as the *Teletubbies* program becomes increasingly familiar to many children, using literacy activities related to the "Teletubbies" could be an incentive to learn how to read and write in preschool classes (Marsh, 1999). Most of the data, however, have been gathered through observations of children older than one year or through anecdotal data gathered from caregivers. The studies report positive effects in the children such as smiling, laughing, and imitating sounds on the screen while viewing, in Great Britain, Germany, Australia, and Israel.

Can Young Children Learn Language Skills from the Media?

An example of children benefiting in language usage from viewing television, was demonstrated in a longitudinal study by Lemish and Rice (1985), where observations of children's behaviors were recorded while they watched television in their own homes. The children were newborn to 3 years of age, actively involved in the process of language

acquisition. Observations revealed multiple consistent occurrences of language-related behaviors among children and parents in the viewing situation. The main categories of children's verbalizations were: labeling objects on the screen, asking questions about the program, repeating television dialogue or parent comments about the content, and describing the content. Parents acted as mediators with their verbalizations paralleling their child's. Results of this study indicate that television and video have the potential to serve as a facilitator of children's language development when parents mediate the viewing experience.

It's important to consider that a child's language skills could develop even more rapidly when a caregiver asks questions and encourages conversation, makes up simple rhymes along with a child, defines words using terms that are understandable to the child, repeats words, and uses new words in sentences that a child will comprehend. This type of interaction is rarely found integrated into programs designed for infants and toddlers.

In a more recent longitudinal study conducted by Linebarger and Walker (2005), findings were presented that support the importance of content and type of program when describing media effects on language development. The researchers observed 51 babies every 3 months, from 6 months of age to 2, tracking language development as measured by vocabulary and expressive language use (ability to express needs and wants). At 2-years-old, watching *Dora the Explorer*, *Blue's Clues*, *Arthur*, *Clifford*, or *Dragon Tales* resulted in greater vocabularies and higher expressive language scores versus watching *Teletubbies*, which related to fewer vocabulary words and smaller expressive language scores. Viewing *Sesame Street* was only related to smaller expressive language scores, while watching *Barney & Friends* was related to fewer vocabulary words and more

expressive language. Linebarger (2005) concluded that programs featuring tight narrative structures that used language-promoting strategies predicted positive language development. Infants and toddlers need a very linear narrative with much repetition within the episode as well as clear sequences and story patterns.

In an earlier report concerning this study, Linebarger (2004) explained that *Arthur*, *Clifford*, and *Dragon Tales* include opportunities to see and hear vocabulary words within the context of everyday conversation. *Dora* and *Blue's Clues* are audience participation programs that actively seek feedback and comments from children, praise child responses, and offer explanations and visual demonstrations of various vocabulary words. Linebarger (2004) indicates that these strategies are often used to increase vocabulary and support increased single and multiple word use.

Perhaps a child's vocabulary and expressive language skills could develop all the more with a caregiver who introduces new words in context and explains the word using meaningful and appropriate terms for the individual child. Caregivers can encourage children to use expressive language within the context of everyday situations. An example that readily comes to mind involves sharing: a child pulls a toy out of another child's hand without asking first and explaining that he wants to play with that toy now, too. The caregiver can explain to the child that he or she has to ask to use the toy versus physically demonstrating his or her needs by pulling it away.

In contrast to the above-mentioned programs, *Teletubbies* uses poor language models that consist of vocalizations, baby talk, and single-word utterances. The children who watched this program tended to produce more vocalizations and fewer single and multiple word utterances than those who did not, suggesting that children will repeat or

imitate what they watch on media. Linebarger (2004) surmised that the loose narrative structure and the changing vignettes of *Sesame Street* and *Barney and Friends* may not have provided enough support to maintain interest and learning throughout the show for the very young viewers. She noted that *Sesame Street* was completely redesigned in 2001 after data collection was complete, and indicated that the new format features tighter narratives with content more suitable for younger viewers. Regarding *Barney and Friends*, other research showed word learning occurred more frequently when there was an adult co-viewer present to support program messages (Linebarger, 2004). Support for the importance of adult mediation was demonstrated by Singer and Singer (1998) who found that preschool children who had adult intervention after viewing *Barney & Friends* made stronger gains in vocabulary than a control group who had no such intervention.

Singer and Singer (1981) found modest correlations between language and television viewing in a study with 3- and 4-year-olds. They revealed that there are positive correlations between the amount of weekly television-viewing and imperative sentences of an aggressive nature such as commands and exclamations, and negative correlations between amount of weekly television-viewing and questions, verbs in the future tense, and adjectives. Children who viewed a great deal of television, 4 hours or more per day and played less, simply were not making gains in vocabulary parallel to light TV viewers who viewed TV 2 hours or less per day. In addition, light TV viewers revealed slight positive correlations between weekly television-viewing and mean length of utterances, suggesting that television may tend to facilitate language.

In sum, the research discussed gives evidence supporting the notion that children's language skills can be enhanced by the media, most likely within the context

of a mediated environment, viewing specific developmentally appropriate programming for limited amounts of time.

Can Toddlers and Preschoolers Acquire School Readiness Skills from the Media?

In a 3-year longitudinal study named “the Early Window Project”, including 2- to 5-year-old children from relatively low-income families, the Center for Research on the Influences of Television and Children investigated the long-term effects of educational television on achievement and school readiness (Bickham, Wright, & Huston, 2001).

The researchers found a positive relationship between watching educational TV and tests of achievement and school readiness. “Overall, viewing *Sesame Street* and other similar programs at ages 2 and 3 predicted higher scores at age 5 on measures of language, math, and school readiness” (Bickham, Wright, & Huston, 2001, p. 114). These children were rated by their first teachers as more ready to learn, based on attitude and pre-academic skills, versus their peers who did not watch such programs. The study also indicated that children who repeatedly watch developmentally appropriate educational television programs learn basic concepts and the language needed to use them; they discover that learning is fun; they anticipate going to kindergarten; and they are more prepared for and excited about learning (Linebarger, 2004).

Anderson and Pempek (2005) hold a different perspective when referring to media as a learning tool. They compared a child’s ability to learn from a live presentation versus a video presentation and found there is substantially less learning from videos. They refer to this as the *video deficit*. One study used a live and video version of an experimenter demonstrating the functioning of a puppet. Demonstrations ranged from one-step operations (taking a mitten off) to more complicated operations

(taking the mitten off, shaking it to hear a bell inside the mitten, and then taking the bell out). After a 24-hour delay, 12- to 15-month-olds imitate the live demonstrations with little difficulty. However they are not able to imitate the video demonstrations as easily. The children showed some success with the one-step demonstrations only (Barr & Hayne, 1999). Further study and discussion is needed to better understand what influence the media has on the acquisition of school readiness skills among infants and toddlers, specifically.

Types of Media Exposure

Anderson and Evans (2001) suggest that very young children have two kinds of exposure to television: background and foreground exposure. When a child is incidentally exposed to media, background exposure occurs. For example, a child is in the same room as a parent or older sibling who is viewing a television program. Foreground exposure occurs when the child is attentive to and/or is interacting with a television program, and the program is designed for young children. They found that background TV is a disruptive influence on the amount and quality of toy play and interactions.

Evans, Pempeck, Kirkorian, Frankenfield & Anderson (2004) directly measured the impact of background media on play and parent-child interactions. The researchers observed 12, 24, and 36-month-old children's toy play with and without a television program playing in the background (*Jeopardy!*). Parents were asked to limit interactions with their children so that the researchers could observe the impact of television on toy play independent of parent-child interaction. Background television reduced both the length of play episodes and the degree of focused attention during object play. Results

from an ongoing study (Murphy, 2004) indicate that parent-child interactions are substantially decreased in the presence of background television. An analysis of parent interactions with their 24-month-old showed a 22% reduction when the television was on. Perhaps this decrease in parent-child interaction is one factor causing the reduced length of play episodes and attention during play -- it's possible that the parents aren't helping to sustain the play as much as they normally would if the television was off.

The research discussed thus far shows both positive and negative effects of media viewing on our very young children. To speculate in the most simplistic terms, when infants and toddlers are exposed to age-appropriate media with an adult present interacting with the child, explaining the content and encouraging play, media viewing can result in a positive playful learning experience. Negative outcomes result when the adult is not present and the child is exposed to unlimited amounts of inappropriate program content. With these findings in mind, how might we encourage additional positive media viewing experiences that facilitate learning through play?

Do Parents Believe Children Learn Through Play?

According to "What Grown-Ups Understand About Child Development: A National Benchmark Survey" (2000), most parents see the important connection between play and intellectual, emotional, and social development. The majority of parents see play as crucial to the healthy development of a child. However, there are gaps in the knowledge that adults have about play. Results of the survey indicate parents as being less likely to see the importance of play when they think about younger children (10-month-olds). Fathers see less benefit in play, regarding the 10-month-olds, than do mothers. Parents with a high school degree or less are less likely to understand the

connection between healthy play and development. All adults surveyed see a greater connection between social development and playing than they do between playing and language development.

In a survey questioning 1,160 middle class mothers of children below the age of 6, and 106 play experts who were mainly professors (74%), data suggest that 95% of the parents indicated it was important for their child to spend time playing each day (Yankelovich, 2005). When asked whether playtime equals learning, both mothers and experts were in fair agreement (86% of the mothers versus 81% of the experts). However, 46% of the mothers believed that free unstructured play was the *best way* for children to learn versus 75% of the experts. Although 77% of the experts believed that it was most important for young children to be emotionally and socially prepared for school, only 48% of the mothers agreed.

The majority of mothers in this survey believe that children do learn from play. As previously discussed, we now have data indicating that parents are facilitating media use among infants and toddlers, and there is evidence that children's programs can enhance learning through play. How then might we bridge the gap between media viewing and play, to help caregivers and children get the most out of each viewing experience?

How to Use Children's Television and Video Programs as Resource for Play

Television is a special experience that should be a relatively small part of a child's day, but it should offer an opportunity to play, learn, and grow. Lerner, Singer, and Wartella (2001, p. 33) suggest guidelines for parents and caregivers about the use of media with very young children:

1. *Screen TV programs before presenting them to a child.* (What is the content? Have the producers or manufacturers tested the content for age appropriateness?)
2. *Limit young children's time with TV.* (Generally 30 minutes of TV a day is reasonable for 2-3 year olds – balancing empathy for the parent with developmental appropriateness.)
3. *Be with the child while watching TV.* (Mediate the child's experience – that is, help the child focus; discuss what the child is viewing.)
4. *Extend learning from media into play at home or in the child care setting.* (Through discussion and pretend play, help young children use their experiences with media to make sense of their real world.)

It's now worth examining some of the advantages of video. Most infant and toddler video programs are designed to encourage discovery and inspire new ways for caregivers and children to interact. The video format is a controlled medium that allows parents to specifically select the content they are sharing with their young children. They can use the pause, stop, and fast forward buttons on media players to tailor the amount of viewing time to the age of their child.

There are a variety of videos on the market that have been prepared for children beginning at age 3 months, for example, *Baby Einstein*®, *BumbleBee-Bee Smart Baby*™, *Mommy and Me*™, and *the Baby Development Collection*. There is a tremendous variety of the ways these videos are produced: with animation only; with objects only; with a combination of a live host and animation; with mainly live people with a sprinkling of animation; with only live adults and babies; and some with puppets.

For the youngest baby under 12 months old, the adult can talk to the child about what is on screen, animating her voice in a playful way, singing along with the songs encouraging baby to vocalize, and dancing and moving to the music with the child. Some of the programs offer games and activities to play when not viewing the videos. This provides yet another way to foster adult-child interaction through play.

The Baby Development Collection: An Example of Using Media to Encourage Play

Because the *Little People* video series was designed only for toddlers, the Child Research Department at Fisher-Price® decided to develop a new series of home videos targeted to children age 3 months and above, titled the *Baby Development Collection*. This video series features live footage of babies, children, mothers and fathers interacting and playing with one another, as well as music, poetry, visual imagery, and three puppet characters. The four videos included in the collection are: *Baby's Day*, *Musical Baby*, *Baby Moves*, and *Nature Baby*. (See Appendix A for a description) Each video includes a 10-minute playgroup segment. The leader for the group invites parents to participate in 4-5 interactive games they can play with their children. Just as the videos are theme related, each playgroup focuses on activities that help develop specific skills for babies and toddlers: music, sensory, physical, or language (Warner, 1999). (See Appendix B for a description)

In January 2004, a national sample of 44 families with 3-18 month old boys and girls completed an On-line Survey. Respondents were asked to watch the Baby Development Collection's *Musical Baby* and *Baby's Day* prior to completing the survey. Parents were requested to use and evaluate the videos regardless of their children's interest and developmental stage. First they rated on a 4 point scale, their overall likeness

rating; their likeliness to recommend to a friend with a similar age child; the entertainment value; and the educational value. They were also asked a series of qualitative questions relating to the DVD main programs and playgroup segments: specific likes; dislikes; additional theme suggestions; and sibling viewing patterns.

For the two videos researched, over a third of the parents gave an excellent or good rating with less than 4% of the respondents rating the videos as “poor”. Approximately half of the respondents indicated that they would be likely to recommend the videos with no one reporting that they would not make a recommendation. The majority of parents felt that the videos were educational with no one reporting that the videos were not educational. Most importantly, the 10-minute Playgroups were seen by many parents as a good resource for new activities and games to play with their infants and toddlers.

Implications

This chapter presented research on infant and toddler media use and the media contribution to the development of cognitive and social skills among this age group. It is clear from the data, that parents are using videos and television in a playful and active way while viewing, and continue to do so while not viewing. The research underscores the importance of choosing television and video programs that are age-appropriate and that have well-developed curricula. Very young children may especially benefit from appropriate media viewing as it can provide opportunities for early language and concept learning not otherwise available. This early learning and experience has the potential to enhance positive developmental outcomes.

More studies are needed to examine whether or not, what type of, and how media

should be integrated into the lives of very young children in a developmentally appropriate way. Television is part of children's every day life, and with the increase in programming and video development, this may become even more prevalent within the near future. Empowering parents to engage in play with children by participating in playgroups or even viewing different types of play as presented in the media, may help foster play among families today. Media viewing, however, should be limited in terms of hours, kinds of programs children watch, and with ample discussion to clarify what children have watched.

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Figure 1. Activities with video. (Mother with Child) (N= 138)

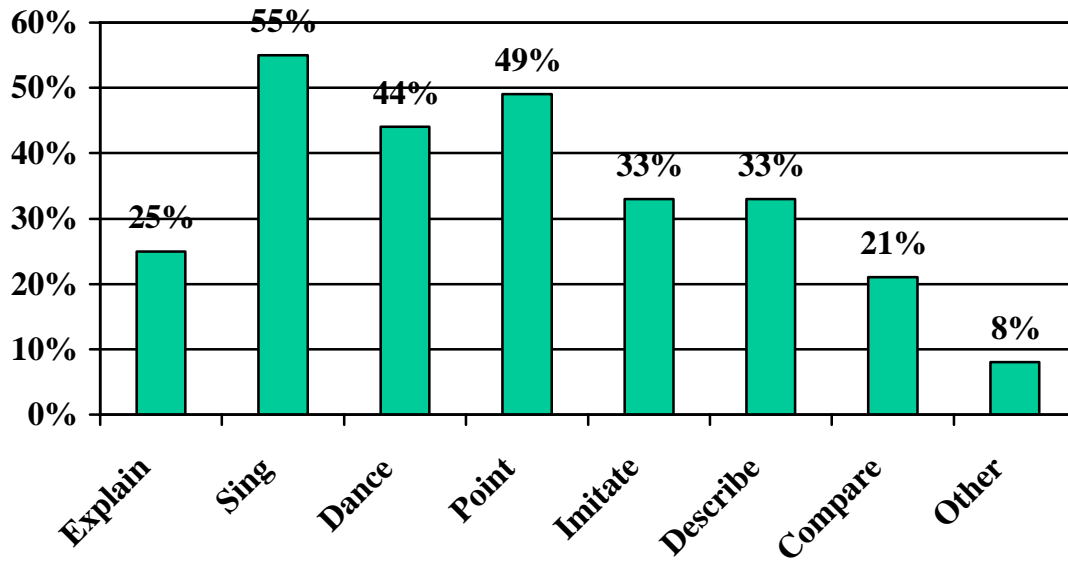
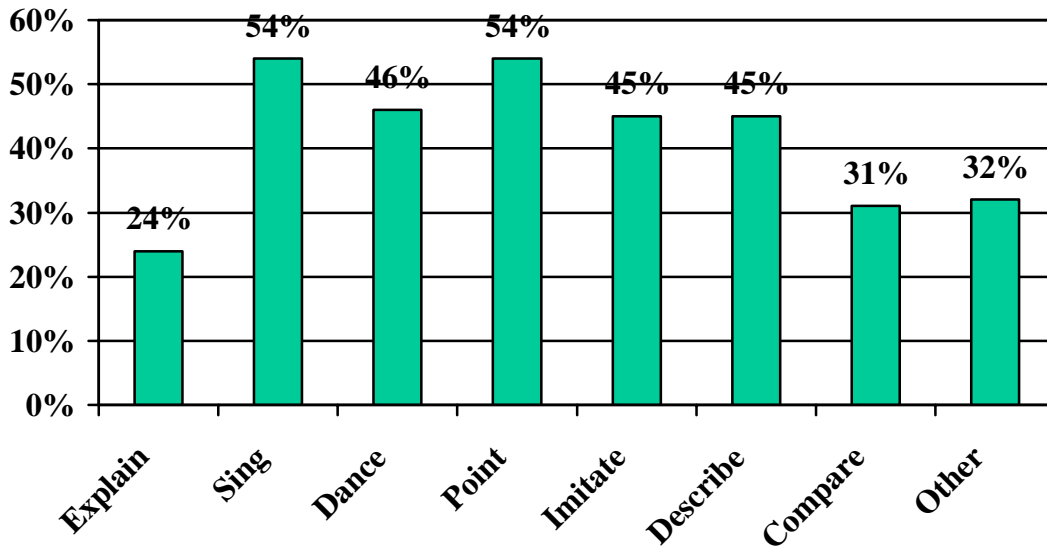


Figure 2. Activities with television. (Mother with Child) (N=127)



Appendix A

Fisher-Price Baby Development Collection Programs

Title	Program Description
Musical Baby	Introduces babies to varieties of music and musical instruments, demonstrating how children can experience a variety of real musical instruments and toy replicas of instruments, such as the drum, trumpet, violin, piano, and guitar.
Baby's Day	Includes everyday sights and sounds from baby's world. It includes activities such as getting dressed, eating, playing, bath time and bedtime.
Nature Baby	Shows the beauty of the changing seasons, introducing baby to sights, sounds and experiences from the world outside.
Baby Moves	Provides ideas to enhance a child's physical progress and self-discovery. It shows babies and toddlers engaged in a broad range of movement, from reaching, kicking, and crawling, to dancing and playing.

Appendix B

Fisher-Price Baby Development Collection: Playgroup with Caregiver and Child

Baby Moves Playgroup

Activity Title	Description
Roll-Overs	Promotes directionality and large motor skill control as children learn how to use their bodies to roll over.
Upsy Daisy	Promotes head and neck control, grasping, anticipation, and social interaction, as adults assist babies to a sitting position by encouraging them to grasp onto their thumbs to pull up.
Tummy Fun	Promotes the strength needed to learn how to crawl as babies lay on their tummies to play with a toy or another person.
Wiggle Worm	Promotes the use of the walking reflex to help babies practice for crawling as they lay on their tummies with a toy within reach in front of them while an adult applies pressure to the bottom of their feet.
Baby On The Bus	Promotes language skills, motor movement and control, as an adult moves different parts of the baby's body according to the lyrics of the "Wheels on the Bus" song.

Baby's Day Playgroup

Activity Title	Description
Tickle Bee	Promotes back and forth conversation while providing babies with a fun game.
Pat-a-cake	Clapping hands to the patty-cake rhyme gives babies practice in coordinating actions with words.
Babble-on	Promotes conversation between babies and another object, as well as sound repetition.
Pony Rides	Singing and moving to the beat provides babies practice in coordinating actions with song lyrics.
Fingers, Toes, Hair and Nose	Promotes language skills while introducing the names of body parts.

Musical Baby Playgroup

Activity Title	Description
Sway Time	Enhances a baby's awareness of rhythm and melody as a caregiver sings and sways baby back and forth rhythmically.
Ball Beat	Promotes listening skills, rhythm and the awareness of cause and effect as a caregiver holds their baby's hand and helps him or her tap the ball to a beat.
Mouth Music	Introduces sound discrimination and imitation, as well as helping with language skills as a caregiver demonstrates different sounds with their mouth and encourages baby to respond.
Clap Time	Allows babies to experience rhythm and tempo as the caregiver demonstrates rhythm and tempo by clapping with baby.
Bells Are Ringing	Promotes awareness of cause and effect, cognitive development and listening skills as a caregiver plays a game of "hide & seek" with the bell.

Nature Baby Playgroup

Activity Title	Description
Water Fun	Introduces different colors and shapes of tub toys. It also provides sensory stimulation and social interaction.
At The Zoo	Enhances a baby's auditory skills and helps with language development and social interaction as a caregiver uses a puppet and makes sounds that relate to the puppet animal.
Nature's Elements	Provides an opportunity for babies to experience elements from outdoors as a caregiver presents different objects to his or her baby.
Snow Scape	Allows babies to experience the different texture and temperature of snow.
