NATURAL AUDIENCES:

Qualitative Research of Media Uses and Effects

edited by

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ABLEX PUBLISHING COMPANY
NORWOOD, NEW JERSEY

1987

Chapter 2

Viewers in Diapers: The Early Development of Television Viewing[1]

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It is very quiet in the sleepy home at 2 o'clock in the morning. A fatigued mother is nursing her newborn in front of an old rerun on television. Sometime later, around 2½ years of age, this wiggling bundle will become a regular television viewer on his or her own (2, 15). How does this happen? By what processes do babies become television consumers? How are they socialized into their media environment? What are the developmental milestones along the way that mark their progress towards such mastery? Those are some of the questions that guided the planning and completion of the study reported here.

Hollenbeck and Slaby suggested three basic reasons why we should expect that television is a factor in the lives of infants: (a) they rely heavily on visual and auditory stimulation in developing social skills, (b) they are exposed to television in their homes, and (c) they are highly receptive to television stimulation (10, p. 41). They note that experimental studies found that "(1) infants as young as 6 months of age will visually attend to and vocally respond to television programming . . . , (2) infants from 6 to 12 months of age are typically exposed to an average of one to two hours of television per day in the home . . . , and (3) infants 15 months of age will imitate a televised model. . . ." (pp. 57–58).

To date, studies of this age group have focused almost exclusively on the development of visual attention to television. Anderson and his colleagues' studies of the reciprocity of attention and comprehension of tele-

[1]The author wishes to acknowledge the contributions of Peter Lemish, Mabel Rice, Aletha Huston, and John Wright to this study. The research upon which this article is based was supported by a grant from the Spencer Foundation to the Center for Research on the Influences of Television on Children (CRITC) and by NICHHD training grant IT32HDO7173.

vision provided initial information on amount of attention, as well as a list of the formal features of television that attract young viewers (2,3,4). They noted a dramatic increase in attention to television from 1 to 4 years of age. In the home situation, when the television was on, children increased the percentage of time looking at the screen from 6% at age 1 to 40% at age 2. This is followed by 67% attention at age 3–4, and 70% for 5- to 6-year-olds (4). Babies younger than 30 months were found to be very sporadic in their television viewing. They rarely oriented themselves physically towards the television set, and they monitored the screen unsystematically (4). However, thus far, attention studies have not studied the development of infants' and toddlers' attention in detail. It is apparent, therefore, that an important knowledge gap exists on the development of television viewing at its onset. A description of naturally occurring exposure to television seems to be an important task at hand.

Based on the developmental perspective in psychology, the concern in the study is to understand the manifestations of babies' interactions with television throughout the course of their development. This perspective posits two major groups of explanatory variables which account for any communication development: (a) cognitive abilities, and (b) environmental and experiential factors (16). The focus in this study was on the latter, on those socializing forces in the babies' environment and their daily experiences with television. Babies' cognitive development was assumed to take its natural course through a series of stages appropriate to the age group studied. A similar trend was reported by Carew (7), who found in a developmental study that television occupied less than 1% of a baby's time at 12 months, 2% at 18 months, 3% at 24 months, and 8% at 30 months. While individual cognitive differences were not assessed (except for variability in linguistic skills, which was quite obvious), basic understanding of babies' cognitive development is crucial for placing the data in perspective.

DEVELOPMENT IN THE FIRST 2 YEARS

The developmental theory of Piaget places the baby under 2 years old in the sensori-motor stage. At this time, intelligence is considered to be entirely unreflective, practical perceiving-and-doing (8). "Things are lived rather than thought," objects being a mere extension of the action (6). This action-bound knowledge progresses through stages towards more symbolic representations. Towards the end of the first year (marking the age of the younger viewers in this study) the infant is capable of learning new behaviors by imitation, can anticipate the occurrence of events, and manifests intentional behavior (sub-stage IV, according to Piaget; 8). According to Bruner (6, p. 21) this period marks the transition from the enactive representation to ikonic one: "When a child is finally able to represent the world to himself by an image or spatial schema that is relatively independent of action."

The second year of life is marked by purposeful and active exploration of the real properties and potentialities of objects. The onset of language and the gradual development of the ability to represent the objects constitute the major transition from sensorimotor intelligence to Piaget's preoperational stage (which lasts from around 2 to 6–7 years old), or to Bruner's symbolic representation. By 2 years (roughly estimated) the baby is not so bounded by action anymore. Rather, he or she is more occupied with knowledge, information, and socially shared symbolic systems such as language. This capacity for representation manifests itself also by symbolic play, drawings, mental images, and deferred imitation (8).

Of particular relevance for this study is the development of the object concept: i.e., our belief about the basic nature and behavior of objects as physically distinct entities with existences that are fundamentally independent of our perceptual and motor contact with them (8). Thus, object concept is an acquired concept, linked with other sensorimotor stages of development. In its social manifestations, this cognitive achievement facilitates the process of differentiating self from nonself, persons from nonpersons, and one person from another.

It is toward children in this transitional developmental period that this study was aimed: babies discovering their physical and social world, acquiring symbolic abilities, and mastering language. According to Piaget, growth and development are the consequences of interaction with the world around, of assimilating external stimuli to baby's own internal mental structures and accommodating these structures to newly acquired knowledge (9). Television is both part of the baby's world and a mini-world in its own right. It is there for the baby to interact with. The study reported below attempted to place television within this fascinating framework of development.

METHOD

The observations reported here were collected during a participant-observer study. The object was to study babies' behavior in their natural environment, through a relatively long period of time, with minimal researcher obtrusiveness and with an effort to understand television's role from the viewpoint of the family involved.

Sample

A volunteer sample of 16 families in Lawrence, Kansas participated in this study for a period ranging from 6 to 8 months, between December 1982

and July 1983. From birth listings in area newspapers, a random sample of families was solicited by mail. In addition, posters requesting participation were posted in an infant day care center and a preschool. All respondents were included in the study. Altogether there were eight boys and eight girls in this study. At the beginning their ages ranged from 6½ months to 29½ months; at the end of the study they were from 14½ months to 3 years of age.

The children's families varied in many aspects, including parental income, profession, and education; the presence of siblings; life styles; and television consumption and awareness. Two of the families were of mixed ethnic marriages (i.e., one Afro-American father and one Hindo-African father). In the other 14 families both parents were white Americans (with the exception of one English mother), in their late 20s and mid 30s in all but one case of an older couple in their early 40s. In two families the fathers resided outside the home (one in prison and one in another city) and saw their children on the average of once a week. Individual subject descriptive data are reported in Table 1 and family descriptive data are reported in Table 2.

Table 1. Description of Subjects and Siblings

	Subject		Sibling		
Subject	Age range (months)	Amount of TV viewing*	Sex	Age (years)	Amount of TV viewing*
A	6½-14½	Low	–	–	–
B	8½-17	Low	–	–	–
C	9 -17	Medium	Male	3	Medium
D	11 -16½	Heavy	–	–	–
E	11 -17	Low	Male	4	Low
F	14 -22	Heavy	–	–	–
G	14 -22	Medium	–	–	–
H	14½-22½	Heavy	–	–	–
I	16½-24	Low	Female	3	Low
J	16 -24	Heavy	–	–	–
K	16 -25	Low	Female	3½	Low
L	21 -27	Medium	Female	13	Heavy
M	22½-27½	Medium	Female	11	Heavy
N	21 -26	Low	–	–	–
O	23 -30½	Low	–	–	–
P	29½-34	Medium	–	–	–

*low – an average of 1 hour or less a day
medium – an average 1-2 hours a day
heavy – an average of more than 2 hours a day

Table 2. Description of Subjects' Family

	Father					Mother				
Subject	Age	Ethnic Background	Education	Occupation	Amount of TV Viewing*	Age	Ethnic Background	Education	Occupation	Amount of TV Viewing*
A	Late 20s	White American	College	Student	Medium	Late 20s	White American	College	Student	Low
B	Mid 30s	"	"	Professional	Low	Mid 30s	"	"	Student	Low
C	Early 30s	"	"	Professional	Low	Early 30s	"	"	Professional	Low
D	Late 20s	White European	"	Student	Medium	Early 30s	"	"	Student	Low
E	Early 30s	Hindu-African	"	Student	Medium	Early 30s	White European	"	–	Low
F	Late 20s	White American	"	Professional	Heavy	Late 20s	White American	"	Professional	Low
G	Early 20s	Afro-American	High School	Prisoner	Unknown	Late 20s	"	"		Medium
H	Late 30s	White American	High School	Construction (unemployed)	Heavy	Early 20s	"	"	–	Heavy
I	Mid 30s	"	College	Professional	Low	Late 20s	"	"	–	Low
J	Late 20s	"	High School	Sales	Medium	Late 20s	"	High School	–	Heavy
K	Mid 20s	"	College	Professional	Low	Mid 20s	"	College	–	Low
L	Late 40s	"	High School	Construction	Heavy	Late 30s	"	High School	Professional	Low
M	Mid 30s	"	College	Professional	Medium	Mid 20s	"	College	Sales	Medium
N	Mid 30s	"	College	Professional	Low	Late 20s	"	College	Student	Low
O	Early 30s	"	"	Professional	Medium	Late 20s	"	"	Professional	Low
P	Early 30s	"	"	Student	Heavy	Late 20s	"	"	Professional	Low

*low – an average of 2 hours or less a day
medium – an average of 2-4 hours a day
heavy – an average of 4 hours or more a day

Data Collection

The 16 families were visited four to five times in their homes. The initial visit included an unstructured, intensive interview about the family characteristics, the total television environment, and the child's personality, development, schedule, and television exposure and behavior. The subsequent observation visits were scheduled about every 6 weeks, during times when the babies' would have been naturally exposed to television. Consequently, these sessions took place at all hours of the day and evening, including weekends. During these visits, the baby's behavior around the operating television set was observed for a period from 1 to 2 hours, and recorded in detail. In addition, at each visit parents were interviewed about their child's viewing behaviors that occurred between visits, and about behaviors observed by the visitor. Most mothers kept viewing logs throughout the study's period in which they recorded their baby's television-related behavior. Two full week diaries of each family member's viewing in 15-minute segments were collected, one at the beginning of the study (winter) and one at the end (summer). Halfway through the study, a screening test of each baby's language development was administered (Brigance). Finally, in the last session, the parents were also asked about their overall reaction to the study and their perception of the role television has in their lives.

THE DEVELOPMENT OF ATTENTION TO TELEVISION

All the babies that participated in this study were exposed to television to some degree. They were present in the room when a variety of programs were broadcast—children's programs, news, sports, situation comedies, soap operas, movies, talk shows, music shows—the whole television fare. Obviously, being in the room with an operating television set is not equivalent to attending to it. It does, however, constitute a necessary condition for viewing television. In addition, these data provide us with significant information on the family's television environment, in general, or the viewing context. Not surprisingly, actual visual attention to television (defined as eyes oriented towards the screen) increased with age, in amount as well as in the variety of content attended to. The following descriptions along the developmental span illustrates this point.

0-6 Months[2]

Babies' acquaintances with television occurred quite early in their lives. In their effort to recall such experiences, parents described the following:

[2]The age breakdown emerged from the data themselves. It follows Piaget's sensorimotor substages during the second year.

M:[3] When she was young—6-8 weeks, she was lying in the playpen and watching the TV. I worried about how it would affect her because her father is a TV addict . . . I'll go out and Father sits on the couch and holds her in his lap. She was paying attention to it. She really was watching football games. All the action and people's voices. (F)

M: He was probably 2-3 months, lying down with the bottle and watching. It was neat. Because we'd move him but his eyes will go straight to the TV. I don't know what it was, but I really thought it was something at the time. When he got more aware of toys and people it changed. (a drop-out subject)

M: When he was an infant in a little seat, I used to put him in front of the TV set for *Sesame Street*. I have pictures of that. I thought the movement and the colors—he'll just sit there and watch at 2-3 months. I thought he enjoyed it then, he'll smile to it. I didn't think he was learning anything, but I thought he was enjoying it. (J)

Similarly, mothers reported immediate reactions to loud voices and sudden noises, such as stopping of nursing and turning of head towards the screen. While parents' interpretations of such behaviors are arguable, there is enough evidence of awareness to at least some auditory cues at a very young age.

6-10 Months

Towards the end of the first year, the attraction to the audio track of television became more apparent. Most of the instances of attention to television were in a similar context—baby was playing or feeding in the room. Certain sounds (e.g., howling wolves, drumming, muppet's voice, Pepsi commercial, laughter) cued him/her to stop an activity and to orient eyes to the screen. In most cases, attention lasted less than half a minute (often a few seconds only), and then the baby resumed his/her activity. Of particular interest as attention attracters at this age were two kinds of programs—commercials and *Sesame Street*. Both types of programs center around a short segment format and specialize in attracting attention through audio and visual means.

[3]Abbreviations used in presenting the data are the following:
M – A direct quotation from the mother.
F – A direct quotation from the father.
B – A direct quotation from the baby.
ML – Information copied from mother's television log.
Obs – Data recorded directly during an observation session.
At the end of each example, in parenthesis, appears the code letter of the particular baby studied and his/her age (when the age is not given in the illustration itself). For further information on the baby, the reader is referred to the tables. All names in the body of the illustrations are substituted by the general names: Baby, Mother, Father, Sister, Brother, in order to protect the identity of the participants.

In sum, during the first half of the second year, babies started noting television more often and for longer stretches of time. Their attention was still affected strongly by the audio track, yet they had already developed some consistently personal tastes for particular content. Seven of the 11 babies studied at this age group were already regular viewers of *Sesame Street*. Clearly, they recognized the music and main figures of this program. In addition, viewing television was an opportunity for these viewers to practice newly acquired words and to interact with parents. There seemed to be no doubt that by this age television had become a part of their lives.

18 Months and Older

From 18 months on, the trends noted thus far became more routinized and evident. Babies up to 2 years continued to be most interested in commercials and vivid music, and most of them viewed *Sesame Street* on a regular basis. By 18 months, the regular *Sesame Street* viewers showed increased interest in numbers and letter sequences, and paid very close attention to them. The short skits and animated bits were next in the development of attention, with the human conversation and "plot of the day" segments being viewed by the full-attention viewers only.

It must be emphasized that this attention trend—from major nonhuman characters to *Sesame Street* song and other musical and audio special effects, to numbers and letters, animation, and finally to human conversation—was observed and reported for all babies, regardless of the age in which they started to watch *Sesame Street*. Attention to other program categories was significantly lower, with some budding interest in cartoons, *Electric Company*, and action-filled segments of adventure programs (e.g., a car chase on the *Dukes of Hazzard*). Babies started showing signs of disappointment when a favorite segment ended, such as in the following case:

> ML: Baby was watching the *Fall Guy* with us. A helicopter chasing a car segment kept his undivided attention. When it ended he cried in disappointment. (M, 23 months)

Interest in other babies or children who appeared on the television grew even stronger, whether they appeared in commercials, *Sesame Street*, situation comedies, or even the news. Babies' concern over these fellow-beings and other helpless beings was manifested in their behavior and talk:

> M: When TV is on she looks when someone is crying and says—man crying or baby crying. Last night we were watching a man who had been deformed into a monster and he cried and she looked and said—"man

> F: She seems to be worried when someone cries or gets hurt. (L, 21½ months)
> M: Last weekend we were watching *Bugs Bunny* and they had Porky Pig, Petunia and a little baby, and the baby was getting into all kinds of trouble and she was just getting into a fit saying: "No baby. No baby. Do this. Do that. Go away. Be careful," etc. She really got very upset. In fact, it was to the point that I actually had to hold her in my lap and control her and tell her that the baby is fine. And I never thought that will happen—it was only a cartoon. (P, 29½ months)

In addition to the growing interest in television content, babies seemed to be developing new selecting strategy in their viewing behavior.

> M: It seems that she is more discriminative now. She knows what she wants to watch and she watches, and what she doesn't watch, she doesn't. Like the morning news—she ignores it. While in the past she'll drift in and out. (F, 19½ months)

Babies were often observed to glance at the television on a regular basis at transition points—between segments, at the beginning and end of programs, and the like. Most transitions of this nature are marked by special music, sound effects, and changes in voices. Following our earlier claim, these phenomena could attract attention in their own right. However, brief glances seemed to be enough for the babies to somehow recognize and maybe even anticipate the nature of the following program, and to make a decision on some level of whether or not to continue watching (11). News broadcasts, talk shows, soap operas, and movies were consistently ignored for long stretches of time, while the first sign of a commercial would get the babies' full attention. From continuous observation of these babies, one could not but appreciate their ability to recognize the closure of a *Sesame Street* segment or a commercial, and to detach themselves from the television to go back to their activity a second or two before the program ended.

Parents continued to play a major role in their babies' viewing habits. They now consciously encouraged viewing—be it *Sesame Street* in the morning, while preparing supper, or the Saturday morning cartoons:

> M: I like to put on [television] when fixing dinner because he sits and doesn't pop up all the time. (H, 22 months)
> M: We walk in the door, the coats come off, the TV goes on and I go to pick the mail and do all the rest. It's kind of nice, because that's my half hour to get my things done. (P, 29½ months)

Parents continue to interact with their little viewers and reinforce their

Obs: Father turns baby's chair to face television
(Sunday morning religious program for elementary school children).
F: What do you see? You want to watch? (corrects her sitting position). See the cow? See the donkey?
(Father walks to the television, pointing out: Here is a donkey, a pig, and here is the cow. Baby watches. Father goes to the kitchen. Baby follows him.)
F: (From the kitchen) See the animals?
(Baby walks in, walks to the television pointing–touching a puppet.)
B: Who's that?
F: What?
B: Who's that Daddy?
F: I don't know. Oh, I know, it's a lamb. (O, 24½ months)

Most often, babies viewed for longer times as long as parents were around and interacted with them. Six of the 8 babies observed by the age of 2 years old, however, were left to watch alone, and would regularly stay with a *Sesame Street* program for as long as 30–40 minutes of almost full attention. This information was both observed and reported.

Finally, during the second half of the second year, babies started making specific viewing requests. They exhibited viewing habits and recognized that television can be turned on and off at will:

Obs: B: I want to watch *Sesame Street*!
M: You want to watch *Sesame Street*? O.K. Right on cue. How did you know it's 9 o'clock?
(Mother turns the television on. Baby sits on sofa by the set watching attentively.) (I, 20 months)
ML: I was watching an afterschool special. Baby came in saying: Turn off TV Mama. I turned the TV off. (N, 25 months)
M: She watches *Sesame Street* everyday as we walk into the house from day care, about 5:30-6:00. Now it's a habit. So the first thing she asks is to see *Sesame Street*. She comes back and tells me to turn it off when the program is over. (P, 29½ months)

The overall picture emerging from these data is surprising in some ways and not too surprising in others. As expected, based on previous literature, as babies grew older their attention span lengthened and they attended to television more often and for longer stretches at a time. In addition, these data confirm that children come to attend more readily to the following formal features of television–nonverbal auditory features (such as lively or loud music, sound effects, peculiar voices, nonspeech vocalization, audio changes); special effects and pans; high levels of

physical activity and dialogue by child characters (11, 1, 2). The babies in this study were therefore much in line with the preschool viewers.

In addition, what is different from the published literature is our conclusion that babies are able to attend to attractive programs (in this case, *Sesame Street* and commercials) at a much younger age and for much longer than we might have expected. Consistent and strong encouragement by parents to watch the program may provide at least a partial explanation of this interest in television. The actual amount of viewing seems to be of less significance than the development of content preferences. A common thread seemed to be the interest in the familiar and the meaningful. An attachment to particular figures and songs, the interest in animals and babies, the almost compulsive need to label familiar objects–all of these behaviors lend support to the hypothesis that more comprehensible programming leads to higher attention (5,4). Newborns' almost reflexive responses to television sounds gradually developed to an active search for familiar content. Clear manifestation of this selective scrutinizing was evident even before the first birthday, while clear and describable preferences were already formed by the second birthday. This evidence lends support to Anderson and his colleagues' attempts to analyze how children learn the codes of television and become increasingly sophisticated in understanding its content (11, 14, 17). According to them, the younger and least experienced viewers' attention "is guided largely by the perceptually salient auditory and visual forms of the medium" (11, p. 40). This form of attention gradually gives way "to perceptual search, a kind of information-getting activity that is instrumental rather than consummatory and that is guided by internally generated goals rather than by external sensory events . . . the shift . . . enables the child to ignore many of the perceptually salient cues and to select for attention those features that are informative, interesting, or pertinent to her reasons for viewing" (11, p. 40). This shift is understood to be a result of both growing familiarity with the medium, its codes, conventions and production techniques (formal features), and developmental changes in the child's cognition. The babies in the study reported here, in their own experiential and cognitive limits, already manifested shades of this shift in those programs that were highly familiar to them. Their attentional sampling at program boundaries suggest that they were at least literate enough to note form codes that are unique to particular appealing bits of programs. This is only a small step towards television literacy, but it is a good start.

There was also support for the hypothesis that changes in bits and scenes recruit attention for those who are not looking, and lose attention for those who are. Huston and Wright (11) suggest three classes of events that could elicit a brief look if the initial decision is not to attend. As have

already been reported, all three were clearly observed in this study: (a) very salient events (sirens, screams, crashes); (b) events signaling a change in content (a change from adult to child's voice; change to a familiar puppet's voice; a change to a commercial); and (c) events in the viewing environment (parents' encouragement; availability of alternative activities).

The field of psychology in general has taken a turn recently towards paying more respect to babies' potential to master skills at a much earlier age than has been commonly believed in the past. The case of television viewing, for better or for worse, may provide one additional example of the environment's effect on accelerating the course of development and the role of experience in mastering skills.

THE VIEWING SITUATION

Now that we have established that babies do indeed attend to television, it is of interest to learn of the situation in which this attention occurs and the forms the interaction with television takes.

In general, very little is known about the natural environment in which children and babies in particular view television. Yet, the behavior in these babies while watching television in their home environment highlighted the integrated manner in which television is consumed.

In all cases, television was viewed in the living room or dining room areas while babies engaged in a wide variety of normal everyday activities—playing, eating, changing diapers, interacting with others, drawing, looking at books, climbing on furniture. Babies' viewing positions varied from standing right by the set, sitting close by on the floor, sitting in a favorite spot (e.g., corner of sofa, stool, rocking horse), or sitting in a highchair across the room.

The typical novice-viewer would roam through these activities and occasionally he or she would look up at the television set. If interested, the baby would freeze in position (e.g., in the middle of banging a hammer, or when his or her hand was holding a cracker an inch away from an open mouth) until the "spell" was over, and then the activity was resumed. If interest was great, then the baby would often run right to the television set and watch at an arm's distance from it. Parents typically discouraged this proximity. Often, as the baby was pulled away from the television, he or she would run right back.

This closeness to the set was often accompanied by two touching behaviors: (a) playing with the television knobs; and (b) a seemingly great drive to touch the screen. The regularity of these behaviors with all the babies deserves discussion.

Playing With Television Knobs

Playing with the knobs, remote control, and cable boxes was observed and reported as early as at the age of 8 months old (i.e., as soon as babies were able to pull themselves up to a standing position). At first, playing with the knobs was as playful as many other attempts to explore and manipulate objects in the environment. Thus, babies of the same age were trying out radio and stereo as well as television knobs. Gradually, this behavior became more routinized and purposeful, and attracted more and more parental displeasure:

M: He is real interested in the knobs and things like that, likes to turn it on and off. We don't want him to do it. He thinks it's funny and screams. (C, 9 months)

Obs: Mother turns *Sesame Street* off after Baby lost interest. Baby crawls to television, stands up and turns it on and off. Mother takes him away.

M: Baby has begun to turn the TV on—seems aware of what he's doing. He is into turning it on and off, playing with buttons. It looks like he is doing it purposefully. He does it smiling—but does it. He gets very pleased with himself when he turns it on now. We resort at times to unplugging the TV. (A, 10½ months)

M: She plays with the knobs and with the remote control. She understood at a very young age that this [remote control] made that [television] jump. She doesn't know which button does what, but when she finds one, like the on and off one, she will press it many times. (F, 14 months)

M: Baby gets close to the set, plays with the remote control. He turns the TV off and on and laughs. He knows what he is doing, and thinks it's a lot of fun. (J, 16 months)

All babies in this study turned television on and off, turned volume up and down, switched channels. They all seemed to enjoy it and to know that their parents disapproved of such behavior. Yet, they did it often, seemingly on purpose, perhaps to get parents' attention:

Obs: As we talk, Baby turns the television on, looks at us expecting a reaction, and then he just leaves it.

M: That's exactly what he does. He plays with the knobs and we turn it off and it will go back and forth over 10–20 times at once, 4–5 times a day. It's like a toy, something to manipulate that makes noise. Sometimes I unplug it and he leaves it alone. (K, 17 months)

Except for being a fun activity, it also turned out to be a very important television-learning lesson for these babies. As early as 16 months, and certainly by 2 years, babies were turning television on by instruction, or at

will, for the purpose of actually viewing television (and not only for mere fun):

ML: I sang the *Sesame Street* song to Baby and he smiled and walked to the TV and tried to turn it on. (H, 16 months)
M: As soon as we brought the sofa home, he sat on it facing the TV saying—basketball game and then he went to the TV to turn it on. (K, 20½ months)

As this instrumental behavior emerges, other forms of play with the knobs decrease drastically. From around 2 years old, there was almost no incidence observed or recorded of such play. One exception was a 29½-month-old baby who broke the television by turning it on and off vigorously when his mother was on the phone, trying to get her attention!

Touching the Television Screen

The second type of behavior related to proximity to the television set is of even greater significance. Babies seemed compelled to touch characters, faces, animals, and colorful graphic designs on the screen. At first, this touching was quite indiscriminate:

M: When he stands by the TV he pats it like he is trying to feel it. (A, 10½ months)
Obs: While playing with knobs—Baby gets fixed on a black and white segment on the Holocost. Baby puts open left hand on the television screen, moves it away and stares at it (as if expecting the picture to remain on it) and puts it back. Continues to play with volume knob.
M: Sometimes she gets excited and goes up and touches it with both hands and makes loud noises. I haven't noticed that it was anything in particular. (B, 11 months)

Gradually, touching becomes more selective:

M: Baby pats the TV. It could be for lots of reasons—because he knows he isn't supposed to play with the TV and he likes the knobs. Some of it is trying to touch *Sesame Street* figures. Sometimes he tries to get Brother's attention or tease him by being in his way. (C, 12½ months)
M: During evening programs, Baby may stand 2 feet from the TV and dance during commercials, or go right to it and touch it, if it's a face. (F, 14 months)
Obs: Big Bird and Snuffy are on *Sesame Street*. Baby stands next to the TV saying, "kittie," and touching Snuffy with right hand, and then patting him and Big Bird with both hands. (K, 14½ months)
M: Sometimes he watches this cartoon. He likes the dog and tries to touch the screen. When he sees something exciting, he'll go right to it and point or touch it. He tries to give kisses to things, to Kermit for example. (C, 15 months)
ML: The Count was singing about bones. During a closeup of the Count, Baby stood in front of the set and patted it. He then puckered his face into a kissing gesture and tried to kiss the Count. This is a pattern. More than 4–5 times daily. Baby will put his lips to the TV and kiss closeups of puppets, people, and animals. (H, 16 months)
M: Earlier he used to touch the TV indiscriminately, obviously intrigued with the movements and colors. More recently it's more discriminated to figures and animals. With Big Bird today it struck me, because he was greeting him like a friend, running across the room to touch him. (E, 16 months)

Touching out of excitement and familiarity was therefore a common behavior of babies less than a year old and up to a year and a half. The need to touch and explore the screen seemed to be drastically reduced with age and experience with television. Babies must have learned that the screen feels the same regardless of what is on.

Their parents' discouragement probably speeded up this learning. As with other television related behaviors described in this study, this developmental trend from indiscriminate touching to more specific kinds and finally to no touch at all was observed with all babies. The individual differences were manifested in the variability of ages in which the different milestones were reached, and in the frequency of touching. One striking example was that of an 11-month-old baby, a regular *Sesame Street* viewer before her first birthday, whose touching behavior was already in decline:

M: She used to go more towards the TV, and [she had] learned the trick of turning the volume up, and I'll go—"No! No!" and pull her away. And she'll lay just under it, where her shelf of toys is. And she'll occasionally look up at it; or a couple of times pat the TV, like when Bert or Ernie are on. . . . She was fascinated with it [the TV] at the beginning, always going up to touch it. Now I think she [has] almost realized what it is, and that she can't actually reach them, because I noticed that she doesn't play with the volume or with the TV that much anymore. . . . Before she always tried to touch the things (on TV). (D, 11 months)

By 15 months, this baby was completely "weaned" from touching behaviors. On the other hand, another baby who was introduced to television on a regular basis by 18 months, was still touching it at 22 months. Similar to playing with the knobs, almost all touching behaviors disappeared around 2 years of age.

The evidence pertaining to touching objects and figures on the screen can be related to the general development of the "object concept," as was referred to earlier. Babies gradually acquired the understanding that an object or a person is an external entity that exists and moves about in complete independence from self and from his or her own perceptual or motor contact with it (8). The 8- to 12-month-old baby can manually search for hidden objects in familiar places, but will not find them when the place is changed even in front of his eyes. The 12- to 18-month-old baby, on the other hand, learns to search for the object at whatever place the object was most recently seen to disappear. Only by 18 months will the baby start to use visual evidence to imagine or represent an object's hiding places (8). The exposure to television must be somewhat confusing for the baby. Television presents familiar objects without the immediate physical experience of them. This differs greatly from any other object related to in the experiential environment. Hence, all attempts to touch and kiss these objects produce surprising results: The objects can't be actually touched, and their texture is not felt. All television objects feel smooth, like glass. In addition, these objects behave differently: Sometimes they disappear and never come back, while at other times they reappear unexpectedly. In yet other cases, they appear with definite regularity. Finally, at all times, once they have disappeared, no searching strategy can reveal them, including searching behind the "box."

Babies occasionally asked to see an object again that was not on the screen anymore, even one seen days earlier. At other times, they expected to be able to experience an object in usual modes of behavior:

> M: Baby gets close and touches the screen and asks to hold things that are on TV. Like she says—"I want to hold that bunny" and I'll say—"No, it's just a picture of TV, it's not real." (I, 22 months)

How do babies cope with such experiences that contradict all other object related lessons? Does the touching behavior facilitate learning about television? Does the disappearance of touching signify certain television literacy, even at a minimal level? Those are relevant questions that need further exploring. Developmentally, touching behavior disappears coincidentally as object-permanency is achieved, and as regularity of experiences with television is established. As in many other television related issues, cognitive development as well as experience with the medium can provide us with initial hints of answers.

The experienced viewer, as has been pointed out earlier, attended for much longer periods of time and moved much less frequently. Often this baby was completely absorbed in the viewing, ignoring other activities around him or her without being affected by the presence of adults (except for level of verbalization). While this "experienced" baby had often outgrown the need to constantly touch the screen, he or she still preferred to view in close proximity to the set. Some of the babies at this stage had well developed viewing habits, such as choice of seating arrangement or eating certain meals while viewing. These habits had been often initiated or encouraged by the parents for babysitting functions.

IMITATION AND LEARNING

Engagement in imitative behavior was an additional aspect of the viewing situation. A separate discussion of this phenomenon is warranted, due to the importance of imitative behavior as an indication of the role television has in the lives of the babies, and for its role as a facilitator of learning.

The first signs of imitative behaviors appeared around 16 months of age. Detailed descriptions can illustrate the richness of the phenomenon. They are organized by babies rather than by the overall chronological age.[4] Simple imitation of television behaviors was apparent in the following examples:

> ML: Baby was watching a chocolate commercial at friends' house. She kicked her legs up like the girls did in the commercial. (G, 16 months)
>
> ML: I was watching Donahue in the other room. She heard clapping and started clapping her hands. (G, 21 months)
>
> ML: She was watching a cartoon character cry out and she pretended to cry. (G, 21½ months)
>
> ML: Baby lifted his arms up when two cartoon figures did. (H, 16 months)
>
> ML: Baby watched a small monkey climbing around a fence. He then went to the bottom of the stairs and yanked at the gate trying to climb. (H, 16 months)
>
> ML: Baby watched Cookie Monster stuff cookies into his mouth and imitated putting his hand to open mouth about a half dozen times. (H, 16 months)
>
> ML: Children on the program were clapping out their names. Baby clapped with them. Then he imitated the children running in a circle and started singing and running throughout the downstairs rooms. (H, 22 months)

While the above two babies were clearly imitating television behaviors, the following baby demonstrated an ability for deferred imitation as well as application of the behavior to other circumstances:

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[4]This was done for two reasons: First, such presentation allows a better understanding of the single baby and his or her style of interaction with television. Secondly, the data produced much more information on imitation for some of the babies. It is probably a reflection of both the variability among babies as well as a mere difference in parents' efforts in completing their daily logs.

Obs: Baby makes an attempt to imitate Mr. Rogers and snaps her fingers at the right places in the song even though Mr. Rogers *did not* do his usual snapping today and even though her attention to the song seemed very minimal. (I, 18 months)

ML: Baby was playing outside acting out a story she'd seen on *Sesame Street* several days earlier. She asked the dog to move so she can look under him. (I, 18½ months)

ML: About 30 minutes after watching people measure on *Sesame Street*, Baby finds a book with people measuring on the cover and then asks for and points to measuring tape so she can measure. She measures herself and several toys. (I, 20½ months)

ML: Baby was watching *Sesame Street* with her mother and sister. She lays down, covers herself up and makes pretend sleeping noises, such as those seen several days before. (I, 20½ months)

ML: Baby imitates in the kitchen ice skating seen 10 minutes earlier on *3-2-1 Contact*. (I, 20½ months)

ML: Baby starts singing the song: "I am you" which she heard earlier on *Sesame Street*. (I, 22 months)

ML: We went to the library the other day—Baby and Sister got so excited reading exit signs enthusiastically—from *Sesame Street*. Also they play waiting for the bus that they have learned from *Sesame Street*. Last night in the bathtub they played "being in the ocean" that they saw on *Mr. Rogers* earlier. (I, 24 months)

Similarly, the following baby was clearly associating television content with his environment and his ability to manipulate it (e.g., asking for milk, playing the piano). He also demonstrated learning a ritual associated with television viewing—going through the *TV Guide*:

Obs: Baby attends to the *Sesame Street* theme song with Sister. He sees a baby with a bottle and goes to the kitchen to ask for milk. (K, 19 months)

ML: A few days ago Baby picked up the *TV Guide*, flipped through the pages, put it back in the drawer and turned the TV on. I think it's something he sees me do. (K, 19 months)

ML: After *Sesame Street* was over, Baby sat at the piano singing "Twinkle Twinkle" and banging his head on the piano shouting: "Never, never." This followed a segment where a puppet composer was trying to make up the "Twinkle Twinkle" song and in frustration saying: "Oh, I'll never get it, never, never." (K, 23 months)

The two babies described below were learning specific physical skills, either by direct imitation (throwing a ball, performing, wrestling) or through the motivation a television stimulus aroused in them (playing baseball):

M: She likes basketball games on TV. I've seen that at home and the babysitter said it too. She goes with her hand like she is throwing the ball. (L, 20 months)

ML: Baby was watching lady sing a song in a variety program. She made the same arm motions as the lady did, pretending to perform. (L, 23½ months)

ML: Baby was watching wrestling with parents. He laughed and jumped up and down like the wrestlers.

ML: Baby was watching a natural history show on snakes with us. After watching the snakes, he crawled all over the living room saying: "Being snake." (M, 24 months)

ML: Baby was watching Mr. Rogers snap his fingers and tried to also. He continued trying to snap his fingers throughout the evening. (M, 24 months)

F: A month ago we watched a baseball game. He was extremely interested, laid beside me for about 20 minutes, completely interested. And the next day he wanted to learn to play, and he's been practicing it everyday since then. (M, 28½ months)

Other common imitative behavior included incidences of laughing, applauding, and yelling on cues provided by the television. Music played an important role in eliciting dancing, rocking, clapping, and singing in babies as young as 11 months swaying in their highchairs, and as old as 2/12 years singing along with words.

The above examples suggest the facilitative potential of imitation for learning from television. As the data suggest, one obvious form of learning was that of expanding vocabulary and practicing discourse (13). But in addition, as we analyze the data we find a variety of cases where babies manifested learning of symbols—letters, numbers, as well as concepts (shapes, relations). This was particularly true for viewers of *Sesame Street* (12). Recognition of letters and numbers, reciting the alphabet and counting, were obviously learned by the babies in this study, both directly from the program and indirectly through parents' and siblings' mediation:

M: She learned how to count from *Sesame Street*, I'm sure, about 3–4 weeks ago. She heard it on *Sesame Street* and we reinforced it. I'll say "1" and she goes: "2-3-4" and I'll say "5" and she says "6." (D, 15 months)

ML: Baby was in other room and overhead David [on TV] counting to 5. She counted by herself to 10 correctly. I had no idea Baby can count to 10. It was a big surprise. (I, 18½ months)

ML: Baby eats her toast in different letters and makes an x with her diaper pins. She learned it from *Sesame Street*. (I, 20 months)

ML: Several hours after a *Sesame Street* segment on the letter B was over, Baby went around making B sounds. (I, 20½ months)

Similarly, there was clear evidence of learning concepts:

ML: After a *Sesame Street* skit that called objects small and big, Baby went around calling objects small or big. She continued doing that for a week. (I, 21 months)

M: Today on *Sesame Street* they were doing something about opening and closing things. And, after that, he went to the kitchen and did it with all the cupboards saying: "open-close, open-close, open-close." (M, 22½ months)

ML: Baby brought three sticks and said: "Three sticks." Then he put them in a shape of a triangle and said: "look Mommy, a triangle!" He must have learned it from *Sesame Street*. (M, 24 months)

All parents reinforced this kind of learning, to one degree or another, using *Sesame Street* as a catalyst. They often admitted to their own surprise at how receptive their babies were to learning, and that through their experience with television they learned to expect more out of them.

SUMMARY

The purpose of this study was to discover and describe the process through which babies become television consumers. The overall picture emerging out of the home observations is of babies engaged in a normal variety of everyday activities. Age, experience with television, individual differences, the presence of siblings, parents' attitude and behavior—all affected the nature of the viewing situation. Nevertheless, television viewing in 15 out of the 16 homes was an integrated phenomenon in the routines of a typical day. The data presented in the above pages leave no room for doubt: babies do attend to television, they do comprehend some of its messages, and they are capable of learning, and applying knowledge.

Two overriding themes escorted the above discussions: (a) the role of *Sesame Street* in the viewing diet of babies; and (b) the interrelationships between television viewing and language. Although these issues have been specifically addressed elsewhere (13, 12), a brief reference is warranted due to their importance.

Sesame Street

Without doubt, *Sesame Street* was the most common, regular, and important program viewed by the babies in this study. It played a significant role in the lives of these young ones in many areas—in the amount and regularity of the exposure to it, in structuring their day, in providing objects for attachments, in creating and reinforcing viewing habits, in fostering a cheerful mood, and in manifestation of direct learning. In addition, of all programs babies were exposed to, *Sesame Street* came the closest to their comprehension and attention level (although even *Sesame Street* is targeted at an older age group). As a result, manifestations of both attention to and comprehension of parts of the programs were clearly on a different level than any other program (excluding attention to commercials). The significance of *Sesame Street* for babies' development as television viewers in general is intriguing: What does it teach them about the role of television in a person's life? What kind of expectations from television does it develop in them? What kind of formal features of television does the program make known to the baby? What kind of content preferences does it foster? The questions are many, and the answers are yet to be studied.

Television Viewing and Language

Television viewing in this study was embedded in a rich verbal interaction that has strong parallels with mother-child book reading routines. Babies were engaged through a variety of ways in an attempt to name or to discover the names of objects, characters, animals, or other things seen on the screen. They asked questions that reveal their attempts to understand what they were viewing. In addition, those babies with relatively advanced linguistic skills often described content seen on television with their own interpretation and expansions. These linguistic outputs provide us with valuable information on what attracts babies' attention, how comprehensible television is to them, how they process television messages, and the like. Analyzed in an integrated manner with the general context of the viewing situation as well as the individual baby's characteristics in mind, language becomes a major platform for our understanding of babies' interaction with the world of television.

Validity Considerations

The study, however, is not without its limitations. The 16 babies studied are not a representative sample. If anything, they represent families with a higher educational background and with more media awareness than one might expect from a representative sample. Few of the mothers admitted that their motivation for participation in the study resulted from their concern over their husbands' addiction to television. They hinted at their hope that my involvement with the family might enlighten them. Some parents participated more actively than others, providing detailed logs, calling on the phone to share an experience, and confiding in great detail all their secret television habits. Others were more restrained. As a

result, more information became available on some of the babies than the others. Babies occasionally performed for me voluntarily, and at other times were more interested in me than in the television. Overall, however, parents confirmed my judgment that in most cases babies were their usual selves during my visits. No novel television-related behaviors were discovered in my presence. Neither does this report discuss issues that were not regularly observed and reported. The length of the study and the moderate level of intensity of the contact with the families allowed for the development of a friendly-trusting relationship, without slipping into too much closeness. There was almost no case of contradiction between parents' reports and observation notes. The two sources consistently complemented each other. In part this reflects the training and supervision the parents received in filling their role as "informants" on their babies' behavior.

This study is only one step towards a better understanding of young children's television viewing. Many questions remained unanswered, many issues untouched. Clearly, babies are indeed television viewers. They develop a certain grasp of television as an object and as a source of messages before they learn to use the potty. By 2½, they are already regular viewers with clear habits and expectations. Television is by all means a part of the modern baby's everyday life, an environment within an environment. The significance of this observation is yet to be understood.

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