Teaching Young Children to be Sophisticated Media Consumers

Mieke Alexis VanderBorght
Charlottesville, VA

M.A., University of Virginia, 2007
B.A., University of California, San Diego, 2004

A Dissertation presented to the Graduate Faculty of the University of Virginia
in Candidacy for the Degree of Doctor of Philosophy

Department of Psychology

University of Virginia
May, 2009

Judy DeLoache (chair)

Angeline Lillard

Vikram Jaswal

Robert Pianta

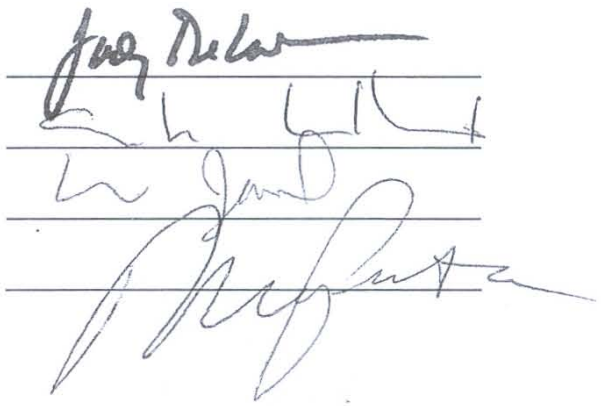


Table of Contents

Abstract

By the time children graduate from high school they will have spent almost twice as much time watching television as they have spent being in school (Vande Berg, Wenner, & Gronbeck, 2004). This experience starts early: almost half of American children under 6 spend more than 2 hours with television in a typical day (Rideout & Hamel, 2006). Children learn many things from the messages television transmits. It is therefore essential that just as we teach children to read and interpret printed material, we also teach even very young children to read the media. In the current study, two ways in which 3- and 5-year-olds may learn to think critically about television messages were explored. In an *experience* condition, children experienced that messages they heard on television were actually not true. In a *testimony* condition, the experimenter told children that the messages were not true. Then, all children, plus those in a *control* group, watched different speakers making claims regarding factual (e.g., labels for novel objects), preference (e.g., which if two novel toys was best), and behavior (e.g., in which of two boxes children would find a sticker) information. Children chose to either endorse or reject the claims. Results showed that 5-year-olds were generally more likely to reject the claims than were 3-year-olds. However, whereas 5-year-olds were skeptical of factual and behavioral information, they were persuaded by preference claims. Chance comparisons in each experimental group revealed some learning by the 3-year-olds in the experience condition and by the 5-year-olds in the experience and testimony conditions. These results suggest that talking to older preschoolers about the veracity of television messages may help them become critical television viewers. Furthermore, giving both

older and younger preschoolers direct, intensive media literacy instruction may help guide them to be sophisticated media consumers.

Acknowledgements

First and foremost, I would like to thank everyone in the Child Study Center for their help and support during the whole dissertation process. Thank you to my advisor, Judy DeLoache, for sharing her incredible expertise in designing and conducting creative, interesting, and important research. Thank you to the post-docs in the lab, Megan Bloom Pickard, Vanessa LoBue, and Medha Tare, for their moral support, their advice on designing the study and analyzing the data, and for their time spent reading and commenting on my writing. Thank you to our lab coordinator, Kai Sherman, for help in running participants and especially for her muli-tasking talents. Thank you to my undergraduate assistants Adrienne Schubert, who diligently played an essential role in putting together all the materials and film clips and in running participants, and Courtney Filippi who helped code and organize the data.

Thank you Ben Clore, professional filmmaker, who more or less donated his time and equipment to making some pretty silly film clips. Thank you also, to all the actresses who starred in those film clips – and thank you Adrienne for putting together a hilarious collection of outtakes.

Thanks to my dissertation committee for their kind and helpful advice on improving this research.

Finally, thank you Davide Dalla Massara, my husband, for providing his moral support throughout this whole process in his own special way, for bringing humor into my life during the most stressful times, and for asking me, “Do you have your Ph.D. yet?” on a somewhat weekly basis ever since I told him I wanted to go to graduate school.

> We cannot hand ourselves over to the television ready to accept whatever comes. The more we sit in front of it…the more we risk being confused about the real nature of the facts. We cannot leave behind our critical conscience (Freire, 1998, p. 124).

Teaching children to read is an essential part of their education and is vital to their success in life: much of what they learn in and outside of school comes from books. Children also learn from the media. Cortés (2005) writes that the media teach children by: "1) presenting information; 2) helping to organize ideas; 3) disseminating values; 4) creating and reinforcing expectations and 5) providing models for behavior" (p. 55)

Television is a significant presence in the lives of even the youngest children. Indeed, a recent study conducted by the Kaiser Family Foundation (Rideout & Hamel, 2006) on media use in the lives of American children under the age of 6 reports revealing statistics that illustrate the role screen media plays in young children's lives. For instance, on a typical day, 83% of children under 6 use some kind of screen media for an average of up to 1 hour and 28 minutes. Moreover, almost half of 2- to 6-year-olds watch more than 2 hours of television on a typical day. Finally, almost three quarters of 2- to 6-year-olds watch television every day. In addition, a baby book popular in the 1980's called *Baby's First Words* is a testament to the widely-accepted importance of television in young children's lives. The book describes a baby's typical day consisting of waking up, getting dressed, being fed, watching television, preparing for bed, and going to sleep (Wik, 1985). The word "television" is also included with "bottle" and "potty" as the most important words a baby should learn.

Television use is pervasive in young children's lives despite the advice of experts on child health and development. The American Association of Pediatrics (AAP) for example, has made several statements recommending that children under 2 years of age have no contact at all with screen media (e.g., television, DVD's/videos, computers) and that children 2 years of age and older not use screen media for more than 1 to 2 hours per day (AAP 1999; 2001). However, as many as half of preschoolers exceed the time recommended by the AAP (Certain & Kahn, 2002; Rideout & Hamel, 2006).

OVERVIEW AND SPECIFIC AIMS

"Reading" Television's Messages

> Television is "a *system* of messages, made up of aggregate and repetitive patterns of images and representations to which entire communities are exposed – and that they absorb – over long periods of time…[it] is the source of the most broadly shared images and messages in history, both in the United States, and around the world" (Signorielli & Morgan, 2001, p. 134 [italics in original])

All television content expresses some kind of message (e.g., Meyrowitz, 1998; Silverblatt, 1995; Singer & Singer, 1998). These messages can be implicit, providing information about how to react in certain situations (e.g., television shows often promote violence as an acceptable solution to problems), how adults behave and interact (e.g., often people on television are attractive, wealthy, and fit stereotypical roles), or about what one should know and believe (e.g., many people rely on television news programs to know what is going on in the world). Television can also provide explicit messages

designed to directly influence preferences and behavior. For example, educational television has the explicit intended message to teach some academic or life skill. The best examples of explicit messages are commercials: their purpose is to convince viewers to prefer one product over others and to purchase it.

Media messages can be an authoritative source of information from which children can and do learn many things (e.g., Austin, 2001). Some of what they learn is beneficial, such as school readiness and literacy from Sesame Street (Fisch, 2004) or problem solving skills from Blues Clues (Anderson et al., 2000). Other learning is not as positive. For example, children can learn to behave aggressively by watching violence on television or to eat non-nutritious foods by watching commercials (Wilcox et al., 2004).

This introduction will summarize how the media teach children about their world. The first section is a review of different types of television messages and how they affect children's thinking and behavior. The majority of this discussion focuses on how children interpret persuasive messages; that is, what children understand about and how they are affected by commercials. The second section is a brief review of what children know about evaluating messages in general. The final sections describe the preliminary and current studies.

Despite the media's pedagogical role and its omnipresence in young children's lives, children are not often taught how to "read" the media. Media scholars, child advocates, and pediatricians alike are calling for expanding the definition of literacy to include reading, creating, and interpreting messages from many different types of sources (e.g., Eagle, 2007; Espejo & Miller, 2006; Thoman & Jolls, 2004; AAP, 1999, 2001). For example, if children learn about how and why media messages are created, they can be

more sophisticated consumers of those messages, learning more from the positive aspects of media, and less from the negative ones.

Learning about media messages can have positive effects beyond childhood as well: Being media literate can help children become responsible and informed adult citizens (Vande Berg et al., 2004). For example, a company's financial interests often influence its organization of information and ideas and the values it encourages. Thus an informed citizen who can think consciously and critically about the information media companies provide must understand the reasons behind why and how news stories are produced (McBrien, 2005; see also Meyrowitz, 1998). It is important, for instance, to know that in 2002, circulation of over half of the United States' newspapers was controlled by just ten companies (Journalism.org, 2004). Similarly, given that 82% of Italians rely solely on television for news (Norris, 2000), citizens of Italy should know that the country's current Prime Minister, Silvio Berlusconi, also happens to own three of the six major television networks (Stille, 2006). In both cases, there is a strong possibility that the financial interests of the news outlet's owners influence both the news they choose to broadcast and the way in which they present that news. A media literate person understands the implications of characteristics and biases of the creators and producers of television messages and thus learns to be appropriately skeptical of what he or she hears.

The current study was designed to explore how we can teach young children to be critical readers of media content. The preliminary studies suggest that simply by hearing someone talk about it, preschoolers can learn about the reliability of others and prefer to believe information from someone described as being reliable over someone described as being unreliable. The current study investigates if and how children can learn that people

on television do not always say things that are accurate. Understanding this can help children be reasonably critical of messages they receive from television.

BACKGROUND

Children's Understanding of Television as a Medium

Not only are television's two-dimensional images very realistic but they also move and produce sound. Thus, understanding the medium of television in and of itself is a difficult task, and children spend several years discovering what television is. Huston and Wright (1998) outline two dimensions on which children learn about television as a medium: factuality and social realism.

The dimension of factuality regards the extent to which children think that what they see on television is literally real. For example, 9-month-olds try to grasp two-dimensional pictured objects as well as objects on a television screen (DeLoache, Pierroutsakos, Uttal, Rosengren, & Gottlieb, 1998; Pierroutsakos & Troseth, 2003). Furthermore, preschoolers often think that what they see on television exists inside the television set, or that the people, places, and events they see on television actually exist in the world.

Flavell, Flavell, Green, & Korfmacher (1990) proposed 4 stages of a developmental progression through which children understand the factuality of television. In the first stage, children think that what they see on television literally exists inside the set. For example, after seeing monsters on television, 2-year-olds might think that the monsters actually exist in their rooms and become frightened (Jaglom & Gardner, 1981). In the second stage, children no longer think that objects exist inside the television set, but still lack any kind of alternative theory about what images on television are. Children

in this stage fail to recognize the dual nature of television images (i.e., objects pictured on television are both images and representations of real objects that exist elsewhere). Children in the third stage begin to understand this dual nature of television images, but do not yet realize that what they see is not necessarily a faithful and accurate representation of the real world. It is not until stage four that children begin to distinguish between television content that is an accurate representation of the world and that which is not. Of the 3- and 4-year-olds tested in Flavell, et al., the majority of the younger children were in stage 2, and the majority of the older children were in stage 3. However, there was much variability in responses such that a sizable minority of 3-year-olds and some 4-year-olds still thought that they could interact with people, animals, or places depicted on television.

Belief in the factuality of television depends mostly on the age and cognitive level of the child (Wright, Huston, Reitz, & Piemyat, 1994). For example, one study found that as children get older, they become better at distinguishing between factual programs (such as news or documentaries) from nonfactual programs and their belief that nonfactual programs are real declines (Hawkins, 1977). Additionally, in research by Wright, et al., (1994), 7-year-olds understood more than 5-year-olds about the role of scripts and actors in nonfactual programs; that is, they understood better that nonfactual programs are not depictions of events that really happened nor do they include characters that really exist. Furthermore, according to Nikken and Peeters (1988), both age and socioeconomic status (SES) contribute to the variability of children's development regarding factuality. Consistent with Flavel et al.'s (1990) proposed stages, when asked factuality questions (e.g., if Sesame Street is a real place that exists somewhere or if

people on television can see and hear people viewing television), age was the best predictor for level of factuality belief for preschool-aged children. However, older children (up to 9 years of age) in low SES families were more likely to have immature concepts of television factuality than were their middle and upper SES peers. For instance, older children from lower SES families had difficulty understanding that the images on the screen were not real images that exist inside the television set.

Performance on the other measure of understanding television, social realism, is dependent more upon experience with television rather than on age and/or cognitive level (Huston & Wright, 1998). That is, the more television children watch, the more likely they are to think that what they see on television truly represents the world, and even that television characters and events are helpful and applicable to the real world (Elliott & Slater, 1980**;** Slater & Elliott, 1982). Whereas children's judgments regarding the level of factuality of families depicted on television decline with age, their judgments of the families' social realism are not correlated with age (Dorr, Kovaric, & Doubleday, 1990). The effects of children equating what they see on television with real life are discussed in the next section on television's implicit messages.

In sum, young children develop concepts of what television images are and what they represent. As they grow older, children undergo at least two major developments regarding the reality of television as a medium: 1) they realize that what they see does not actually exist inside the television set and 2) they understand that what they see is not necessarily an accurate representation of something that exists somewhere in the world. In addition, when reasoning about television as a valid source of information, the more

television children watch, the more they think that what they see are accurate representations on which to base their concepts of the real world.

Learning from Television Messages

Implicit Messages: Learning about the World

"Whether it be thought patterns, values, attitudes, or styles of behavior, life increasingly models the media" (Bandura, 1986 p. 20)

As Bandura suggests, the stories, images, and behaviors children see and hear depicted in pretend worlds on television influence how children behave in and perceive the real world. For example, seeing violence on television can lead children to think that the world is a dangerous and scary place. In addition, television programs often depict wealthy people who fit stereotypical roles. Seeing people portrayed in that manner can influence children to develop a distorted view of their world. As discussed in the previous section, young children often have trouble determining how real what they see on television is and the more television they watch, the more their sense of reality is affected by what they see depicted on the screen (Huston & Wright, 1998; Singer & Singer, 1983; Wright et al., 1995).

Violence and Aggression

There is a wide body of research suggesting that watching violence on television can predict aggression, increased hostility, and attitudes more accepting of violence in real life (Anderson & Bushman, 2001; Bushman & Anderson, 2001; Bushman & Huesmann, 2001; Huesmann & Malamuth, 1986; Huston et al., 1992; Liebert, 1986; Paik & Comstock, 1994). Children (and people in general) imitate behavior seen on television,

even violent or aggressive behavior. This simple claim is widely supported, as in one of Bandura's classic studies (Bandura, Ross, & Ross, 1963) in which children who watched a video of a model behaving aggressively towards a blow-up Bobo doll were more likely to show aggressive behaviors themselves than were children who did not watch the aggressive model. In multiple longitudinal studies, viewing violence as children predicted levels of aggression and anti-social behavior not only two years later, but as an adult as well (e.g., Huesmann, 1986; Huesmann, Lagerspetz, & Eron, 1984).

Furthermore, there is evidence to suggest that it is not that aggression predicts violence viewing, but that it is truly the other way around (Eron, Huesmann, Lefkowitz, & Walder, 1972). For example, one study found increases in children's physical and verbal aggression after television was introduced into a community that had not had television before (Joy, et al., 1986, as cited in Van Evra, 1998). These increases in aggressive behaviors existed in both children who were and were not aggressive originally and persisted for at least two years after being introduced to violence on television.

Thus, children who watch violent television learn that violence is a real, appropriate, and normal response to any number of situations. In addition, children who are heavy television viewers are more likely than those who are light viewers to believe that they live in an unfriendly and dangerous world (Bushman & Huesmann, 2001). In research by Singer & Singer (1983), this was especially true for children who watched a lot of "realistic" action-adventure programming. These results could not be explained by a preferential-viewing hypothesis (e.g., children who think the world is scary tend to seek out more action-adventure programming) or a family history of aggression.

Stereotypes

Television often portrays characters in stereotypical roles. For example, male actors are often used in commercials for toy cars, and female actors in commercials for baby dolls. By watching these commercials, children learn, for example, that boys play with cars and girls play with dolls. Children's attitudes and social stereotypes are thus affected by watching television messages (Liebert, 1986; Van Evra, 1998).

In research by Frueh & McGhee (1975), kindergarteners, 2nd, 4th, and 6th graders who watched more television were more likely to identify with their own stereotypical gender role than were children who watched less television. Another study suggests that 3- to 6-year-olds who are heavy viewers of television are more likely to sex-type occupations (e.g., say that doctors are male and teachers are female) than are light viewers (Beuf, 1974).

Similar results have been found for racial stereotypes. For example, there is little representation of non-white characters in television shows, suggesting to viewers that minorities are not an important part of American society (Van Evra, 2004). Furthermore, minorities such as African or Latino Americans who do appear on television (both in the news and as characters in programs) are often portrayed as criminals (e.g., Dixon & Linz, 2002; Donnerstein, Slaby, Eron, 1994).

Finally, television messages can also affect how children think about marriage, families, and family and values. Signorielli & Morgan (2001) suggest that children often learn to judge their own families through the "prism" of media images. For example, children who are heavy television viewers have a glorified view of life as a singe parent

and adolescents who watch soap operas tend to overestimate the number of people who have an affair or get divorced.

Materialism

Research supports the assumption that watching programs in which the characters have an abundant supply of material goods, and seeing commercials designed to persuade viewers of the need to acquire such material goods, encourage children to have materialistic views. For example, in research by Gorn and Goldberg (1977) one group of 4- and 5-year-olds watched television programming with no commercials, and another watched the same programming with two toy commercials. Children were then told a story about a boy who asked his father to buy him a toy, but the father refused to buy it. Fewer than 40% of the children who saw the commercials thought that the boy would still want to play with his father whereas more than 60% of the no-commercial group did so. In addition, twice as many children in the no-commercial group said they would rather play with a friend than with the advertised toy than did children in the commercial group. Finally, 70% of children in the no-commercial group, and only 35% of children in the commercial group said they would rather play with a nice boy without the advertised toy than a not nice boy with the toy. Furthermore, in one study, 4^{th} to 7^{th} graders who were heavy television viewers were more materialistic than light viewers (Adler, et al., 1977) and in others, 6^{th} to 12^{th} graders' materialistic values were positively correlated with television viewing (Greenberg & Brand, 1993; Moschis & Moore, 1982)

If children who have materialistic values are not able to acquire the products they think they need, they can end up disappointed, which in turn can create family conflict. In research by Buijzen & Valkenburg (2003b), 360 parent-child dyads answered questions

about their advertising exposure and frequency of viewing advertising, their level of materialism, the children's frequency of purchase requests, level of parent-child conflict, and level of unhappiness. The researchers found that frequency of advertisement viewing was positively correlated with children's purchase requests and materialism. The increase of purchase requests moderated a positive correlation between advertising viewing and family conflict (see also Buijzen & Valkenburg, 2003a; Robertson, Ward, Gatignon, & Klees, 1989; Ward & Wackman, 1972). Finally, frequency of advertisement viewing, also moderated by purchase requests, was positively related to disappointment and life dissatisfaction.

Thus children who watch television, especially commercials on television, can learn to accept materialistic values, which in turn are associated with dissatisfaction and family conflict.

Explicit Messages: Educational Television and Commercials

Educational messages

Television certainly does not always have a negative influence. Much of the research on positive learning from television has been conducted regarding specific shows. Sesame Street, which has been on the air since the late 1960's, is by far the most well-known and well-researched children's television program. Data collected through studies suggest that Sesame Street has a positive effect on academic outcomes such as vocabulary learning and school readiness (e.g. Fisch, 2004). Furthermore, these effects can be long-term. Both positive and negative behaviors, such as academic performance, motivation to achieve, reading, and aggression measured in high-school students were related to their television viewing habits as 5-year-olds (Anderson, Huston, Schmitt,

Linebarger, & Wright, 2001). Specifically, children who watched more educational television more frequently displayed more of the positive behaviors than those who watched less: for example, they performed better in school, were more motivated, and read more.

In addition to the positive effects of some television on cognitive development, television viewing also shows some correlations with learning positive behaviors. Specifically, although the research is a bit divided on prosocial learning, it seems that some children can learn pro-social behavior by watching positive educational television programs (Mares & Woodard, 2001). Similar to research showing that learning depends on watching certain educational programs, the research on prosocial learning seems to be focused on benefits from particular shows. For instance, one study suggests that children can learn such positive attributes as nurturance and sympathy from watching Mr. Rogers' Neighborhood (de Groot, 1994, as cited in Van Evra, 1998).

It is important to note, however, that these educational benefits can only be realized if the programming is appropriate for the age of its viewers. Much of the research cited above was conducted with preschoolers watching shows designed specifically for preschoolers. In contrast, work from our lab suggests that infants and toddlers, in fact, do not learn from educational television, even programs supposedly designed specifically for them (DeLoache, et al., 2008). In our study, we tested the percentage of words presented in a Baby Einstein Baby Wordsworth video that 12- to 18-month-olds learned over the course of four weeks. The infants were divided into four groups: 1) *video-interaction* in which infants watched the 39-minute long video at least five times a week with their parents; 2) *video-no interaction* in which infants watched the

video at least five times a week without their parents; 3) *parent teaching* in which parents received a list of the words introduced in the video and were asked to teach those words to their children in whatever way felt natural; and 4) a *control* group to which we could compare learning in the three experimental groups.

At the end of four weeks, the children in the video groups did not learn any more words than did those in the control group: Watching the video had no educational benefits. Furthermore, the highest learning occurred for children in the parent teaching group who had significantly higher scores than did those in the video-no interaction group. Thus, although preschoolers can learn effectively from educational television when the messages are designed well, it is still unclear whether younger children can benefit from it (see also, DeLoache & Chiong, in press).

Commercials

By far the most ubiquitous of television messages is the commercial. For every five hours of television the average child watches, he or she will spend one hour watching commercials (Horgen, Choate, & Brownell, 2001). The typical child in the early 1990's is estimated to have seen approximately 40,000 commercials per year (Comstock & Paik, 1991; Kunkel & Gantz, 1992), and in 2005, marketers spent $1.4 billion per month on advertising to children (Horovitz, 2006).

Commercials are also among the most well researched kinds of television messages. This research suggests that commercials promote consumerism and materialism, encourage children to hold unrealistic expectations for what products they are supposed to have, and mislead children about nutrition, encouraging them to develop unhealthy eating habits (e.g., Wilcox et al., 2004).

Children's Understanding of Commercials as Messages

Identifying commercials. Studies that employ nonverbal response measures suggest that children tend to be able to identify when they are watching a commercial from as early as 4 years of age (e.g., Levin, Petros, & Petrella, 1982; Stutts, Vance, & Hudleson, 1981). For instance, in research by Butter, Popovich, Stackhouse, & Garner (1981), 4- and 5-year-olds watched a children's program that included four 30-second commercials and simply had to tell the experimenter when a commercial started. Seventy percent of 4-year-olds and 90% of 5-year-olds correctly tagged all four commercials. In contrast, children younger than 4 years of age did not seem to recognize when they were watching a commercial.

However, studies that require verbal responses from children suggest that they do not actually understand how commercials and programs are different until later childhood. Young children often describe commercials as being different from programs by focusing on perceptual ("commercials are short and programs are long") or affective features ("commercials are more funny than programs") (Ward, Reale, & Levinson, 1972).

Furthermore, even if children can label a commercial a "commercial," it does not mean they understand what that label means (e.g., Blosser & Roberts, 1985; Butter et al., 1981). In one study, 91% of 3- to 5-year-olds correctly called an advertisement embedded in a program they were watching a "commercial," but only 31% realized that because it was a commercial, it was actually separate from the adjacent program material (Kunkel, 1988). Even 5- to 8-year-olds have trouble describing what a commercial is. For example, when asked what the difference is between a commercial and a program, only 20% of 5-

to 8-year-olds surveyed gave a correct response (e.g., “commercials show things you can buy” or “commercials try to sell things”). For the remaining children, roughly half responded by describing perceptual features, and half said they simply did not know (Bijmolt, Claassen, & Brus, 1998).

Moreover, factors often employed by advertisers may make it even more difficult for children to recognize when they are watching a commercial. Children are often confused by advertising tactics such as host-selling (i.e., using well-known and popular characters such as Sponge-Bob Squarepants or Dora the Explorer to endorse a product), perceptual similarities between commercials and programs (e.g., animation), sponsorship (e.g., when a company pays for a certain event and thus has its name prominently displayed during the event), program-length commercials (i.e., when a company produces a program for the sole purpose of selling its products, such as Care Bears or Hot Wheels), and product placement (i.e., having characters in a program use a particular brand as part of the program; Gunter, Oates, & Blades, 2005; Kunkel, 1988, 2001; Kunkel & Roberts, 1991).

Understanding persuasive intent: the purpose of advertising. Commercials are messages whose purpose is to persuade viewers to buy the products they are promoting. Although adults are certainly influenced by commercials, they tend to understand that “a) the source of the message has other perspectives and other interests than those of the receiver, b) the source intends to persuade, c) persuasive messages are biased, and d) biased messages demand different interpretative strategies than do unbiased messages” (Roberts, 1982). In contrast, children under the age of approximately 8 do not understand persuasive intent and do not make these assumptions about commercial messages.

Children as old as 6 years of age do not understand the idea of self-promotion or that one could have self presentational motives (Aloise-Young, 1993; Banerjee, 2002). This suggests that preschoolers do not understand that commercials are biased and "self-promote," or focus on, or even fabricate, the positive attributes of a product and ignore the negative ones. For example, in Young (2000), 4- to 9-year-olds watched seven commercials that had the final shot edited out. They then saw still pictures of three possible endings, one promotional (i.e., accentuating positive aspects of the product), one entertaining (e.g., a funny ending), and one neutral. Children had to choose the correct ending to the commercial. Most 4- to 5-year-olds chose the entertaining ending, and only one-third of 6-year-olds (which is at chance) chose the promotional ending. This suggests that preschoolers do not recognize the intent of commercials' creators to persuade viewers to want and to buy a product.

The overwhelming majority of research suggests that children do not begin to understand the persuasive intent of commercials until approximately 7 or 8 years of age (e.g., Blosser & Roberts, 1985; Brucks, Armstrong, & Goldberg, 1988; Chan, 2000; Kunkel & Roberts, 1991; Robertson & Rossiter, 1974; Ward, Wackman, & Wartella, 1977). For example, in one frequently cited study (Rossiter & Robertson, 1974) 6- to 11-year-olds were interviewed about their understanding of commercials and their purpose. All age groups described commercials as being helpful messages designed to inform their viewers about new products and just half of the 6- and 7-year-olds mentioned anything regarding persuasive intent. Results of some studies even suggest that 7 or 8 years of age is too early (e.g., Bjurstrom, 1994; Oates, Blades, Gunter, & Don, 2003): in research by

Oates, Blades, and Gunter (2002), only one third of 10-year-olds could discuss commercials in terms of persuasive intent.

Finally, an American Psychological Association (APA) task force on children and advertising pointed out in their report that understanding that a commercial is meant to persuade its viewers to buy a particular product is not equivalent to understanding that commercials are therefore biased messages of which one should probably be skeptical (Wilcox et al., 2004; see also Young, 1990). Thus, understanding persuasive intent is not necessarily enough to be able to critically "read" commercials.

Effects of Watching Commercials

To be influenced by advertisements, one must first remember them. Children do remember commercials, even when one is shown just once during a program (Gorn & Goldberg, 1977, 1980; Zuckerman & Stevenson, 1978). Children also often refer to commercials when asked where they heard about a particular toy (Caron & Ward, 1975). Furthermore, seeing just one commercial can positively affect children's attitudes towards a product (Goldberg, 1990; Gorn & Goldberg, 1977) which only grows with repeated viewings (Galst & White, 1976; Gorn & Goldberg, 1982). Over time, the specific memory for a particular commercial may fade from children's memories, but preference and positive feelings for the product can still remain (Silverman, Jaccard, & Burke, 1988).

Both correlational and experimental studies confirm that commercials are effective as persuasive messages. For example, amount of time watching television is positively correlated with and is an important predictor of the self-reported number and frequency of purchase requests (Atkin, 1978; Buijzen & Valkenburg, 2008; Galst &

White, 1976). This is true even up to 20 months after the original measurement of screen time (Chamberlain, Wang, & Robinson, 2006), and has been found across cultures in Japan, England, and the United States (Robertson et al., 1989).

In experimental studies, children who see a commercial are consistently more likely to prefer the advertised product over an unadvertised product than children who do not see the commercial (Atkin & Gibson, 1978; Stoneman & Brody, 1981). Furthermore, an intervention that successfully reduced television viewing in 3rd and 4th grade children also reduced the number of requests for toys (Robinson, Saphir, Kraemer, Varady, & Haydel, 2001).

Studies conducted in naturalistic conditions support the same conclusion (Pine & Nash, 2002). For example, Goldberg (1990) took advantage of a change in law that banned commercials aimed at children on Quebec television stations. Montreal, in Quebec, is near the U.S./Canada border and receives television programming from both countries. Thus, French-speaking children in Montreal who watched Canadian programming did not see commercials for children's products whereas English-speaking children in Montreal who watched American television did. English-speaking children recognized more advertised products and reported having more of them in their homes than did French-speaking children.

Certainly preferences do not always lead to purchases, and the final purchase decision will almost always be made by the parent, not the child. However, when children want a particular product, they are often successful at convincing their parents to buy it (Frideres, 1973; Ward & Wackman, 1972). Data from parent report and from supermarket observations also confirm that children's product requests are often

successful (Atkin, 1978; Galst & White, 1976). Indeed, in one estimate of children's influence of product purchase, children younger than 14 years of age influenced $160 billion of purchases during the holiday shopping season (November and December) of 2005 (Horovitz, 2006).

The Special Case of Food Advertising – Implicit and Explicit Messages

The most researched, and arguably most important, issue regarding advertising to children is the link between advertising and nutrition, eating habits, and childhood obesity. In recent years there has been a dramatic increase in childhood obesity (Krebs & Jacobson, 2003; Ogden et al., 2006); the prevalence of food-related non-nutritious advertising on children's television is strongly linked to this increase (e.g., Buijzen & Valkenburg, 2003a; Dietz, 1990; Horgen, Choate, & Brownell, 2001; McGinnis, Gootman, & Kraak, 2006; Palmer & Carpenter, 2006; Strasburger, 2001; Troiano & Flegal, 1998). Williams, Achterberg, & Sylvester (1993) suggest that food marketing is even more dangerous an influence on health than cigarette and alcohol advertising particularly because eating habits formed in childhood often last throughout life (Jacobson & Maxwell, 1994). Furthermore, pediatricians are strongly advised to ask parents about their child's media habits (e.g., AAP 1999, 2001).

Companies spend $10 billion per year on food marketing to children, 75% of which is spent on television advertising, with the remainder spent on other advertising outlets such as the internet, radio, and magazines (Batada & Borzekowski, 2008). Indeed, children view one food commercial for every five minutes of television watched (Kotz & Story, 1994). In total, food advertisements account for 47.8% of all advertisements aimed at children and 91% of those are for foods high in fat, sugar, and/or salt such as highly-

sugared cereals, candy bars, salty canned foods, fast food, or other junk food (Taras & Gage, 1995). A more recent survey shows a similar picture: 83% of advertised foods are for convenience foods, fast foods, and sweets (Harrison & Marske, 2005). Furthermore, if one's diet were made up of the foods advertised, one would exceed the Recommended Daily Values (RDV) of total fat, saturated fat, and sodium; children specifically would exceed the RDV sugar level by nearly 1 cup (171 g).

Children learn from television advertising's implicit message about health, which encourages poor eating habits (Gussow, 1973). Even controlling for gender, age, reading level, parent education level, and parent occupation, television viewing is strongly correlated with unhealthy perceptions of nutrition and higher junk food consumption (Dixon, Scully, Wakefield, White, & Crawford, 2007; Signorielli & Lears, 1992; Signorielli & Staples, 1997). Additionally, product placement (or using a particular branded product in television shows or movies) of non-nutritious foods contributes to the overall food-related message as well. For instance, children's movies often have images of brand name fast food restaurants (Williams, et al., 1993). This practice confirms the notion that these foods are simply a part of normal life.

Children are also influenced by the explicit message in television food advertising. A large number of correlational studies find that the more television (and thereby television commercials) children watch, the more food purchase requests they make and the more non-nutritious food they eat (Arnas, 2006; Batada & Borzekowski, 2008; Chernin, 2008; Coon & Tucker, 2002; Galst & White, 1976; Taras, Sallis, Patterson, Nader, & Nelson, 1989). One study even specifies that for every hour increase in television watching per day, children consume 167 more calories (Wiecha et al., 2006).

Galst and White (1976) note that cereal and candy – two of the most heavily advertised foods, are also among the most requested foods among 3- to 5-year-olds, and research by Bolton (1983) found that exposure to television food advertisements increased caloric intake and snacking and decreased overall nutrient quality of food for 2- to 11-year-olds.

Most experimental studies exploring the effects of commercials on eating behaviors show one group of children a typical food advertisement and compare their subsequent snack choices to those of children who see a commercial that promotes positive nutrition or who do not see a commercial at all (e.g., Brody, Stoneman, Lane, & Sanders, 1981; Coon & Tucker, 2002; Goldberg, Gorn, & Gibson, 1978; Gorn & Goldberg, 1982). Results consistently show that children who see a commercial for a particular food are more likely to request or choose that food than children who do not see the commercial (Borzekowski & Robinson, 2001).

This finding holds for nutritious foods as well. In research by Bannon and Schwartz (2006) kindergarteners watched a televised message that discussed either the positive benefits of eating apples or the negative consequences of not eating apples. Children in both of these groups were more likely to choose apples as opposed to animal crackers for a snack than were children who did not see either of these messages. However, commercials for non-nutritious foods far outnumber those for healthy foods (Atkin & Heald, 1977; Barcus, 1980; Kunkel & Gantz, 1992) and when they do air, the positive benefits obtained from watching them can be undone by watching a commercial for a non-nutritious food immediately afterward (Cantor, 1981).

Furthermore, children as young as 2 years of age begin to recognize and show loyalty to particular brands based on what they have seen advertised (Hite & Hite, 1995;

Fischer, Schwartz, Richards, Goldstein, & Rojas, 1991). Research by Robinson, Borzekowski, Matheson, and Kraemer (2007) tested the effects of this branding on children's food preferences. In the study, 3.5- to 5.5-year-olds tasted five pairs of identical foods -- hamburgers, chicken nuggets, french fries, carrots, and milk. The only difference between the foods in each pair was that one was wrapped in a McDonald's wrapper suggesting that it came from McDonald's and the other had a plain wrapper. After tasting each food, children rated how much they liked it. Preference ratings for all five foods with McDonald's wrappers were significantly higher than those for the foods in plain wrappers. Thus, even though the foods were actually identical, preschoolers reported liking the food more if they thought it came from McDonald's. The more television sets children had in their homes, and the more they ate at McDonald's, the higher the difference was in their ratings between the "McDonalds" foods and their plainly-wrapped matches.

Finally, cross cultural research on effects of food advertising on children's concepts of nutrition and their eating habits also tells the same story. Results have been similar to those found in the US for studies conducted in Japan (Ishigaki, 1991), Canada (Goldberg, 1990), Ireland, Australia, Norway (Collins, Tonnessen, Barry, & Yeates, 1992), Britain (Lewis & Hill, 1998), and Turkey (Arnas, 2006).

In sum, the overwhelming majority of food advertisements are for foods low in nutrition and high in sugar, fat, and salt. Children learn both from the commercials' explicit messages (i.e., encouraging purchase of particular products), as well as the implicit ones that teach children little about what constitutes a healthy and nutritious diet.

Children's learning from food advertising thereby contributes to creating a population of overweight children.

Media Literacy

Defining Media Literacy

Different producers of media literacy curricula have slightly varying definitions of what media literacy is. For example, an often used definition states that general literacy is "the ability to access, analyze, evaluate, and communicate messages in a wide variety of forms" (see Christ & Potter, 1998; Hobbs & Frost, 2003). Semali (2005) specifies that to be media literate is "to possess the habits of mind needed to critically 'read' mass media communications, be they advertisements…quick-cut shoot-out scenes in action films, or coverage of far-off wars…" (p. 38). Finally, The Center for Media Literacy suggests the following five core concepts for media literacy: "1) all media messages are constructed; 2) media messages are constructed using language with its own rules; 3) different people experience the same media message differently; 4) media have embedded values and points of view; 5) most media messages are constructed to gain profit and/or power" (Thoman & Jolls, 2005).

Despite differences in the details, the basic goal of media literacy programs is to empower children to be critical consumers of media content (Henriksen, 1996; Kunkel & Roberts, 1991).

Evaluating Media Literacy

Though the effectiveness of media literacy programs is not widely researched, there are studies that show the benefits of teaching children about television production and media messages (see Brown, 1991, 2001). Such programs can teach children about

advertising and increase skepticism of commercial messages (Brucks et al., 1988; Feshbach, Feshbach, & Cohen, 1982; Hobbs & Frost, 2003; Peterson & Lewis, 1988). More generally, media literacy programs can teach elementary school children creative thinking, and develop their ability to respond critically both to specific explicit messages such as commercials and to implicit media messages (Anderson & Ploghoft, 1993; Feshbach et al., 1982; Feuerstein, 1999; Kelley, Gunter, & Buckle, 1987; Roberts, Christenson, Gibson, Mooser, & Goldberg, 1980; Singer, Zuckerman, & Singer, 1980).

There is also some research that illustrates the benefits of teaching young children about television (e.g., Dorr, Graves, & Phelps, 1980; Rapaczynski, Singer, & Singer, 1982; Singer, et al., 1980). Tidhar (1996) assessed a national media literacy program for preschoolers in Israel. The program lasted 5 months and taught 3- to 6-year-olds about television through mediated television viewing and hands-on activities. Children were tested before and after the program on their ability to identify fantasy versus reality and their understanding of television production features (e.g., how camera work can affect the way a scene looks). Children who participated in the media literacy program scored higher on the post test than did those in a control group who did not participate in the program.

In more recent research by Buijzen (2007), 5- to 10-year-old children learned specifically about commercial messages. Some children participated in a "factual intervention" in which they learned about the purpose of advertising (i.e., to sell products) and tactics the producers of commercials use to do so (e.g., exaggerate or fabricate positive aspects of the product). Other children received an "evaluative intervention" aimed at making children like commercials less. All children were then

tested on their advertising knowledge, advertising skepticism, attitudes towards commercials, and intended product requests. The youngest children (5- to 6-year-olds) learned most from the factual intervention: The intervention helped enhance their skepticism towards and knowledge of advertising. Furthermore, 5- to 6-year-olds' level of skepticism was negatively correlated with their liking of advertising.

Despite the need for and demonstrated benefit of media literacy programs, the United States has yet to organize or standardize any type of media literacy curriculum. In the late 1970's, the United States Office of Education supported teaching media literacy skills in the schools (Kline, Stewart, & Murphy, 2006). It proposed developing a national curriculum that would teach children about commercials and help them distinguish fact from fiction in media messages (Lloyed-Kolkin, Wheeler, Strand, 1980). However, in the early 1980's, the Reagan administration deregulated the communications market and all plans to develop media literacy programs stopped. Other countries (e.g., Canada, Britain, and Australia) have far more developed media literacy programs than the U.S. (Pungente, Duncan, & Andersen, 2005) and/or have more regulation of children's television and advertising (e.g., Sweden; Pine & Nash, 2002). Thus, the United States is one of a few industrialized nations that does not have comprehensive media literacy programs in its schools (Kubey, 2004; Strasburger & Donnerstein, 1999).

Teaching Young Children about Media Messages

What Young Children Know about Messages in General

Lying

To accept the possibility that what they hear on television is not true, children need to have some conceptual understanding of truth and lies. Research suggests that

children as young as 3 years of age understand the difference between truth and lies and even tell lies themselves (e.g., Peterson, Peterson, & Seeto, 1983). For example, in research by Bussey (1992), preschoolers heard 12 vignettes in which characters clearly either told the truth or told a lie. Children successfully identified approximately 70% of the statements as the truth or a lie. Young children also judge lie-telling negatively and as something one should not do whereas telling the truth is judged positively; the strength of these classifications also grows as children get older (Talwar, Lee, Bala, & Lindsay, 2002).

Telling a lie is just one way to communicate incorrect information; one can also pass along incorrect information because they mistakenly believe what they are saying to be true. Children as young as 3 years of age also understand that people can say something that is incorrect by making a mistake and understand the difference between lies and mistakes (Siegal & Peterson, 1996, 1998).

Learning from Testimony

The term "testimony" refers to any kind of spoken information. As reviewed throughout the introduction, children learn many things from the testimony that they hear on television. A media literate child should know how to evaluate the reliability of the creator of any particular television message.

Research on children learning from testimony shows that children as young as 3 years of age prefer to accept information provided by someone who was reliable in the past over someone who was unreliable. For example, in research by Jaswal & Neely (2006), 3- and 4-year-olds watched a video in which one actor consistently labeled three different familiar objects correctly (e.g., called a shoe a "shoe"), whereas a second actor

consistently labeled the same objects incorrectly (e.g., called a shoe a "glass"). Then both speakers were presented with a series of novel objects, and they referred to the objects using conflicting novel labels. For example, one person called a paint roller a "blicket," and the other called it a "wug." Children had to choose what they thought the name of the object was. Children at both ages chose the label provided by the reliable speaker over that offered by the unreliable speaker. Other research using this paradigm suggests that young children's tendency to preferentially believe new information from previously reliable informants also extends to domains other than labeling, such as the functions of objects (e.g., Birch, Vauthier, & Bloom, 2008).

PRELIMINARY STUDIES

Teaching Young Children about Evaluating Messages: Reliability

The testimony studies described above allowed children to observe the behavior of people from whom they would later receive information. Of course, neither children nor adults have the opportunity to directly interact with or observe the actions of every potential informant (Nowak & Sigmund, 1998; Panchanathan & Boyd, 2003, 2004), especially when those informants are on television. In three preliminary studies, 3- to 5-year-olds learned about the reliability or unreliability of other people by hearing a third-party person simply tell them, for example, who "always says the wrong thing." If children can use this information to guide the extent to which they will accept what they hear, they could also learn that, for example, people on television do not always say things that are correct or true.

Study 1

In Study 1, 3- to 5-year-olds[1] heard one person described neutrally and a second person described as "always saying the wrong thing." Children then heard the two people each give different novel names for novel objects and they were asked what they thought the object was called. The outcome measure was the number of trials in which children chose the label provided by the neutrally-described person. Five-year-olds, but not 3- and 4-year-olds endorsed the labels provided by the person described neutrally rather than those provided by the person described as unreliable.

Method

Participants

Participants were nine 3-year-olds (M = 3 years; 4 months, Range = 3;0 to 3;11); eight 4-year-olds (M = 4;5, R = 4;0 to 4;11); and nine 5-year-olds (M = 5;5, R = 5;1 to 5;10). In this and the following studies, most children were white and from middle- to upper middle-class families and approximately half in each age group were female. Children were recruited from a database of local families who had expressed interest in participating in research.

Procedure

Children were tested individually in the laboratory. The experimenter and child sat at small table in front of a television. At the beginning of the session, the experimenter invited the child to watch a video in which the experimenter said that, "Some of my

[1] We included children of the same age as those tested in the testimony studies described above: 3- and 4-year-olds, as well as 5-year-olds.

friends are going to talk about what different things are called." Before starting the video, she called the children's attention to the introductory clip by saying, "First, a friend of mine is going to tell us something very important, so I want you to listen closely – can you do that?" When the child agreed, the experimenter started the video.

Figure 1 shows still frames from the induction clip. In the *reliability induction* phase (Figure 1a), a woman, centered on the screen, sat on a black couch and introduced herself by saying, "Hi, my name is Catherine, and these are my friends." A picture of each informant appeared in the top left and top right corner of the screen and Catherine pointed to each speaker as she talked about her: "This friend is wearing a blue shirt; she's going to tell us about what things are called. This is my other friend. She's wearing a red shirt. She's also going to tell us about what things are called, but she's always saying the wrong thing; yup, she always says the wrong thing." For half the children, the speaker in the blue shirt was unreliable, and for the other half, the speaker in the red shirt was unreliable.

a.  b. 

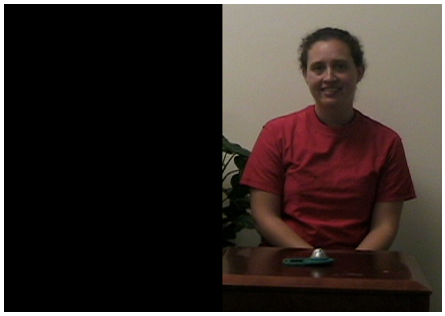
c.  d. 

Figure 1. Stills from four parts of the induction (a) and test (b-d) trial video clips

First memory check. After the reliability induction clip, the experimenter stopped the video so that the screen showed a still picture of Catherine sitting with her hands on her lap and an informant on either side of her. The experimenter asked the child which friend Catherine had said was always saying the wrong thing. If the child responded correctly, the experimenter suggested watching more of the video. If a child did not answer correctly, the experimenter re-played the induction clip and again asked the child to identify the speaker who is wrong. Four 3-year-olds and three 5-year-olds needed to see the induction clip twice before they answered the memory check correctly. One 5-year-old, who still did not answer correctly, was excluded from the final sample.

Label trials. After the memory check, the children were given four *label trials.* On each trial, the informant in the blue shirt appeared on the left half of the screen (Figure 1b). She picked up a novel object that was sitting on a table and labeled it with a

novel word -- saying about a silver rubber drain stopper, for example, “Look, it’s a fep, yeah, a fep!” (See Table 1 for list of objects and labels).

Object	Neutral Informant	Unreliable Informant
Wooden Block	Gazzer	Fep
Green rubber stick	Gromp	Bimba
Drain Stopper	Kip	Modi
Yellow cutter	Labra	Mek

Table 1. Novel objects and labels used in Studies 1-3

The image of the informant in the blue shirt then disappeared, and the image of the speaker in the red shirt appeared in the right half of the screen (Figure 1c). She picked up the same object and gave it a different label: for example, “Look it’s a gazzer, yeah, a gazzer!” The unreliable informant spoke first in either the first and fourth or second and third trials; which novel word she used was counterbalanced across children.

Next, still photos of the speakers, each sitting with the object they had just labeled in front of them, appeared on their respective sides of the screen (Figure 1d). The experimenter brought that object out of a box below the table and showed it to the child. She then reminded the child what each speaker had said and asked, “What do you think it’s called?”

Final memory check. In the final memory check, the experimenter asked each child to indicate which speaker Catherine indicated was always saying the wrong thing. All but two 3-year-olds and two 4-year-olds responded correctly[2].

[2] Results remained the same when these four children were removed from the analyses. Thus all the analyses reported below were based on the full sample of children.

Results and Discussion

Preliminary analyses in this and the following studies showed no differences between boys and girls, so all data were collapsed across gender in each study.

As Figure 2 shows, after hearing that one of two speakers "always says the wrong thing," 5-year-olds, more than 3- or 4-year-olds, endorsed the novel labels provided by the other speaker. Five-year-olds chose the label provided by the neutral informant (the actor for whom children had no information regarding reliability) on 94% of trials; 4-year-olds did so 59% of trials; and 3-year-olds did so 50% of trials. Only the 5-year-olds chose the neutral informant more often than would be expected by chance of 50%, $t(8) = 8.00$, $p < .001$, d = 2.67; 3- and 4-year-olds' t's < .8, p's > .48.

Similarly, a one-way ANOVA on these data showed a significant difference among the age groups, $F(1, 25) = 6.48$, $p < .01$, $\eta_p^2 = .36$. Tukey's post-hoc analyses revealed that the 5-year-olds chose the neutral informant more frequently than the 3- or 4-year-olds did (p's < .05). The two younger age groups did not differ from each other.

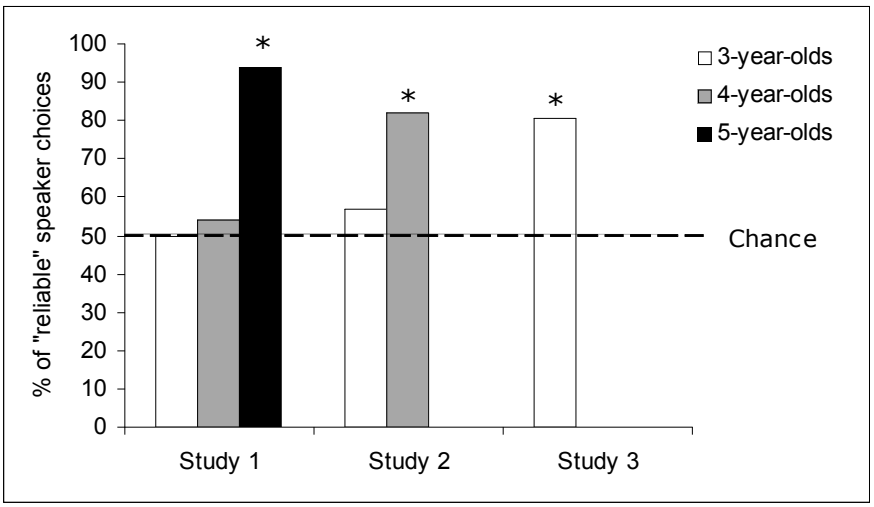


Figure 2. Percentage of trials for which children chose the reliable speaker's label. Stars indicate different from chance at p < .001

Finally, the same pattern of results is evident at the individual level. Whereas 8 of the 9 five-year-olds endorsed the novel label given by the neutral informant on 75% or more of the trials, only 2 of the 9 three-year-olds and 4 of the 8 four-year-olds did so. Significantly more 5-year-olds chose the neutral informant on 75% or more of the trials than did 3-year-olds (Fisher's exact probability tests, $p < .05$).

In summary, when told that one of two speakers was an unreliable informant, 5-year-olds trusted information from the other (neutral) speaker, but 3- and 4-year-olds had no preference. The failure of 3- and 4-year-olds to show a preference is surprising because several studies have shown that children of this age tend to avoid information from informants they actually observed providing incorrect labels (e.g., Clément, Koenig, & Harris, 2004; Jaswal, McKercher, & VanderBorght, 2008; Jaswal & Neely, 2006; Koenig, Clément, & Harris, 2004; Scofield & Behrend, 2008). One might have expected that being told that one informant was always saying the wrong thing would be a more direct route to a potential informant's credibility than having to infer from observations. After all, in the procedures in which children observe one informant being a reliable labeler and the other being unreliable, they must remember who said what, compare that to what they know to be true, and calculate a likelihood of future reliability for each informant. In the current study, children clearly and explicitly heard the relevant information.

Study 2

The goal of the next two studies was to investigate why the younger children did not prefer the "neutral" informant. Some spontaneous comments from the 5-year-olds provided a clue. For example, "I listen to what the girl in the red shirt says because she's

always right." Importantly, children never actually heard which informant was *right* – the information they heard concerned which informant was *wrong*. Thus 5-year-olds seem to have recognized the implication that if they heard one informant described as always saying the wrong thing, the other must be saying the right thing. It is possible that the younger children did not make this inference on their own; therefore if they heard both who is always wrong *and* who is always right, they might also discount information from the unreliable informant. In Study 2, we addressed this possibility. Here, 4-year-olds, but not 3-year-olds endorsed the labels provided by the reliable person.

Method

Participants

Participants were 15 three-year-olds (M = 3;3, R = 3;0 to 3;9) and 17 four-year-olds (M = 4;5, R = 4;0 to 4;11). Five-year-olds were not included in this or the following study because Study 1 already showed that they can use third-party information to evaluate an informant's reliability.

Procedure

The procedure was identical to that in Study 1 with one exception: In the reliability induction phase, Catherine introduced both of her "friends" by saying that one is "always saying the wrong thing," and the other is "always saying the right thing." As in Study 1, the identities of the reliable and unreliable speakers were counterbalanced across children. Additionally, the unreliable informant was introduced first for half the children, and for the other half the reliable informant was introduced first.

During the two memory checks, the experimenter asked the children to name both who Catherine said always says the wrong thing and who she said always says the right

thing. Two 3-year-olds and two 4-year-olds needed to see the induction clip twice before answering the memory check correctly. Data from one additional 3-year-old were excluded because she did identify the reliable and unreliable informants after seeing the induction two times.

The test trials began immediately after the first memory check and everything else in the procedure was identical to Study 1.

Results and Discussion

Figure 2 shows that 4-year-olds endorsed the label provided by the informant described as reliable rather than the one described as unreliable, whereas 3-year-olds showed no preference. Specifically, 4-year-olds chose the reliable informant choice on 82% of trials, more frequently than would be expected by chance, $t(16) = 5.80$, $p < .001$, d = 1.4, whereas 3-year-olds did so on 57% of trials, which does not differ from chance, $t(15) = 1.29$, $p > .05$. In addition, 4-year-olds chose the reliable informant's label significantly more often than did 3-year-olds, $t(30) = 3.35$, $p < .01$, d = 1.2.

At the individual level, whereas 12 of the 17 four-year-olds chose the reliable informant's label on 75% of more of the trials, only 5 of 15 three-year-olds did so. More 4-year-olds than 3-year-olds preferred the reliable over the unreliable informant on 75% or more of trials (Fisher Exact Probability Test, $p < .05$).

After hearing that one informant "always says the wrong thing" and that another "always says the right thing," 4-year-olds, but not 3-year-olds, endorsed new information provided by the allegedly reliable informant over the allegedly unreliable one. Thus, an extra piece of information – hearing explicitly about the reliability of the non-unreliable

informant – helped the 4-year-olds selectively choose the reliable informant, but the 3-year-olds still did not prefer one over the other.

Study 3

In Studies 1 and 2, 4- and 5-year-olds preferentially endorsed one speaker over another when they heard about each speakers' reliability, but 3-year-olds had no preference. It is possible that hearing one statement about the reliability of two speakers was simply not enough information to influence the 3-year-olds' preferences. Thus, perhaps hearing about the speakers' reliability and then experiencing those statements being confirmed (as in the testimony studies described above) would give 3-year-olds enough information to prefer the reliable speaker over the unreliable one. Unlike the testimony studies reviewed previously in this paper in which children observed people labeling three or four different objects, 3-year-olds in Study 3 had just one opportunity to observe the people being reliable or unreliable labelers. Results from Study 3 suggest that 3-year-olds can use third-party information to guide their behavior when it is confirmed by observation.

Method

Participants

Participants were eleven 3-year-olds (M = 3;5, R = 3;2 to 3;10). Data from an additional five children were excluded from the final sample due to experimenter error (2) or because they answered the memory check question incorrectly (3).

Procedure

The induction of this study added an *observation* induction to the induction used in Study 2, and included additional scaffolding from the experimenter. The first part of

the induction phase was identical to that of Study 2 in which children heard that one speaker "always says the right thing," and the other speaker "always says the wrong thing." As in Study 2, the identity of the reliable speaker and the order in which the two speakers were introduced was counterbalanced across children.

The child then watched the reliable informant label a familiar object correctly (e.g., by saying a shoe is called a "shoe"). At this point, the experimenter paused the video, repeated what the informant said, and asked the child if she was saying the right thing; all children answered this question correctly. Then the child watched the unreliable informant label the shoe incorrectly (by calling it a "telephone"). The experimenter paused the video again, repeated what the informant said, and asked if she was saying the right thing. Only two children needed the experimenter to repeat again what the informant had said before correctly responding that she was saying the wrong thing. After this check, the experimenter showed the child a shoe, repeated what each speaker had said, and asked the child what it was called. All children responded correctly. Finally, the experimenter asked the child to remind her who was saying the right thing and who was saying the wrong thing. The order in which the informants spoke was the same order in which Catherine had introduced them.

After the final reminder, the test trials proceeded exactly as they had in the previous studies in which the two speakers labeled novel objects with different novel words.

Results and Discussion

As Figure 2 shows, the 3-year-olds endorsed the reliable speaker on 80% of label trials, more than would be expected by chance, $t(10) = 5.2$, $p < .001$, d = 1.57. In

addition, 9 of the 11 three-year-olds chose the reliable speaker's label on 75% or more of the trials, also more than would be expected by chance, Binomial Test, $p < .05$.

In sum, when 3-year-olds heard statements indicating that one speaker was reliable and the other was not *and* witnessed the reliable speaker labeling a familiar object correctly and the unreliable one labeling the same object incorrectly, they consistently endorsed new information provided by the reliable informant over that from the unreliable one. This result suggests that 3-year-olds can form a preference for one informant over another if they hear testimony regarding the informants' relative reliability and observe the informants' behavior that is consistent with those observations.

The preliminary studies established one way in which preschoolers can learn to discount information they hear from someone. That is, when someone was described as being unreliable, children discounted the information that person subsequently provided in favor of information provided by someone else. These results suggest that it is possible that young children can also learn to be skeptical of information they hear on television if they are taught to do so.

CURRENT RESEARCH

Teaching Young Children about Evaluating Television Messages: Skepticism

There is substantial evidence suggesting that children are influenced by television messages in many different ways. It is thus important to teach children how to be media literate and evaluate television messages to mitigate negative influences and enhance positive ones. Media literacy programs can give school-aged children valuable insights into how to read the media intelligently, but very little exists for teaching younger children about the media. Given young children's high exposure to and experience with

the media, they too must begin to learn how to read it. Furthermore, research suggests that learning early in childhood about media messages can have long-term positive effects (Austin, 2001)

Buckingham (2003), a media literacy scholar, suggested that researchers and educators apply the concept of Vygotsky's zones of proximal development (Vygotsky, 1962; 1978) to create programs that teach children something about the media that is just slightly beyond their grasp. He writes that to do this,

> we might consider children's existing understanding of the media as a body of spontaneous concepts. While these concepts will become more systematic and generalized as they mature, media education might be seen to provide a body of scientific concepts which will enable them to think, and to use language (including 'media language'), in a much more conscious and deliberate way
>
> (p. 141).

Both scientists and philosophers have argued that one's default is to believe that others will provide truthful information (Coady, 1992; Gilbert, 1991; Grice, 1975; Reid, 1764/1997; Spinoza, 1677/1982). Indeed young children often expect television to provide truthful information (Dorr, 1980). However, although information on television may have elements of truth, there is some that is not entirely true and even some that is completely false. Preliminary studies show that children as young as 3 years of age can learn about the reliability of a specific speaker and discount information from her if they have learned that she is an unreliable source. Therefore, an important, but achievable, first step in becoming media literate can be to teach preschoolers to be skeptical, that is,

to understand that not everything they hear on television is necessarily true. A healthy dose of skepticism can be an important filter through which children can evaluate television content and can influence how much children accept many of television's messages (e.g., Austin, 2001; Thoman & Jolls, 2004).

In the current study two different ways in which 3- and 5-year-old children might learn to be skeptical of television messages were explored. In a between-subjects design, children were assigned to one of three conditions: 1) experience, 2) testimony, or 3) control. In the experimental conditions (experience and testimony), children watched demonstrations of two simple science experiments on television.

As evidenced in the testimony research, one way children can learn to be skeptical of new information is if they previously heard something that they know or find out is not true. As a media example, children might see a commercial about a toy that allegedly flies in the air. However, if they get the toy and realize that it does not fly in the air, children might learn to be more skeptical of commercials' claims in the future (Kapur, 2005). Whereas positive reinforcement of media messages may strengthen their influence and appeal (Austin, 2001), negative reinforcement may undermine trust in further television messages (Moore & Lutz, 2000). Indeed, the Media Awareness Network suggests parents who want to teach their children to be media literate can buy a product and help their children compare it with the claims made in commercials ("Dealing with Marketing"). Children in the *experience* condition received the materials used in the science experiments and attempted to perform the experiment themselves. However, the materials were doctored so that the experiments did not work. Thus, by failing to recreate

two science experiments demonstrated on television, children in the *experience* condition experienced for themselves that two things they heard on television were not true.

A second way in which children can learn to be skeptical of television messages is to hear that what they see on television is not always a truthful representation of the world. For example, if children see a commercial about an exciting looking food, their mother might tell them to not believe the commercial because people in commercials often say things that are not true. In the *testimony* condition, the experimenter told children that the science experiments do not work and that the people demonstrating them were not saying the right thing.

Finally children in the control condition did not see the science experiments. These children only saw the test clips and their responses provided a baseline to which children in the experimental conditions could be compared.

The outcome measure consisted of three different types of test messages (facts, preferences, and behavior) that align with three ways that television messages can influence children. First, things that people hear on television can influence what they believe about the world. That is, children can think that it is a fact that men are doctors and women are home-makers if they hear that message on a television show, or adults can think that it is a fact that Iraq is harboring weapons of mass destruction if they hear it on the television news. Second, people's preferences can be influenced by television messages. For example, the makers of commercials seek to convince viewers to prefer their product over others. Finally, television messages can influence how people behave.

For instance, seeing a commercial for a product can persuade viewers to purchase the product.

Parents of the participating children also completed a survey consisting of an assessment of their parenting style, the level of dogmatism they encourage in their child, and their child's experience with television in the home.

The extent to which parents encourage their children to think critically in general could influence how willing children are to think critically about and be skeptical of television messages. Parents who promote dogmatism in their children likely encourage them to blindly accept what they are told rather than question and analyze information. Furthermore, parents who employ a more authoritarian parenting style tend to discourage discussion and questioning and encourage obedience. Conversely, parents who use a more authoritative approach tend to encourage discussion, critical thinking, and questioning (Siegler, DeLoache, & Eisenberg, 2003). In research by Austin (1993), parents who emphasized democratic decision making were more likely to discuss television content with their children and the children were better able to resist persuasive television messages. Similarly, parents of children who participated in a study conducted by Buijzen and Valkenburg (2005) answered questions about how much they talk to their children about advertising and how much they forbid discussion when making decisions. Thus, the how willing children are to believe television messages could be related to their parents' parenting style and how much their parents encourage critical thinking.

Finally, the television use part of the survey provided some demographic data on the children in this sample's experience with television. In addition, it is possible that

children's experience with television (or lack thereof) is related to their willingness to be skeptical of information they hear on television.

Method

Participants

Participants were 48 three-year-olds (M = 3;4, R = 3;0 to 3;11) and 48 five-year-olds (M = 5;6, R = 5;0 to 5;11). Children at each age were assigned to one of three conditions: experience, testimony, or control, with 16 children in each condition. Within each condition, children were systematically assigned to one of four orders. One 3-year-old and one 5-year-old were excluded due to experimenter error.

Materials

Children watched a video presentation on a 21-in television and some received materials used in the clip. For "explosion," the first induction trial, children in the *experience* condition received a small round dish, a clear plastic cup with a small amount of water dyed green, and a small white plastic cup with a small quantity of baking soda (see Figure 3).

Figure 3. Explosion materials and result of successful experiment (explosion)

For the second induction trial, "magnet," children in the *experience* condition received a clear glass jar with a blue string taped to the inside bottom of the jar, and a small binder clip embedded within a red Styrofoam ball tied to the other end (see Figure 4). There was a piece of black cardboard designed to look like a magnet taped under the lid of the jar.

Figure 4. Magnet materials and result of successful experiment (ball standing up)

Materials for the preference test trials included four novel-looking toys and four novel-looking foods (see Figure 5).

Figure 5. Novel toy (top) and food (bottom) pairs

One toy set was blue, squishy "goo" and orange, squishy foam. The second toy set was a blue and yellow "clatterpillar" and two tubes (one blue and one red) fitted together; both toys make noise as they are moved. The first food pair was pieces of rice cakes painted brown and cream colors and small squares of dark brown and cream-colored nutrition bars. The second pair was dried apple rings dyed light red and small date chips.

There were also small stickers and eight small wooden boxes each painted a different color (see Figure 6).

Figure 6. Colored boxes closed (left) and with sticker inside (right)

Finally, there were two pictures of familiar objects (a tree and a fork) and two pictures of novel objects (a wooden piece of wall molding and a green floppy stick) used to train children how to use a confidence scale adapted from Pillow, Hill, Boyce, and Stein (2000). The scale had a round yellow face with a smiling mouth at the right end, one with a flat-line mouth in the middle, and one with a frowning mouth at the left end. The smiling face and frowning face were exactly 15 cm to the right and left, respectively, of the flat-lined face and each centimeter was marked with a number. There was also an arrow attached to the scale with a string.

Parents completed three surveys:

(1) A parenting style survey, adapted from Reitman, Rhode, Hupp, and Altobello (2002) and Thompson, Hollis, and Richards (2003), consisted of 34 questions regarding parents opinions on child-rearing. Each question referred to a particular parenting style, such as: “I do not allow my children to discuss the decisions I make,” (authoritarian), “Once family rules have been made, I discuss the reasons for the rules with my children,” (authoritative), and “I do not think of myself as responsible for telling my children what to do,” (permissive).

(2) A critical thinking survey that consisted of 12 questions assessing how much parents encourage their children to think critically was adapted from a dogmatism scale in Pacini and Epstein (1999). Items from this survey included, "I want to encourage my child to be a very analytical thinker," and "I want to encourage my child to usually have clear, explainable reasons for decisions." Both surveys used 5-point likert scale ranging from "strongly agree" to "strongly disagree."

(3) The 14 questions on the television-use survey, which assessed children's viewing time and parents' thoughts about television in their children's lives, were selected from the Kaiser Family Foundation survey on media use of children 6 months to 6 years of age (Rideout & Hamel, 2006). Questions on this survey included, "How often does your child: watch television, listen to music, read a book alone or with someone else, watch videos or DVDs, use a computer, go online," "When someone is at home in your household, how often is the TV on *overall*, even if no one is actually watching it," and "How many TV ads do you think your child sees in a typical day." Because the current study was about teaching preschoolers that not everything they see on television is true, one question was added to the television survey asking parents about any prior experiences their children have had discovering something that something they saw on television was not true. See Appendix 1 for all surveys.

Procedure

Children were tested sitting at a small desk in the laboratory. The experimenter began by inviting the child to "watch some television" and "play some games."

Confidence scale training

The experimenter introduced the "sure" game to train children how to use the confidence scale. The training consisted of the experimenter showing the child two pictures of familiar objects (e.g., a tree) and then two pictures of unfamiliar objects (e.g., a wooden wall molding) and asking the child to show with the arrow how sure she/he was that she/he knew what the object was called. Pointing to the smiley face meant that the child was "really, really sure" of what the object was called, the flat-mouthed face meant that the child was "kind of sure," and the frown face meant that the child was "not at all sure." Children could also point to any point along the scale between the faces.

Children were expected to indicate that they were "really, really" sure that they knew what the familiar objects were and "not at all sure" what the unfamiliar objects were. If the child responded differently than expected, the experimenter discussed the child's answer until he/she changed his/her answer or provided a reasonable explanation for his/her choice (e.g., some children thought the wooden molding might be a chair and thus pointed to the flat-mouthed face). When the experimenter determined that the child understood the "sure game," she started the video.

Induction trials

Children in the experimental conditions watched two short induction clips in which two different actors demonstrated two science experiments (full details of these induction clips are given in Appendix 2). Children in the *experience* condition then received the materials and attempted to do the experiments themselves, and children in the *testimony* condition listened to the experimenter talk about the reliability of the actors' messages. After the induction clips, children watched the test clips in which

different actors presented different kinds of information and children indicated whether they believed what the actors said. Children in the control condition followed the same procedure but did not see the two induction clips.

The first scene on the video was induction trial 1 – "explosion," in which an actor demonstrated how to make an explosion with some "white powder" (baking soda) and "green liquid" (white vinegar dyed green). When the clip was over, the experimenter stopped the video, and depending on the condition, either gave the child the materials used in the video or said something about the scene they had just watched (see below for more details).

The second scene on the video was induction trial 2 – "magnet," in which a different actor demonstrated how to make a ball tied to string inside a jar stand up in midair (the ball stood up because there was a piece of metal inside it that was attracted to a magnet attached under the lid of the jar). At the end of the clip, the experimenter stopped the video and either gave the child the relevant materials or told the child something about what they just saw.

In the *experience* condition, after each of the two induction clips the experimenter gave the children the same materials that were used, but with two exceptions. For the explosion, instead of green-colored vinegar, the experimenter gave the child green-colored water, and for the magnet, instead of a lid with magnets underneath, the experimenter gave the child a lid with a black piece of cardboard taped underneath. Therefore, the child was *not* able to recreate what the actors demonstrated in the video.

After the child attempted to recreate the demonstrations, the experimenter asked, "Do you think that when Vanessa/Nadia [*actor's name*] was telling us about the

explosion/ball, she was telling us the right thing?" If the child answered correctly (i.e., that the actors were *not* telling the truth), the experimenter presented the next task. If the child did not answer or answered incorrectly, the experimenter asked the first in a set of increasingly explicit questions (see Appendix 3), stopping when the child provided the correct response (i.e., that the actors were not saying the right thing). Before moving on to the next clip, the experimenter said, "Yeah, she told us the wrong thing! It didn't explode like she said it would/The ball didn't stand up like she said it would. Sometimes people on TV do not say the right thing. Well, let's watch some more television and see what else we have."

In the *testimony* condition, the child was not asked to recreate the actions performed on the video. Instead, after each induction clip, the experimenter explicitly told the child that the actors were not reliable and were "not saying the right thing" (see Appendix 4 for script).

A *control* group of children did not see the induction clips; for them the procedure began with the test trials (see below).

Test trials

After the induction trials (or for the control group, after being invited to watch television), the child watched four *fact clips*, four *preference clips*, and four *behavior clips*.

Fact clips. In each of the four fact clips, a different actor seated in front of a plain, differently colored background held up a picture of a novel-looking animal or object and said a novel "fact" about it (where the animal lives or what it eats and what the object is called; see Figure 7 for pictures of animals and objects). For the bird, half the children

heard that it “likes to eat bees” and half heard that it “likes to eat mud.” For the fish, half the children heard that it “lives under the sand,” and half heard that it, “lives under rocks.” Half the children heard that the green drain stopper is called a “fep” and half heard that it is called a “labra.” Finally, half of the children heard that the yellow and blue scissors sharpener is called a “kip” and half heard that it is called a “gazzer.” At the end of each clip, the experimenter paused the video, reminded the child what the actor had said, and asked the child, e.g., “Do you think that it’s really called a fep or that it’s called something else?” The order of the facts presented and the response choices for each fact question (“really a fep” versus “called something else”) was counterbalanced across trials. The experimenter then asked how sure the child was about his/her answer, for example asking if he/she was “really, really sure it is called a fep, kind of sure it is called a fep, or not at all sure that it is called of fep.”

Figure 7. Novel objects and animals

Preference clips. The preference clips were four commercial-like endorsements of how exciting a particular food and a particular toy are (see Appendix 5 for video script). In each clip, an actor chose to eat (in the food clip) or play with (in the toy clip) one of two novel-looking foods or toys. After each clip, the experimenter stopped the video, presented the child with pictures of both of the foods or toys, and asked which the child would like to eat or play with. As with the fact questions, the experimenter asked the child to indicate on the confidence scale how sure he/she was of his/her choice after each trial.

The order of preference clip presentation and the particular toy and food endorsed was counterbalanced across children. Additionally, the order of presentation for fact and preference clips was also counterbalanced across children.

Behavior clips. In the four behavior clips, the child heard a clue about which of two boxes had a sticker inside. The experimenter introduced the behavior clips by saying, "Now we're going to play a game where you have to find a sticker hidden in a box. There's a sticker hidden in one of these boxes and you get to choose which box you want to look in. If you find the sticker, you get to take it home with you. I'll look in the other box; if I find the sticker, it's mine to keep." In each clip, a different actor with a differently colored curtain behind her told the child, for example, "You can find the sticker in the orange box." The actor always gave the *wrong* clue. After the clue, the experimenter paused the video and placed an orange box and a dark green box on the table, and invited the child to search for the sticker. If the child searched in the wrong box (i.e., the one named by the actor), the experimenter opened the other box and showed the

child the sticker. After the child saw which box the sticker was in, the experimenter invited the child to play again.

Because children received feedback on their choices in the behavior clips, these clips were always presented last. Left-right position of the boxes was counterbalanced across trials and color of box indicated by the actor for each color pair was counterbalanced across children.

Parent Survey

Parents of all children completed the parent survey (described above) before coming in to the lab or while their child was in the testing room.

Results

There were four trials of each of three question types: facts, preferences, and behavior. On each trial, children could indicate that they believed what the person on television said (by, e.g., deciding that the wooden block was really called a "fep," the clatterpillar really was the best toy, or that the sticker was in the orange box). Or children could disbelieve what the person on television said (by, e.g., deciding that the wooden block was called something else, the tubes were actually the best toy, or that the sticker was actually in the dark green box). (The term "endorse" will be used to describe children's behavior during the test trials: Children endorsed a television message when they indicated that they agreed with what the person on television was saying.) Preliminary analyses showed no effect of gender or test trial order; all data are collapsed across these variables.

Overall, the results showed that the 5-year-olds were skeptical of factual information but were persuaded by preference information. The 3-year-olds were

generally credulous; however, those in the experience condition showed some hints that they had learned to be skeptical of television messages.

Figure 8 shows the mean number of trials on which children endorsed the television messages (belief score) by age, condition, and question type.

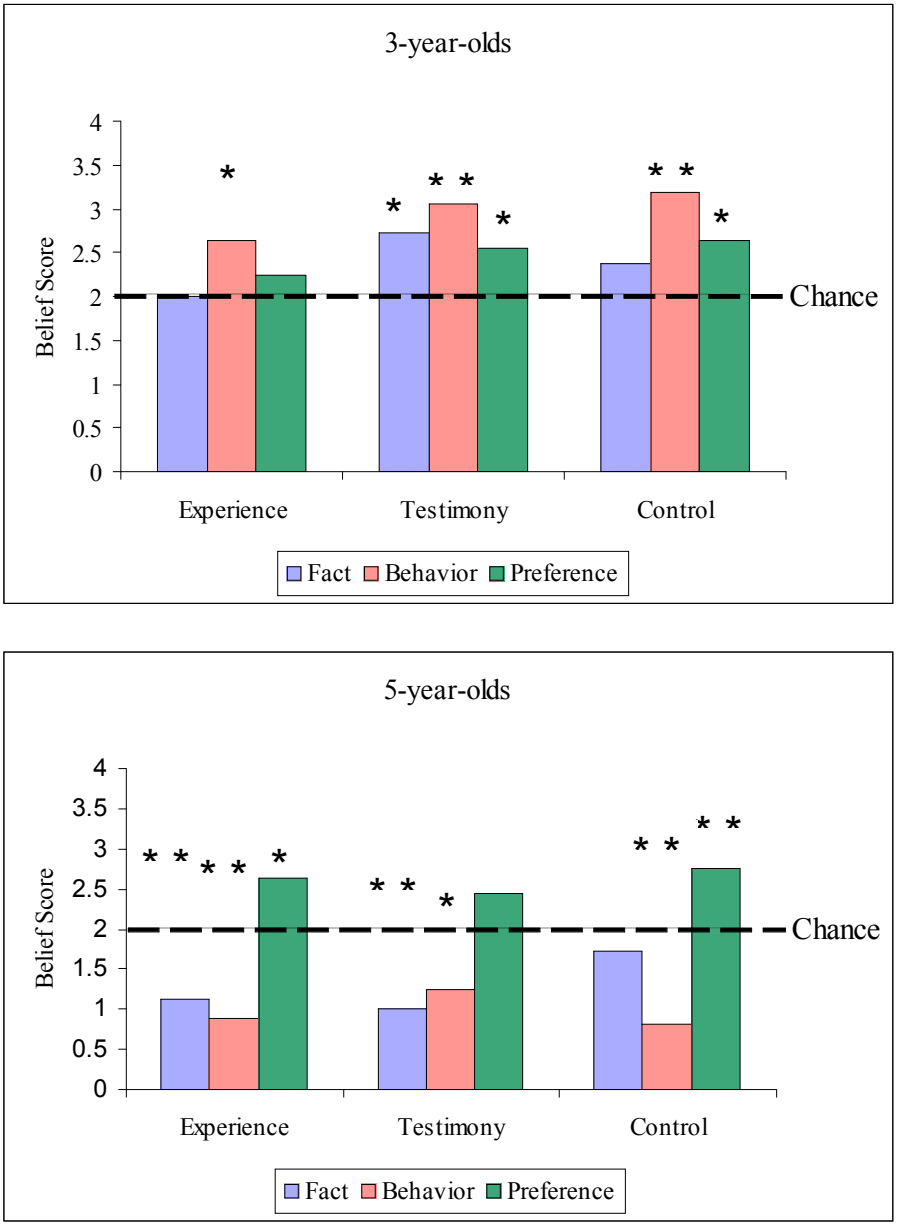


Figure 8. Belief score by condition (n=16) and question type. Stars indicate significantly different from chance: * $p < .05$, ** $p < .01$

A repeated measures 2 (3-year-olds and 5-year-olds) x 3 (experience, testimony, control) x 3 (fact, preference, behavior) mixed ANOVA with age and condition as between subjects factors and question type as a within subjects factor revealed an overall effect of age: 5-year-olds' belief scores were lower than those of the 3-year-olds $F(1,90) = 8.18$, $p < .01$. There was also a question type by age interaction such that 5-year-olds had lower belief scores than 3-year-olds on the *fact* and *behavior* trials, but not on the *preference* trials, $F(1,90) = 16.17$, $p < .001$. Thus, the 5-year-olds were generally less likely to endorse the television messages than were the 3-year-olds, and 5-year-olds were less likely to endorse *fact* and *behavior* messages than *preference* messages. Neither 3- nor 5-year-olds in the experimental conditions (experience and testimony) endorsed television messages any more or less often than did children in the control group.

The omnibus ANOVA showed no effect of condition; however, comparisons of performance against chance did reveal differences in the responses of children in the three conditions. Given that there were four trials for each question type and two answer alternatives, endorsing the television messages on two trials would constitute responding at the chance level.

To get an overall belief score indicating on how many trials children endorsed what the person on television said throughout the testing procedure, the data were collapsed across question type. This analysis revealed differences among the conditions, as shown in Figure 9.

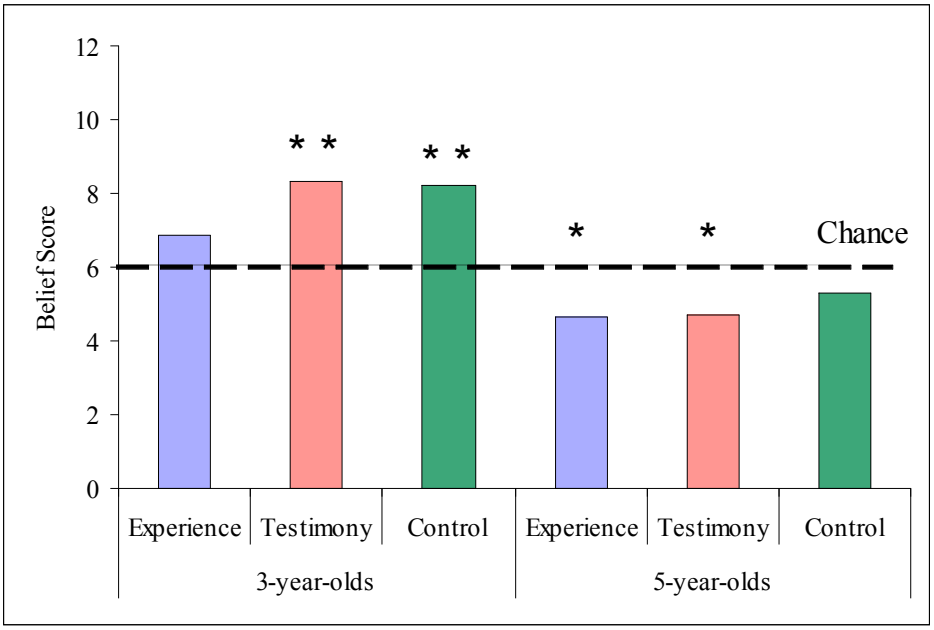


Figure 9. Belief score by age and condition. Stars indicate significantly different from chance: * $p < .05$, ** $p < .01$

Belief scores were above chance for 3-year-olds in the testimony and control conditions only, *t*'s (15) > 4.36, *p*'s < .001 and were below chance for 5-year-olds in the two experimental conditions *t*'s (15) > 2.34, *p*'s < .05. Thus, whereas 3-year-olds' responses were at chance in the experience condition, those in the testimony and control conditions endorsed the television messages. Furthermore, 5-year-olds rejected the television messages in the two experimental conditions, whereas in the control condition their responses were at chance.

As seen in Figure 8, chance comparisons also showed performance differences by question type similar to those found with the omnibus ANOVA. For example, 5-year-olds in all conditions made few mistakes in the sticker-finding game: they endorsed the *behavior* cue at below chance levels (i.e., they discounted the television message and

looked in the correct box to find the sticker on more trials than would be expected by chance), *t*'s (15) > 2.67, *p*'s < .05. Five-year-olds in the experimental conditions also rejected the television messages more often than would be expected by chance on the *fact* trials, *t*'s (15) > 3.22, *p*'s < .01. In contrast, the belief scores of 5-year-olds in the control group were not different from chance on the *fact* trials, *t* (15) = .82, *p* = .42. However, 5-year-olds did endorse the television messages on the *preference* trials: those in the experience and control group chose the same food or toy promoted in the television clip at above chance levels, *t*'s (15) > 2.44, *p*'s < .05; children in the testimony group did not differ from chance, *t* (15) = 1.52, *p* = .15. Thus, all 5-year-olds were skeptical of the behavior clues, and those in the experimental conditions were skeptical of factual information, yet none were skeptical of preference information.

The 3-year-olds endorsed the television message at levels higher than would be expected by chance, *t*'s (15) > 2.52, *p*'s < .05, with three exceptions: experience condition 3-year-olds' belief scores were at chance for *fact* and *preference* questions, and control 3-year-olds' scores were at chance for *fact* questions, *t*'s (15) < 1.19, *p*'s > .25. Thus, 3-year-olds in the experience condition were the only group that was not credulous of all the television messages. Surprisingly, those in the control group were also not convinced by the fact messages.

Confidence Levels

To indicate how confident they were of their answers to the fact and preference questions, children used a confidence scale adapted from Pillow, Hill, Boyce, and Stein (2000). Children could respond at the anchor points of "not at all sure" (frown face), "kind of sure" (flat-mouthed face), or "really, really sure" (smiley face), or at any point

on the scale between these points. There were 15 cm separating each anchor point with a numbered tick mark at each centimeter, thus scores ranged from -15 (“not at all sure”) to 0 (“kind of sure”) to 15 (“really, really sure”). All 3-year-olds and most 5-year-olds responded at an anchor point rather than on the scale between them, thus all responses not already at an anchor point were rounded to the nearest anchor.

Figure 10 shows children’s mean confidence levels by age, condition, and question type. A repeated measures 2 (3-year-olds and 5-year-olds) x 3 (experience, testimony, control) x 2 (fact, preference) mixed ANOVA with age and condition as between subjects factors and question type as a within subjects factor revealed an overall effect of age: 5-year-olds’ confidence scores were significantly higher than those of 3-year-olds, $F(1,90) = 4.71$, $p < .05$. Thus, 5-year-olds were significantly more confident in their answers to both question types than were 3-year-olds.

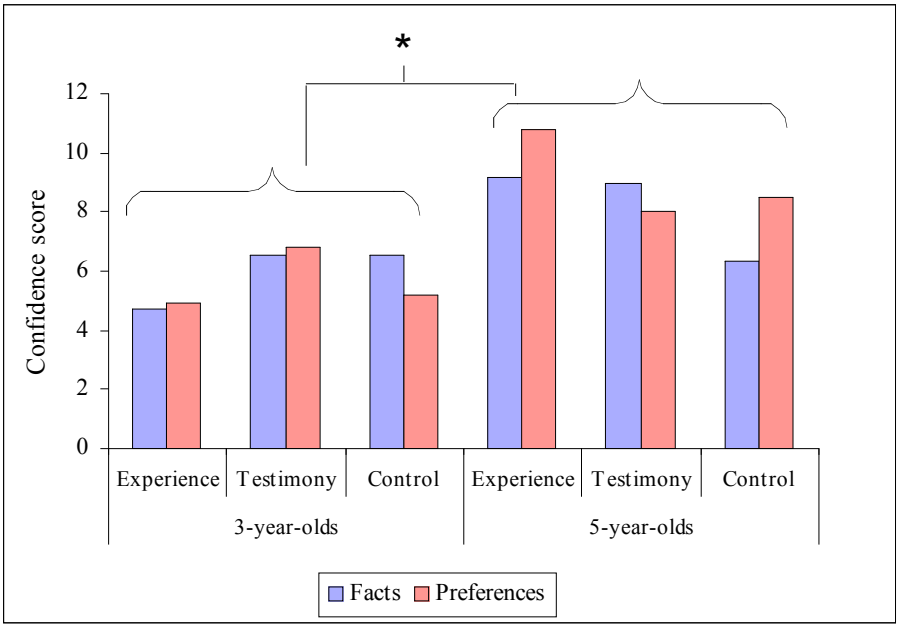


Figure 10. Level of confidence children felt in their responses to the fact and preference questions; confidence score of 0 = less confident to 12 = more confident. Star indicates difference significant at $p < .05$.

Individual Patterns

The goal of this study was to explore ways to teach preschoolers to be skeptical of what they hear on television. Accordingly, of primary interest were children's rejections of the television messages. Therefore, children were classified as "non-believers" if they endorsed what the people on television said on only 0 or 1 out of 4 trials in each question set, and were classified as "believers" if they endorsed what the people said on 2, 3, or 4 trials.

Figure 11 shows the number of 3- and 5-year-old non-believers and believers by condition and question type. The frequencies of non-believers and believers were compared to chance distribution using Chi-square analyses.

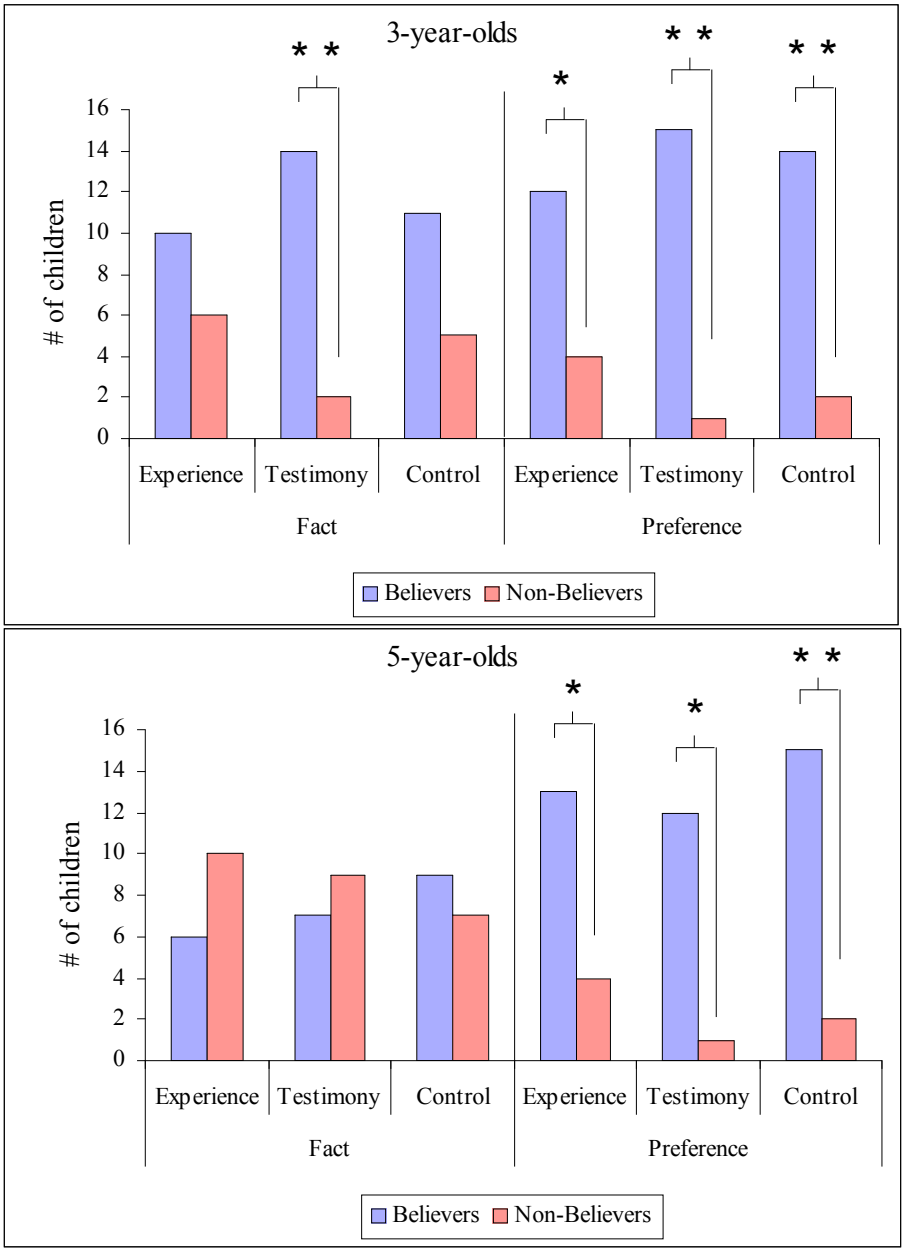


Figure 11. Number of "believers" and "non-believers" in each condition by question type. Stars indicate frequencies are significantly different from each other:

* $p < .05$, ** $p < .01$

The interaction between age and question type is also very clear when looking at the data in this way. On *preference* trials, for both 3- and 5-year-olds in all conditions,

there are significantly more believers than non-believers X^2's(1, N = 16) > 4.00, *p*'s < .05. However, for 3-year-olds on *fact* trials, there were more believers than non-believers in the testimony condition, $X^2(1, N = 16) = 9.00$, $p < .01$, whereas there was no difference in the number of believers and non-believers in the experience and control conditions, X^2's(1, N = 16) < 2.25, *p*'s > .13. Additionally, for the 5-year-olds on *fact* trials, the number of believers did not differ from the number of non-believers in any condition, X^2's(1, N = 16) < 1.00, *p*'s > .32.

In sum, the difference between number of believers and non-believers was most striking in the preference trials in which there were more children who endorsed the television messages than rejected them. In contrast, children were mostly evenly split between believers and non-believers on fact trials.

Behavior Trials

The *behavior* trials were different from the *fact* and *preference* trials in that children received feedback on the veracity of the television message on each trial: that is, they never found the sticker in the box indicated by the person on TV. Thus, additional ways to look at the behavior trials include the number of trials completed before children looked in the correct box for the first time, and whether or not children ever looked in the correct box.

All but one 5-year-old looked in the correct box on at least one trial. Furthermore, of the 47 five-year-olds who looked in the correct box at some point during the behavior trials, all but the three did so by the second trial. Those remaining three looked in the correct box on the third trial.

However, 3-year-olds' behavior on these trials differed by condition. Those in the experience condition completed significantly fewer trials (on average 2.38 trials) before looking in the correct box for the first time than did those in the testimony and control conditions (both 3.75 trials), $F(2,45) = 4.74$, $p < .05$. Furthermore, for 3-year-olds in the experience condition only, there were more children who looked in the correct box on at least one trial (n=16) than who did not ever look in the correct box (n=3), $X^2(1, N = 16) = 6.25$, $p < .05$. Thus, 3-year-olds more often came to discount the television message regarding the location of a sticker in the experience condition than in the testimony and control conditions.

Child Comments

Some children made interesting comments that illuminated their thinking process during the procedure. For example, after seeing the "magnet" induction clip, one 5-year-old in the experience condition said, "I think she's gonna be wrong. [Flipped jar over to see ball does not stand up.] She was wrong…they always tell us the wrong thing!" Another 5-year-old in the testimony condition said, "She was wrong...I think she was wrong because I never heard that if there's a string on the ball that…. she's really wrong. Because nothing can happen."

On *fact* trials some children in the experimental conditions commented about the people on television saying the wrong thing. For example, when asked whether he thought a novel-looking animal really ate mud, a 3-year-old in the experience condition said, "It eats something else. She was telling us the wrong thing."

However, during the *preference* trials many children referred to what they had seen on television to explain their responses. Both 3- and 5-year-olds made comments

such as “she was playing with that one” or “she was eating that one” as they pointed to which toy or food they thought was best. All these children told the experimenter that they wanted to play or eat with whichever toy or food the people on television chose. For example, when the experimenter asked one 5-year-old in the control condition, why she picked the nutrition cubes as the best food, she replied, “because she [the person on television] at some.”

Finally, when commenting on their thoughts during the procedure, children in the experimental conditions talked about learning that people on television sometimes say the wrong thing. For instance, when asked how he had made his decisions on the fact trials, a 5-year-old in the experience condition explained, “Sometimes they don’t say what’s true on TV.” Another 5-year-old in the experience condition explained how she knew where to find the stickers by saying, “because I know they’re wrong because everything else was wrong.”

Parent Data: TV Use in Household, Dogmatism, and Parenting Style

Appendix 6 contains a full descriptive report of the parent data. The children in this sample live in households with an average of 2.2 television sets, and they watch television on average several times a week. On what parents considered a typical day, children spend part of their day watching television (average 3.25 on a likert scale 1 = all or most of the day to 4 = no time at all). Overall, parents reported that when someone is home, the television is on less than half the time and is hardly ever on in the background (i.e., when someone is home but not specifically watching the television).

In response to questions about their children’s reactions to advertising, many parents wrote comments such as, “He wants the toys [advertised], also writes down

numbers to call to purchase items that ‘he can't live without’-pancake puffer pan, weed-eater/trimmer,” or “She recommends I use the product [advertised] or asks if we have credit card debt!” Many parents reported that their children are very much influenced by commercials and often want products they see advertised.

Some parents also described experiences their children have had finding out that something they saw on television was not true. For instance, one 3-year-old “tried to fly like a superhero and couldn’t.” Of parents who reported their child having such an experience, 61% of their stories involved the child discovering that advertised products were not exactly what they seemed to be in the commercial. For example, “She saw a [commercial for a] Barbie castle and was then VERY UPSET when the castle did not come with the Barbies,” “She was disappointed to find out that a doll does not actually talk. She insisted I was wrong when I explained and asked me to read the whole box to her--twice.” Some parents reported talking to their children about the purpose of commercials: “We talk over what she has seen. We talk about what the aim of the ad is and why it was made. We try to giver her a structure for asking critical questions about what she sees.” Some children discover things about commercials on their own: “When they [in commercials] say it will cost X, and they claim an additional item is FREE--he comments that it isn't really, because you have to spend X amount to get it in the first place. No coaching on this--he just picked up on his own.”

Parents also completed a 12-item questionnaire that assessed the degree to which they wanted to encourage critical thinking in their children (adapted from Pacini & Epstein, 1999). Examples of the questions were “I want to encourage my child to be a very analytical thinker,” and “I want to encourage my child to usually have clear,

explainable reasons for decisions." Parents responded on a likert scale with 1 being "definitely agree" to 5 being "definitely disagree." Thus lower scores indicated more encouragement of critical thinking, and higher scores indicated more encouragement of dogmatic thinking. The average level of agreement with the 12 items was 2: parents thus reported a relatively strong desire for their children to be critical thinkers.

Finally, parents completed a parenting style questionnaire (adapted from Reitman, Rhode, Hupp, & Altobello. 2002). The overwhelming majority of parents (92.7%) scored highest on the authoritative scale, 7.3% of parents were classified as using an authoritarian style, and none were using a permissive style.

Correlations were run between children's belief scores and two measures of how often children watch television (questions 1a and 7a), how often the television is on in the home (questions 5 and 6), the parents' dogmatism score, and the parenting style scores. Table 2 shows significant correlations among the child data and the parent-reported data. There were two interesting correlations between parent data and fact trial scores and two between parent data and preference trial scores.

	How often child watches TV	Authoritative parenting score
Fact trial score	0.35**	-0.31**

	How often TV is on	How often TV is on in the background
Preference trial score	-0.21*	-0.26*

* $p < .05$, ** $p < .01$

Table 2. Correlations of parent-reported data with fact and preferences trials

In sum, the more television children watch and the less authoritative their parents are, the higher children scored on the fact questions. In addition, the more the television is on in children's homes (both when someone is watching it and when it is just on specifically in the background), the lower children scored on the preference questions.

Discussion

Overall, 3-year-olds were more credulous of television messages than were 5-year-olds. In general, 3-year-olds believed what they heard on television, whereas 5-year-olds were skeptical of factual and behavioral assertions, but were persuaded by commercial-like messages. Five-year-olds in both of the experimental conditions were the strongest skeptics of factual information, and the 3-year-olds in the experience condition were the only group of younger children whose behavior hinted that they might have learned to be skeptical.

Fact Trials – Connections to Prior Testimony Research

Previous research on children's learning from reliable and unreliable informants shows that 3- and 4-year-olds can discount information from someone they think has been unreliable in the past (e.g., Birch, Vauthier, & Bloom, 2008; Clement, Koenig, & Harris, 2004; Koenig, Clement, & Harris, 2004; Scofield & Behrend, 2008). Thus, 5-year-olds should be able to reject factual information from someone who they think is unreliable, and they did in the present research. However, the 3-year-olds failed to discount factual information even after learning that the informants were unreliable. Their failure was likely due to the fact that, for several reasons, the task for the current study required more sophisticated reasoning than those generally used in the testimony research. First, in typical paradigms in the testimony research, children choose to endorse

one of two informants who provide conflicting information (e.g., one informant calls a novel object a "fep" and the other calls the same object a "gazzer;" e.g., Jaswal & Neely, 2006). In the current study, children did not choose which of two informants was correct, but rather whether to trust the information from a single informant. It may have been difficult for the 3-year-olds to reject information outright without the option of accepting a competing claim.

A second difference between this and previous testimony research is that the current study used a different kind of reliability induction. Whereas reliability is typically induced by having two people label familiar objects correctly or incorrectly, in the current research children learned that informants were unreliable from discovering that they provided misleading information about the outcome of a sequence of actions. The preliminary studies reported here offer another example of reliability being induced by something other than labeling familiar objects: In those studies, children heard about the informants' reliability from a third party. The induction used in the testimony condition of the current study parallels that of preliminary Study 2: in both, children heard that an informant says the "wrong thing." In both the preliminary study and the current study, 3-year-olds had difficulty discounting information from the unreliable informant. Moreover, the induction used in the experience condition of the current study paralleled that of the induction used in preliminary Study 3: children experienced or observed for themselves that an informant was saying the wrong thing, and heard from an adult that that informant was unreliable. As in preliminary Study 3 in which 3-year-olds did discount the unreliable informant's information, 3-year-olds in the experience condition

were the only ones who showed any hint of learning to be skeptical of the television messages.

A related point to that outlined above is that not only was the nature of the induction itself new, but the relationship between the reliability induction and the test trials was also different in the current study than in previous research. That is, informants' reliability is typically induced by their labeling familiar objects during familiarization, and test trials consist of the informants labeling novel objects (Clement, Koenig, & Harris, 2004; Jaswal & Neely, 2006; Koenig, Clement, & Harris, 2004; Scofield & Behrend, 2008). There are a few studies in which children were tested in a domain that was different than the one used for the reliability induction. For example, in research by Birch, Vauthier, and Bloom (2008), 3- and 4-year-olds' preference for the previously reliable informant extended to information regarding the functions of novel objects in addition to their labels. Yet, object functions and object labels are still relatively close in domain of information: they are both facts about novel objects (what the object is called and what it does). In the current study, the domain in which children learned that the informants were unreliable was different than the domains in which they were tested. That is, the inductions involved the successful performance of a sequence of actions, whereas the tests involved facts, preferences, and behavioral cues. Thus, it may have been difficult for 3-year-olds to cross domains and see the relevance of what they experienced during the induction trials for what they were then tested on.

Finally, one other way in which the current procedure differed from other testimony procedures was that the speaker on every induction and test trial was a different individual. In previous research, children learned about the reliability of a

specific person, whereas here children learned about a category of people: people who are on television. Generalizing this lesson to a whole group might have added to the difficulty of the task.

Each of the issues discussed above could explain why there was no effect of condition in the omnibus ANOVA, in that multiple factors could have increased the difficulty of generalizing unreliability from the induction to the test trials. Another possible reason for the lack of condition effects was that the 5-year-olds in the control group were more skeptical of factual information than was expected. It is possible that the control group happened by chance to contain particular 5-year-olds who were generally skeptical of new information.

Preference Trials – the Power of Commercials

The result that children in all conditions were persuaded by the preference trials is a testament to the effectiveness of commercials. Although the clips used in the current study were professionally filmed and edited, their production value did not come near that of commercials on television – yet they were still quite powerful messages.

One possible reason that the preference trials were such powerful messages is that whereas facts are either true or false, preferences can never be right or wrong, because they are entirely subjective. Thus, discounting someone's preference as wrong or misleading may be particularly unlikely. This in and of itself could be a reason for why commercials are so effective. Indeed, one 3-year-old explained why he chose the food that the person on television was eating by saying, "She's eating it, she likes it." It could be that someone who buys an advertised product will end up thinking that it really is wonderful. Thus, it can be hard, even for adults, to remember that even though the claims

in a commercial might not be wrong per se, they may be exaggerated, misleading, or irrelevant to one's own specific needs.

Furthermore, since people cannot be "wrong" in their preferences, the induction in which children learned that people on television sometimes say the wrong thing may not have been seen as relevant to the preference claims. An induction in which children learn more nuanced information about what commercials are and why people in them sometimes say the wrong thing might be more effective in helping children learn to think critically about commercial information.

Behavior Trials – the Need for Feedback

The third type of test trial – behavioral clues – was designed to test the extent to which television messages can directly affect behavior choices. These trials differed from the fact and preference trials because children received feedback on the validity of the television speaker's clue on each trial (i.e., that she was not being truthful about the location of a sticker). The main effect for these trials was an age difference: 5-year-olds easily figured out the rule of the game, whereas 3-year-olds did not. Furthermore, 5-year-olds figured out that they should look in the opposite box than the one indicated by the person on television very quickly, most often looking in the correct box by the second trial. There are at least two possible reasons for 3-year-olds' trouble with this task. The first is that their failure to discount the clue heard on television is due to a lack of inhibitory control. They heard, for example, "look in the orange box," and were not able to inhibit their resulting inclination to look in that box long enough to remember or realize that it might actually be in the other box. In support of this hypothesis, few 3-year-

olds showed any surprise to not find the sticker in the box indicated by the person on television, and they very quickly looked in the other box.

Another possibility that could explain the 3-year-olds' general level of credulity throughout the trials is that 3-year-olds might have a stronger assumption that people provide truthful information than do 5-year-olds. It could be that 5-year-olds have more experience finding out that sometimes people say things that are not true or have a better understanding of saying false things themselves (e.g., through lying, making mistakes, or other ways).

Although overall 3-year-olds were not successful on the behavior trials, those in the experience condition were the most successful at finding stickers: they needed feedback from fewer trials before looking in the correct box than those in the other two conditions. The experience condition was also the only one in which more children looked in the correct box at some point during the game than never did at all. This could be an indication that intensive scaffolding and feedback (here children received feedback on their decisions with every trial) might help 3-year-olds understand, remember, and apply the lesson to critically think about the information they get from television.

Promoting Media Literacy

As discussed in the introduction, although children can and do learn positive things from watching television, they can also be negatively influenced by television's messages. Thus, the experimental inductions were designed to explore two ways in which children might learn to be appropriately skeptical of what they hear on television. It is difficult to draw firm conclusions regarding the effects of the experimental inductions, but there is reason for some speculation. Children's behavior did not differ by condition.

However, when children's behavior in each condition was compared to chance, some interesting differences emerged. The 3-year-olds in the experience condition were the only ones whose overall belief scores were *not* above chance. Furthermore, 5-year-olds in the experience and testimony conditions only believed the television messages at a level below chance. Thus, as a group, 3-year-olds were credulous in the testimony and control conditions, but were not in the experience condition. And, 5-year-olds were skeptical in both experimental conditions, but were not skeptical in the control condition. As discussed earlier, these results make sense in light of the preliminary studies. In preliminary Studies 1 and 2, and the current study's testimony condition, 3-year-olds did not use third party testimony to judge informants' reliability, whereas 5-year-olds did. However, in preliminary Study 3 and in the experience condition in the current study, 3-year-olds did discount information from an unreliable informant when testimony was combined with evidence that the informant was unreliable.

Although many 3-year-olds were relatively credulous of whatever the person on television said, some understood the induction lesson. Two 3-year-olds in the experience condition, for example, shouted, "she said the wrong thing!" as soon as they saw that the experiment did not work. In addition, some responses of 3-year-olds in the experience condition differed from those of the 3-year-olds in the other two conditions, as previously discussed. Thus there were small clues from the experience condition 3-year-olds that provide some encouragement for success from a media literacy curriculum that is more intensive and more directly relevant to the areas in which children should be skeptical than were the current inductions. Children, for example, could watch multiple commercials and then actually test out the veracity of the claims with the products.

Adults facilitating the project could also help guide children to understand that the claims made on the commercial are often exaggerated to encourage people to buy the product.

The behavior of 5-year-olds was more suggestive of there being a possibility to teach preschoolers to be savvy media consumers. Their relative willingness to be skeptical of factual information suggests that discussing the truthfulness of people on television may be a good place to start teaching them about the possibility that television messages are sometimes misleading or false. However, even 5-year-olds' eagerness to agree with the people on television during preference trials shows that it will be harder to teach them to be skeptical of commercial messages. One particular 5-year-old in the experience condition illustrated very clearly the difference between learning to be skeptical of factual information versus preference information. He clearly understood the induction lesson, even saying, "The persons [on TV] are always going to be wrong, I think," before trying the magnet experiment. When asked why he did not believe what the people on television said for fact trials, he said, "I did not want to listen to her because she was wrong." However, when asked why he picked the same toys and foods as those endorsed during the preference trials, he said, "Because it was the one she thought was good." Thus, as with 3-year-olds, 5-year-olds might benefit from intensive and directly relevant training regarding what commercials are and why they might be misleading.

In sum, the differences in responses of the 3- and 5-year-olds in the current research suggest that 5-year-olds are more likely to be skeptical than are 3-year-olds. Therefore, it could be more challenging to teach 3-year-olds to think critically about

television messages than to teach 5-year-olds to do the same. Any successful media literacy curriculum for 3-year-olds would most likely need to be heavily based on direct experience. On the other hand, 5-year-olds may benefit from their parents talking to them about television and its messages, as some parents in the current sample reported doing. Therefore, media literacy curricula for 5-year-olds might include conversations about how to be critical media consumers as well as hands-on experiences.

Relationships with Home Environment

In general, there was very little variation in the parent reports. Most parents reported that they very much encouraged critical thinking in their children, were authoritative in their parenting style, and that their children watched television several times a week for a small part of the day. This lack of variation, in addition to a relatively small sample size, did not allow for many significant correlations. Thus, it is possible that there are relationships between these parent-reported variables and children's propensity to be skeptical of television messages that were not captured with this data set. However, as predicted, authoritative parenting style was negatively correlated with fact belief scores. That is, the more parents said they encouraged questioning and critical thinking, the less likely their children were to accept the televised assertions as true.

Furthermore, the more television children watched, the more likely they were to believe the factual information. This result is consistent with the concept of social realism discussed in the introduction: the more television children watch, the more likely they are to think that television is a valid and accurate representation of the world.

Unexpectedly, however, the frequency of having the television on in the home, both while being watched and while only in the background, was negatively correlated

with preference belief scores. That is, the more the television is on in their homes, the less likely children were to agree with the toy or food choices promoted in the television clips. One possible explanation for this is that children with more experience watching television have more experience with commercials and thus more experience with comparing their own preferences to those they see advertised. This explanation seems unlikely, however, given that no previous research has found that children who watch more television are more apt to understand and resist commercials.

Conclusions

The goal of this research was to explore ways to encourage young children to think critically about television messages. One way to start doing so is to introduce preschoolers to the idea that not everything on television is necessarily an accurate or relevant representation of the world. In the current study, 3- and 5-year-olds learned that sometimes people on television do not say the right thing in one of two ways: in the *experience* condition, children discovered for themselves that two science experiments demonstrated on television did not actually work, and in the *testimony* condition, children heard from the experimenter that the science experiments did not work. A control group of children did not see the science experiments. Then, all children indicated whether they believed further information provided by different actresses in television clips.

A first look at the results suggests that the children did not learn from their induction experiences: There was no effect of condition in the omnibus ANOVA. However, a closer look reveals a more nuanced picture. The lack of condition effect was likely due, at least in part, to the responses from the control group. Although they had no reason to disbelieve the assertions made by the people on television, the control children,

unexpectedly, were not credulous of the factual information. It is possible that for various reasons, this group of children was particularly skeptical and was not representative of the population. Indeed, parents who bring their children into the lab to participate in studies are often of middle to upper SES and are not representative of the full variability of families in America. For instance, children of lower SES families tend to believe in the factuality of television longer than children of higher SES families (see Background section), thus they might be more likely to be credulous of the factual information they hear on television.

Furthermore, chance comparisons did reveal learning in the experimental conditions. Five-year-olds were skeptics in the experience and testimony conditions, but not in the control condition, and 3-year-olds were *not* credulous in the experience condition, but were in the testimony and control conditions. Thus, there is evidence that the children did learn something from their experiences finding out that something they saw on television was not true.

In addition, this study provides a very conservative measure of children's ability to learn to be skeptical of television messages. As discussed earlier in this section, the induction and test trials were very different; thus the compatibility between what children learned and what they were then tested on was very low. If children learn that people do not always say the right thing on television by, for example, watching a commercial and then discovering that the commercial's claims are not actually true, they might be more likely to learn to be skeptical of further commercial-like television messages. Further research can explore how to enhance this learning by perhaps making the inductions more directly relevant to the lesson being taught.

In conclusion, even 3-year-olds showed some promise in learning to be skeptical of television messages after finding out that sometimes people on television do not say the right thing. A media literacy curriculum that teaches preschoolers to critically evaluate both the implicit and explicit messages they see and hear on television programs could make it less likely that they would incorporate those messages into their knowledge base and behavior choices. However, even 5-year-olds who readily rejected factual and behavioral clues were still persuaded by simple commercial-like messages. A media literacy program that aims to teach children about advertising in particular, will likely need to be rich with specific, intensive discussion regarding the importance of being skeptical of commercial information. For younger children especially, a good deal of direct experience learning about and evaluating commercial messages would probably be essential. As discussed in the introduction, given the ubiquity of media in the lives of even very young children, it is imperative that we continue exploring ways to equip children with tools with which to navigate their media-saturated world.

References

Adler, R.P., Lesser, G.S., Merengoff, L., Robertson, T., Rossiter, J., & Ward, S. (1977). *Research on the effects of television advertising to children: A review of the literature and recommendations for future research.* Washington, DC: U.S. Government Printing Office.

Aloise-Young, P. A. (1993). The development of self-presentation: Self-promotion in 6- to 10-year-old children. *Social Cognition, 11*(2), 201-222.

American Academy of Pediatrics, Committee on Public Education. Media education. *Pediatrics*. 1999;104:341–342

American Academy of Pediatrics, Committee on Public Education. Children, adolescents, and television. *Pediatrics*. 2001;107:423–426

Anderson, D. R., Bryant, J., Wilder, A., Santomero, A., Williams, M., & Crawley, A.M. (2000). Researching Blue's Clues: Viewing behavior and impact. *Media Psychology, 2*(2), 179-194.

Anderson, C.A., & Bushman, B.J. (2001). Effects of violent video games on aggressive behavior, aggressive cognition, aggressive affect, physiological arousal, and prosocial behavior: A meta-analytic review of the scientific literature. *Psychological Science, 12,* 353-359.

Anderson, D. R., Huston, A. C., Schmitt, K. L., Linebarger, D. L., & Wright, J. C. (2001). Early childhood television viewing and adolescent behavior: The recontact study. *Monographs of the Society for Research in Child Development, 66*, vii-147.

Anderson, J. A., & Ploghoft, M. E. (1993). Children and media in media education. In G. L. Berry, J. K. Asamen, G. L. Berry & J. K. Asamen (Eds.), *Children & television: Images in a changing sociocultural world.* (pp. 89-102). Thousand Oaks, CA US: Sage Publications, Inc.

Arnas, Y.A. (2006). The effects of television food advertisement on children's food purchasing requests. *Pediatrics International, 48*(2), 138-145.

Atkin, C. (1978). Observation of parent-child interaction in supermarket decision-making. *Journal of Marketing, 42,* 41-45.

Atkin, C., & Gibson, W. (1978). *Children's nutrition learning from television advertising.* East Lansing: Michigan State University, Department of Communication.

Atkin, C. & Heald, G. (1977). The content of children's toy and food commercials. *Journal of Communication, 27*(1), 107-114.

Austin, E. W. (1993). Exploring the effects of active parental mediation of television content. *Journal of Broadcasting & Electronic Media, 37*(2), 147-158.

Austin, E. W. (2001). Effects of family communication on children's interpretation of television. In J. Bryant, J. A. Bryant, J. Bryant & J. A. Bryant (Eds.), *Television and the American family (2nd ed.).* (pp. 377-395). Mahwah, NJ US: Lawrence Erlbaum Associates Publishers.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A., Ross, D., & Ross, S. A. (1963). Imitation of film-mediated aggressive models. *Journal of Abnormal & Social Psychology, 66,* 3-11.

Banerjee, R. (2002). Children's understanding of self-presentational behavior: Links with mental-state reasoning and the attribution of embarrassment. *Merrill-Palmer Quarterly, 48*(4), 378-404.

Bannon, K., & Schwartz, M. B. (2006). Impact of nutrition messages on children's food choice: Pilot study. *Appetite, 46*(2), 124-129.

Barcus, F.E. (1980). The nature of television advertising to children. In E. Palmer & A. Dorr (Eds.) *Children and the faces of television* (pp. 273-285). New York: Academic Press.

Batada, A., & Borzekowski, D. (2008). Snap! Crackle! What? *Journal of Children & Media, 2*(1), 19-36.

Beuf, A. (1974). Doctor, lawyer, household drudge. *Journal of Communication, 24,* 142-145.

Bijmolt, T. H. A., Claassen, W., & Brus, B. (1998). Children's understanding of TV advertising: Effects of age, gender, and parental influence, *Journal of Consumer Policy, 21,* 171-195.

Birch, S. A. J., Vauthier, S. A., & Bloom, P. (2008). Three- and four-year-olds spontaneously use others' past performance to guide their learning. *Cognition, 107*(3), 1018-1034.

Bjurstrom, E. (1994). *Children and television advertising.* Vallingby, Sweden: Konsumentverket.

Blosser, B. J., & Roberts, D. F. (1985). Age differences in children's perceptions of message intent: Responses to TV news, commercials, educational spots, and public service announcements. *Communication Research, 12*(4), 455-484.

Bolton, R. N. (1983). Modeling the impact of television food advertising on children's diets. *Current Issues and Research in Advertising, 6*(1), 173-199.

Borzekowski, D. L. G., & Robinson, T. N. (2001). The 30-second effect: An experiment revealing the impact of television commercials on food preferences of preschoolers. *Journal of the American Dietetic Association, 101*(1), 42-46.

Brody, G. H., Stoneman, Z., Lane, T. S., & Sanders, A. K. (1981). Television food commercials aimed at children, family grocery shopping, and mother-child interactions. *Family Relations, 30*(3; 3), 435.

Brown, D.A. (2001). Media literacy and critical television viewing in education. In D.G. Singer & J.L. Singer (Eds.), *The handbook of children and media* (pp. 681-697). Thousand Oaks, CA: Sage.

Brown, J.A. (1991). *Television "critical viewing skills" education: Major media literacy projects in the United States and selected countries.* Hillsdale, NJ: Erlbaum.

Brucks, M., Armstrong, G. M., & Goldberg, M. E. (1988). Children's use of cognitive defenses against television advertising: A cognitive response approach. *Journal of Consumer Research, 14*(4), 471-482.

Buckingham, D. (2003). *Media education. Literacy, learning, and contemporary culture.* Cambridge, UK: Polity Press.

Buijzen, M. (2007). Reducing children's susceptibility to commercials: Mechanisms of factual and evaluative advertising interventions. *Media Psychology, 9*(2), 411-430.

Buijzen, M., & Valkenburg, P. M. (2003a). The effects of television advertising on materialism, parent-child conflict, and unhappiness: A review of research. *Journal of Applied Developmental Psychology, 24*(4), 437-456.

Buijzen, M., & Valkenburg, P. M. (2003b). The unintended effects of television advertising: A parent-child survey. *Communication Research, 30*(5), 483-503.

Buijzen, M., & Valkenburg, P. M. (2005). Parental mediation of undesired advertising effects. *Journal of Broadcasting & Electronic Media, 49*(2), 153-165.

Buijzen, M., & Valkenburg, P. M. (2008). Observing purchase-related parent-child communication in retail environments: A developmental and socialization perspective. *Human Communication Research, 34*(1), 50-69.

Bushman, B.J. & Anderson, C.A. (2001). Media violence and the American public: Scientific fact versus media misinformation. *American Psychologist, 56,* 477-489.

Bushman, B.J. & Huesmann, L.R. (2001). Effects of television violence on aggression. In D.G. Singer & J.L. Singer (Eds.), *Handbook of children and the media*(pp. 223-254). Thousand Oaks, CA: Sage.

Bussey, K. (1992). Lying and truthfulness: Children's definitions, standards, and evaluative reactions. *Child Development, 63*(1), 129-137.

Butter, E. J., Popovich, P. M., Stackhouse, R. H., & Garner, R. K. (1981). Discrimination of television programs and commercials by preschool children. *Journal of Advertising Research, 21*(2), 53-56.

Cantor, J. (1981). Modifying Children's eating habits through television ads: Effects of humorous appeals in a field setting. *Journal of Broadcasting, 25,* 37-47.

Caron, A., & Ward, S. (1975). Gift decisions by kids and parents. *Journal of Advertising,*

15(4), 12-20.

Certain, L. K., & Kahn, R. S. (2002). Prevalence, correlates, and trajectory of television viewing among infants and toddlers. *Pediatrics, 109*(4), 634.

Chamberlain, L. J., Wang, Y., & Robinson, T. N. (2006). Does children's screen time predict requests for advertised products? Cross-sectional and prospective analyses. *Archives of Pediatrics & Adolescent Medicine, 160*(4), 363-368.

Chan, K. (2000). Hong Kong children's understanding of television advertising. *Journal of Marketing Communications, 6*(1), 37-52.

Chernin, A. (2008). The effects of food marketing on children's preferences: Testing the moderating roles of age and gender. *Annals of the American Academy of Political and Social Science, 615*(1), 102-118.

Christ, W. G., & Potter, W. J. (1998). Media literacy, media education, and the academy. *Journal of Communication, 48*(1), 5.

Clément, F., Koenig, M., & Harris, P. (2004). The ontogenesis of trust. *Mind & Language, 19*(4), 360-379.

Coady, C. A. J. (1992). *Testimony: A philosophical study*. Oxford: Oxford University Press.

Collins, J., Tonnessen, E.S., Barry, A.M., & Yeates, H. (1992). Who's afraid of the big bad box? Children and advertising in four countries. *Educational Media International, 29*(4), 254-260.

Comstock, G., & Paik, H. (1991). *Television and the American Child*. New York: Academic Press.

Coon, K. A., & Tucker, K. L. (2002). Television and children's consumption patterns. A review of the literature. *Minerva Pediatrica, 54*(5), 423-436.

Cortés, C. E. (2005). How the media teach. In G. Schwarz & P. U. Brown (Eds.), *Media literacy: Transforming curriculum and teaching.* (pp. 55-73). Malden, MA US: Blackwell Publishing.

Dealing with Marketing: What Parents Can Do. Media Awareness Network. Retrieved November 28, 2008, from http://www.media-awareness.ca/english/parents/marketing/dealing_marketing.cfm

DeLoache, J. S., & Chiong, C. (in press). Babies and baby media. *American Behavioral Scientist.*

DeLoache, J.S, Chiong, C., Vanderborght, M., Sherman, K., Islam, N., Troseth, G.L., et al. (2008). *Do babies learn from baby media?* Manuscript submitted for publication.

DeLoache, J.S., Pierroutsakos, S.L., Uttal, D.H., Rosengren, K.S., & Gottlieb, A. (1998). Grasping the nature of pictures. *Psychological Science, 9,* 205-210.

Dietz, W. (1990). You are what you eat – What you eat is what you are. *Journal of Adolescent Health Care, 11*(1), 76-81.

Dixon, H. G., Scully, M. L., Wakefield, M. A., White, V. M., & Crawford, D. A. (2007). The effects of television advertisements for junk food versus nutritious food on children's food attitudes and preferences. *Social Science & Medicine, 65*(7), 1311-1323.

Dixon, T. L., & Linz, D. (2002). Television news, prejudicial pretrial publicity, and the depiction of race. *Journal of Broadcasting & Electronic Media, 46*(1), 112-136.

Donnerstein, E., Slaby, R.G., & Eron, L.D. (1994). The mass media and youth aggression. In L.D. Eron, J.H. Gentry, & P. Schlegel (Eds.), *Reason to hope: A psychosocial perspective on violence and youth* (pp. 219-250). Washington, DC: American Psychological Association.

Dorr, A. (1980). When I was a child, I thought as a child. In S. Withey & R. Abeles (Eds.) *Television and social behavior: Beyond violence and children* (pp. 191-230). Hillsdale, NJ: Lawrence Erlbaum Associates.

Dorr, A., Graves, S.B., & Phelps, E. (1980). Television literacy for young children. *Journal of Communication, 30*(3), 71-83.

Dorr, A., Kovaric, P., & Doubleday, C. (1990). Age and content influences on children's perceptions of the realism of television families. *Journal of Broadcasting & Electronic Media, 34*, 377-397.

Eagle, L. (2007). Commercial media literacy: What does it do, to whom--and does it matter? *Journal of Advertising, 36*(2), 101-110.

Elliot, W. R., & Slater, D. (1980). Exposure, experience, and perceived TV reality for adolescents. *Journalism Quarterly, 57,* 409-414.

Eron, L. D., Huesmann, L. R., Lefkowitz, M. M., & Walder, L. O. (1972). Does television violence cause aggression? *American Psychologist, 27*, 253-263.

Espejo, E., & Miller, P. (2006, July). Conference report. In R. Pineda, B. Kennedy, & T. Lempert (Eds.) *Children Now conference on the future of children's media: Advertising.* Oakland, CA. Retrieved from http://publications.childrennow.org/publications/media/conferencereport_advertising_2007.cfm

Feshbach, S., Feshbach, N. D., & Cohen, S. E. (1982). Enhancing children's discrimination in response to television advertising: The effects of psychoeducational training in two elementary school-age groups. *Developmental Review, 2*(4), 385-403.

Feuerstein, M. (1999). Media literacy in support of critical thinking. *Journal of Educational Media, 24*(1), 43.

Fisch, S. M. (2004). *Children's learning from educational television: Sesame street and beyond.* Lawrence Erlbaum Associates Publishers.

Fischer, P. M., Schwartz, M. P., Richards, J. W., Goldstein, A. O., & Rojas, T. H. (1991). Brand logo recognition by children aged 3 to 6 years. Mickey Mouse and old Joe the Camel. *The Journal of the American Medical Association, 266*(22), 3145-3148.

Flavell, J. H., Flavell, E. R., Green, F. L., & Korfmacher, J. E. (1990). Do young children think of television images as pictures or real objects? *Journal of Broadcasting & Electronic Media, 34*, 399-419.

Freire, P. (1998). *Pedagogy of freedom: Ethics, democracy, and civic courage.* New York: Rowman & Littlefield.

Frideres, J. (1973). Advertising, buying patterns, and children. *Journal of Advertising Research, 13,* 34-36.

Frueh, T., & McGhee, P. E. (1975). Traditional sex role development and amount of time spent watching television. *Developmental Psychology, 11*(1), 109-109.

Galst, J. P., & White, M. A. (1976). The unhealthy persuaders: The reinforcing value of television and children's purchase-influencing attempts at the supermarket. *Child Development, 47*(4; 4), 1089-1096.

Gilbert, D.T. (1991). How mental systems believe. *American Psychologist, 46,* 107-119.

Goldberg, M. E. (1990). A quasi-experiment assessing the effectiveness of TV advertising directed to children. *Journal of Marketing Research, 27*(4), 445-454.

Goldberg, M. E., Gorn, G. J., & Gibson, W. (1978). TV messages for snack and breakfast foods: Do they influence children's preferences? *Journal of Consumer Research, 5*(2), 73-81.

Gorn, G. J., & Goldberg, M. E. (1977). The impact of television advertising on children from low income families. *Journal of Consumer Research, 4*(2), 86-88.

Gorn, G. J., & Goldberg, M. E. (1980). Children's responses to repetitive television commercials. *Journal of Consumer Research, 6*(4), 421-424.

Gorn, G. J., & Goldberg, M. E. (1982). Behavioral evidence of the effects of televised food messages on children. *Journal of Consumer Research, 9*(2), 200-205.

Greenberg, B., & Brand, J. (1993). Television news and advertising in the schools: The "Channel One" controversy. *Journal of Communication, 43*(1), 143-151.

Grice, H. P. (1975). Logic and conversation. In P. Cole & J. L. Morgan (Eds.), *Syntax and semantics, Volume 3: Speech acts* (pp. 41–58). New York: Academic Press.

Gunter, B., Oates, C., & Blades, M. (2005). *Advertising to children on TV: Content, impact, and regulation*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Gussow, J. (1973). "It even makes milk a dessert": A report on the counternutritional messages of children's television advertising. *Clinical Pediatrics, 12*(2), 68-71.

Harrison, K., & Marske, A. L. (2005). Nutritional content of foods advertised during the television programs children watch most. *American Journal of Public Health, 95*(9), 1568-1574.

Hawkins, R. P. (1977). The dimensional structure of children's perceptions of television reality. *Communication Research, 4*, 299-320.

Henriksen, L. (1996). Naive theories of buying and selling: Implications for teaching critical-viewing skills. *Journal of Applied Communication Research, 24*(2), 93.

Hite, C. F., & Hite, R. E. (1995). Reliance on brand by young children. *Journal of the Market Research Society, 37*(2), 185-193.

Hobbs, R., & Frost, R. (2003). Measuring the acquisition of media-literacy skills. *Reading Research Quarterly, 38*(3), 330-355.

Horgen, K.B., Choate, M., & Brownell, K.D. (2001). Television food advertising: Targeting children in a toxic environment. In D.G. Singer & J.L. Singer (Eds.), *The handbook of children and media* (pp. 447-462). Thousand Oaks, CA: Sage.

Horovitz, B. (2006, November 21). Six strategies marketers use to get kids to want stuff *bad. USA Today*. Retrieved November 26, 2008, from http://www.usatoday.com

Huesmann, L. R. (1986). Psychological processes promoting the relation between exposure to media violence and aggressive behavior by the viewer. *Journal of Social Issues, 42*, 125-139.

Huesmann, L. R., Lagerspetz, K., & Eron, L. D. (1984). Intervening variables in the TV violence-aggression relation: Evidence from two countries. *Developmental Psychology, 20*, 746-775.

Huesmann, L. R., & Malamuth, N. M. (1986). Media violence and antisocial behavior: An overview. *Journal of Social Issues, 42*(3), 1-6.

Huston, A. C., Donnerstein, E., Fairchild, H. H., Feshbach, N. D., Katz, P. A., Murray, J. P., et al. (1992). *Big world, small screen: The role of television in American society*. Lincoln, NE: University of Nebraska Press.

Huston, A. C., & Wright, J. C. (1998). Mass media and children's development. In W. Damon, I. E. Sigel, K. A. Renninger, W. Damon, I. E. Sigel & K. A. Renninger (Eds.), *Handbook of child psychology, 5th ed. vol 4: Child psychology in practice.* (pp. 999-1058). Hoboken, NJ: John Wiley & Sons Inc.

Ishigaki, E. H. (1991). The health and eating habits of young children in Japan. *Early Child Development and Care, 74*, 141-148.

Jacobson, M., & Maxwell, B. (1994). *What are we feeding our kids?* New York: Workman Publishing.

Jaglom, L.M., & Gardener, H. (1981). The preschool television watcher as anthropologist. In H. Kelly & H. Gardner (Eds.), *Viewing children through television* (pp. 9-30). San Francisco: Jossey-Bass.

Jaswal, V. K., McKercher, D. A., & VanderBorght, M. (2008). Limitations on reliability: Regularity rules in the English plural and past tense. *Child Development, 79*(3), 750-760.

Jaswal, V. K., & Neely, L. A. (2006). Adults don't always know best: Preschoolers use past reliability over age when learning new words. *Psychological Science, 17*(9), 757-758.

Journalism.org – Pew research center's project for excellence in journalism (2004). *2004 Annual Report – Newspaper Ownership.* Retrieved November 26, 2008 from http://www.journalism.org/node/799.

Kapur, J. (2005). *Coining for capital. Movies, marketing , and the transformation of childhood.* New Jersey: Rutgers University Press

Kelley, P., Gunter, B., & Buckle, L. (1987). "Reading" television in the classroom: More results from the Television Literacy Project, *Journal of Educational Television, 13*(1), 7-20.

Kline, S., Stewart, K., & Murphy, D. (2006). Media literacy in the risk society: Toward a risk reduction strategy. *Canadian Journal of Education, 29*(1), 131-153.

Koenig, M. A., Clément, F., & Harris, P. L. (2004). Trust in testimony: Children's use of true and false statements. *Psychological Science, 15*(10), 694-698.

Kotz, K., & Story, M. (1994). Food advertisements during children's Saturday morning television programming: Are they consistent with dietary recommendations? *Journal of the American Dietetic Association, 94*(11), 1296-1300.

Krebs, N. F., & Jacobson, M. S. (2003). Prevention of pediatric overweight and obesity. *Pediatrics, 112*(2), 424-430.

Kubey, R. (2004). What is media literacy and why is it important? *Television Quarterly, 34*(3), 21-27.

Kunkel, D. (1988). Children and host-selling television commercials. *Communication Research, 15*(1), 71-92.

Kunkel, D. (2001). Children and Television Advertising. In D.G. Singer & J.L. Singer

(Eds.), *The handbook of children and media* (pp. 375-393). Thousand Oaks, CA: Sage.

Kunkel, D., & Gantz, W. (1992). Children's television advertising in the multichannel environment. *Journal of Communication, 42*(3), 134.

Kunkel, D., & Roberts, D. (1991). Young minds and marketplace values: Issues in children's television advertising. *Journal of Social Issues, 47*(1), 57-72.

Levin, S. R., Petros, T. V., & Petrella, F. W. (1982). Preschoolers' awareness of television advertising. *Child Development, 53*(4), 933-937.

Lewis, M. K., & Hill, A. J. (1998). Food advertising on British children's television: A content analysis and experimental study with nine-year olds. *International Journal of Obesity and Related Metabolic Disorders: Journal of the International Association for the Study of Obesity, 22*(3), 206-214.

Liebert, R. M. (1986). Effects of television on children and adolescents. *Journal of Developmental and Behavioral Pediatrics: JDBP, 7*(1), 43-48.

Lloyd-Kolkin, D., Wheeler, P., & Strand, T. (1980). Developing a curriculum for teenagers. *Journal of Communication, 30*(3), 119-125.

Mares, L. M., & Woodard, E. (2001). Prosocial effects on children's social interactions. In D. G. Singer, & J. L. Singer (Eds.), *Handbook of children and media* (pp. 183). Thousand Oaks, CA: Sage.

McBrien, J. L. (2005). Uninformed in the information age: Why media necessitate critical thinking education. In G. Schwarz & P. U. Brown (Eds.), *Media literacy: Transforming curriculum and teaching.* (pp. 18-34). Malden, MA US: Blackwell Publishing.

McGinnis, J.M., Gootman, J.A., & Kraak, V.I. (2006). Food marketing to children and youth. Threat or opportunity? Institute of Medicine of the National Academies. Washington, D.C.: The National Academies Press.

Meyrowitz, J. (1998). Multiple media literacies. *Journal of Communication, 48*(1), 96.

Moschis, G.P., & Moore, R.L. (1982). A longitudinal study of television advertising effects. *Journal of Consumer Research, 9,* 279-286.

Moore, E. S., & Lutz, R. J. (2000). Children, advertising, and product experiences: A multimethod inquiry. *Journal of Consumer Research, 27*(1), 31-48.

Nikken, P., & Peeters, A. L. (1988). Children's perceptions of television reality. *Journal of Broadcasting & Electronic Media, 32*, 441-452.

Norris, P. (2000). *A Virtuous Circle: Political Communications in Post-Industrial Democracies,* Cambridge: Cambridge University Press

Nowak, M.A., & Sigmund, K. (1998) Evolution of indirect reciprocity by image scoring. *Nature, 393,* 573-577.

Oates, C., Blades, M., & Gunter, B. (2002). Children and television advertising: When do they understand persuasive intent? *Journal of Consumer Behaviour, 1*(3), 238-245.

Oates, C., Blades, M., Gunter, B., & Don, J. (2003). Children's understanding of television advertising: A qualitative approach. *Journal of Marketing Communications, 9*(2), 59.

Ogden, C. L., Carroll, M. D., Curtin, L. R., McDowell, M. A., Tabak, C. J., & Flegal, K. M. (2006). Prevalence of overweight and obesity in the United States, 1999-2004. *JAMA: Journal of the American Medical Association, 295*(13), 1549-1555.

Pacini, R., & Epstein, S. (1999). The relation of rational and experiential information processing styles to personality, basic beliefs, and the ratio-bias phenomenon. *Journal of Personality and Social Psychology, 76*(6), 972-987.

Paik, H. & Comstock, G. (1994). The effects of television violence on antisocial behavior: A meta-analysis. *Communications Research, 21,* 516-546.

Palmer, E. L., & Carpenter, C. F. (2006). Food and beverage marketing to children and youth: Trends and issues. *Media Psychology, 8*(2), 165-190.

Panchanathan, K., & Boyd, R. (2003). A tale of two defectors: The importance of standing in the evolution of indirect reciprocity. *Journal of Theoretical Biology, 224,* 115-126.

Panchanathan, K., & Boyd, R. (2004). Indirect reciprocity can stabilize cooperation without the second-order free rider problem. *Nature, 432,* 499-502.

Peterson, C. C., Peterson, J. L., & Seeto, D. (1983). Developmental changes in the ideas about lying. *Child Development, 54*(6), 1529-1535.

Peterson, L., & Lewis, K. E. (1988). Preventive intervention to improve children's discrimination of the persuasive tactics in televised advertising. *Journal of Pediatric Psychology, 13*(2), 163-170.

Pierroutsakos, S. L., & Troseth, G. L. (2003). Video verité: Infants' manual investigation of objects on video. *Infant Behavior & Development, 26*, 183-199.

Pillow, B.H., Hill, V., Boyce, A., Stein, C. (2000). Understanding inference as a source of knowledge: Children's ability to evaluate the certainty of deduction, perception, and guessing. *Developmental Psychology, 36,* 169-179.

Pine, K. J., & Nash, A. (2002). Dear Santa: The effects of television advertising on young children. *International Journal of Behavioral Development, 26*(6), 529-539.

Pungente, J. J., Duncan, B., & Andersen, N. (2005). The Canadian experience: Leading the way. In G. Schwarz & P. U. Brown (Eds.), *Media literacy: Transforming curriculum and teaching.* (pp. 140-160). Malden, MA US: Blackwell Publishing.

Rapaczynski, W., Singer, D. G., & Singer, J. L. (1982). Teaching television: A curriculum for young children. *Journal of Communication, 32*(2), 46-55.

Reid, T. (1764/1997). *An inquiry into the human mind on the principles of common sense*. University Park: Pennsylvania State University.

Reitman, D., Rhode, P. C., Hupp, S. D. A., & Altobello, C. (2002). Development and validation of the parental authority questionnaire - revised. *Journal of Psychopathology and Behavioral Assessment, 24*(2), 119-127.

Rideout, V., & Hamel, E. (2006). *The media family: Electronic media in the lives of infants, toddlers, preschoolers, and their parents.* Menlo Park, CA: The Henry J. Kaiser Family Foundation.

Roberts, D. F. (1982). Children and commercials: Issues, evidence, interventions. *Prevention in Human Services, 2*(1), 19-35.

Roberts, D.F., Christenson, P., Gibson, W.A., Mooser, L., & Goldberg, M.E. (1980). Developing discriminating consumers. *Journal of Communication, 30*(3), 94-105.

Robertson, T. S., & Rossiter, J. R. (1974). Children and commercial persuasion: An attribution theory analysis. *Journal of Consumer Research, 1*(1), 13-20.

Robertson, T. S., Ward, S., Gatignon, H., & Klees, D. M. (1989). Advertising and children: A cross-cultural study. *Communication Research, 16*(4), 459-485.

Robinson, T. N., Borzekowski, D., Matheson, D. M., & Kraemer, H. C. (2007). Effects of fast food branding on young children's taste preferences. *Archives of Pediatrics & Adolescent Medicine, 161*(8), 792-797.

Robinson, T. N., Saphir, M. N., Kraemer, H. C., Varady, A., & Haydel, K. F. (2001). Effects of reducing television viewing on children's requests for toys: A randomized controlled trial. *Journal of Developmental & Behavioral Pediatrics, 22*(3), 179-184.

Rossiter, J. R., & Robertson, T. S. (1974). Children's TV commercials: Testing the defenses. *Journal of Communication, 24*(4), 137-145.

Scofield, J., & Behrend, D. A. (2008). Learning words from reliable and unreliable speakers. *Cognitive Development, 23*(2), 278-290.

Semali, L. (2005). Why media literacy matters in American schools. In G. Schwarz & P. U. Brown (Eds.), *Media literacy: Transforming curriculum and teaching.* (pp. 35-54). Malden, MA US: Blackwell Publishing.

Siegal, M., & Peterson, C. C. (1996). Breaking the mold: A fresh look at children's understanding of questions about lies and mistakes. *Developmental Psychology, 32*(2), 322-334.

Siegal, M., & Peterson, C. C. (1998). Preschoolers' understanding of lies and innocent and negligent mistakes. *Developmental Psychology, 34*(2), 332-341.

Siegler, R., DeLoache, J., & Eisenberg, N. (2003). *How children develop.* New York: Worth Publishers.

Signorielli, N., & Lears, M. (1992). Television and children's conceptions of nutrition: Unhealthy messages. *Health Communication, 4*(4), 245-257.

Signorielli, N., & Morgan, M. (2001). Television and the family: The cultivation perspective. In J. Bryant, J. A. Bryant, J. Bryant & J. A. Bryant (Eds.), *Television and the American family (2nd ed.).* (pp. 333-351). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Signorielli, N., & Staples, J. (1997). Television and children's conceptions of nutrition. *Health Communication, 9*(4), 289-301.

Silverblatt, A. (1995). *Media literacy: Keys to interpreting media messages.* Westport, CT: Praeger.

Silverman, W. K., Jaccard, J., & Burke, A. E. (1988). Children's attitudes toward products and recall of product information over time. *Journal of Experimental Child Psychology, 45*(3), 365-381.

Singer, J. L., & Singer, D. G. (1983). Psychologists look at television: Cognitive, developmental, personality, and social policy implications. *American Psychologist, 38*(7), 826-834.

Singer, D.G. & Singer, J.L. (1998). Developing critical viewing skills and media literacy in children. *American Academy of Political and Social Science, 557,* 164-179.

Singer, D.G., Zuckerman, D.M., & Singer, J.L. (1980). Helping elementary school children learn about TV, *Journal of Communication, 30*(3), 84-93.

Slater, D., & Elliott, W. R. (1982). Television's influence on social reality. *Quarterly Journal of Speech, 68,* 69-70.

Spinoza, B. (1677/1982). *The Ethics and selected letters* (S. Feldman, Ed. & S. Shirley, Trans.). Indianapolis: Hackett.

Stoneman, Z., & Brody, G. (1981). The indirect impact of child-oriented advertisements on mother-child interactions. *Journal of Applied Developmental Psychology, 2,* 369-376.

Strasburger, V. C., & Donnerstein, E. (1999). Children, adolescents, and the media: Issues and solutions. *Pediatrics, 103*(1), 129-139.

Strasburger, V. C. (2001). Children and TV advertising: Nowhere to run, nowhere to hide. *Journal of Developmental & Behavioral Pediatrics, 22*(3), 185-187.

Stille, A. (2006) *The Sack of Rome: How a Beautiful European Country With a Fabled History and a Storied Culture Was Taken Over by a Man Named Silvio Berlusconi*, New York: Penguin 2006.

Stutts, M. A., Vance, D., & Hudleson, S. (1981). Program-commercial separators in children's television: Do they help a child tell the difference between Bugs Bunny and the Quik rabbit? *Journal of Advertising, 10*(2), 16-48.

Talwar, V., Lee, K., Bala, N., & Lindsay, R. C. L. (2002). Children's conceptual knowledge of lying and its relation to their actual behaviors: Implications for court competence examinations. *Law and Human Behavior, 26*(4), 395-415.

Taras, H. L., & Gage, M. (1995). Advertised foods on children's television. *Archives of Pediatrics & Adolescent Medicine, 149*(6), 649-652.

Taras, H. L., Sallis, J. F., Patterson, T. L., Nader, P. R., & Nelson, J. A. (1989). Television's influence on children's diet and physical activity. *Journal of Developmental and Behavioral Pediatrics, 10*(4), 176-180.

Thoman, E., & Jolls, T. (2004). Media literacy: A national priority for a changing world. *American Behavioral Scientist, 48*(1), 18-29.

Thoman, E., & Jolls, T. (2005). Media literacy education: Lessons from the center for media literacy. In G. Schwarz & P. U. Brown (Eds.), *Media literacy: Transforming curriculum and teaching.* (pp. 180-205). Malden, MA: Blackwell Publishing.

Thompson, A., Hollis, C., & Richards, D. (2003). Authoritarian parenting attitudes as a risk for conduct problems: Results from a British national cohort study. *European Child & Adolescent Psychiatry, 12*(2), 84-91.

Tidhar, C.E. (1996). Enhancing television literacy skills among preschool children through an intervention program in the kindergarten. *Journal of Educational Media, 22,* 97-110.

Troiano, R.P., & Flegal, K.M. (1998). Overweight children and adolescents: Description, epidemiology and demographics. *Pediatrics, 101,* 497-504.

Vande Berg, L. R. V., Wenner, L. A., & Gronbeck, B. E. (2004). Media literacy and television criticism: Enabling an informed and engaged citizenry. *American Behavioral Scientist, 48*(2), 219-228.

Van Evra, J. (2004). *Television and child development (3rd ed.)* Lawrence Erlbaum Associates Publishers.

Van Evra, J. P. (1998). *Television and child development (2nd ed.)* Lawrence Erlbaum Associates Publishers.

Vygotsky, L. (1962). *Thought and language.* Cambridge, MA: MIT Press.

Vygotsky, L. (1978). *Mind and society.* Cambridge, MA: Harvard University Press.

Ward, S., Reale, G., & Levinson, D. (1972). Children's perceptions, explanations, and judgments of television advertising: A further exploration. In G. Comstock & E. Rubinstein (Eds.) *Television and social behavior* (Vol. 4). Washingont, DC: U.S. Government Printing Office.

Ward, S., & Wackman, D. (1972). Children's purchase influence attempts and parental yielding. *Journal of Marketing Research, 9,* 316-319.

Ward, S., Wackman, D., & Wartella, E. (1977). *How children learn to buy: The development of consumer information processing skills.* Beverly Hills, CA: Sage.

Wiecha, J. L., Peterson, K. E., Ludwig, D. S., Kim, J., Sobol, A., & Gortmaker, S. L. (2006). When children eat what they watch: Impact of television viewing on dietary intake in youth. *Archives of Pediatrics & Adolescent Medicine, 160*(4), 436-442.

Wik, L. (1985). *Baby's first words.* New York: Random House

Wilcox, B.L., Kunkel, D., Cantor, J., Dowrick, P., Linn, S., & Palmer, E. (2004). *Report of the APA task force on advertising and children.* Washington, D.C.: American Psychological Association.

Williams, J.O., Achterberg, C., & Sylvester, G.P. (1993). Targeting marketing of food products to ethnic minority youths. In C. L. Williams & S.Y.S. Kimms (Eds.) *Prevention and treatment of childhood obesity: Annals of the New York Academy of Sciences* (Vol. 699, pp. 107-114). New York: New York Academy of Sciences.

Wright, J. C., Huston, A. C., Reitz, A. L., & Piemyat, S. (1994). Young children's perceptions of television reality: Determinants and developmental differences. *Developmental Psychology, 30*(2), 229-239.

Wright, J. C., Huston, A. C., Truglio, R., Fitch, M., Smith, E., & Piemyat, S. (1995). Occupational portrayals on television: Children's role schemata, career aspirations, and perceptions of reality. *Child Development, 66*(6), 1706-1718.

Young, B. (2000). The child's understanding of promotional communication. *International Journal of Advertising and Marketing to Children, 2*(3), 191-203.

Zuckerman, P., Ziegler, M., & Stevenson, H. (1978). Children's viewing of television and recognition memory of commercials. *Child Development, 49,* 96-104.

Appendix 1 – Parent Survey

Television Survey

Please use the following scale for questions #1-3
1-all or most of the day
2-most of the day
3-part of the day
4-no time at all
D/N-don't know

1. On a typical day, how much time does YOUR CHILD spend (use above scale):

	All or most of day	to		no time at all	Don't Know
Watching TV……..	1	2	3	4	
Watching a video or DVD, including while riding in the car…….	1	2	3	4	D/N
Listening to music, including while riding in the car…….	1	2	3	4	D/N
Playing outside……	1	2	3	4	D/N
Reading or being read to…….	1	2	3	4	D/N
Playing computer games…….	1	2	3	4	D/N
Using a computer for something other than games……...	1	2	3	4	D/N
Reading an electronic book, like leap pad……..	1	2	3	4	D/N
2. On a typical day, how much time do you spend with your child? ……..	1	2	3	4	D/N

3. On a typical day, how much time do YOU spend:

Watching your own shows on TV…….	1	2	3	4	D/N
Using a computer……...	1	2	3	4	D/N

If you do spend time doing the above activities:
Is your child usually with you when you do this? Yes No

If yes, does he/she pay attention? Yes No
Do you think it is going over his/her head? Yes No

4. How many television sets do you have in your household? _____

5. When someone is at home in your household, how often is the TV on *overall*, even if no one is actually watching it? (please circle one)

Always most of the time about half the time less than half the time

hardly ever never no TV

6. How often is the TV on in your home *specifically* when no one is watching?

Always most of the time about half the time less than half the time

hardly ever never no TV

When TV is on in the background, does it distract your child from other things he/she is doing?

For the following question (#7), please respond using this scale:
1-every day
2-several times a week
3-several times a month
4-less often
5-never
6-too young
7-not allowed

7. How often does your child do the following (use above scale):

	Every day				Never		
Watch television……	1	2	3	4	5	T/Y	N/A
Listen to music……..1	2	3	4	5	T/Y	N/A	
Read a book alone or with someone else…….1	2	3	4	5	T/Y	N/A	
Watch videos or DVDs…….1	2	3	4	5	T/Y	N/A	
Use a computer……1	2	3	4	5	T/Y	N/A	
Go online……...1	2	3	4	5	T/Y	N/A	

8. What types of shows does your child watch most often? (please check answer)

___ Watches mostly shows specifically for kids around his/her age
If so, are they:
___ Mostly educational shows
___ Mostly entertainment shows
___ Both types equally
___ Don't know
___ Watches *mostly* shows for all ages (including adults)
___ Watches shows for kids and shows for all ages about *equally*
___ Don't know

9. Is there a TV in your child's bedroom (even if only used for videos or videogames?)

Yes No

12 a. If yes, of time spent watching TV on a typical day, how much of that time is spent watching in his/her bedroom?

All of the time Most of the time About half of the time

Less than half of the time None of the time

10. In general, do you think watching TV mostly helps or mostly hurts children's learning – or doesn't have much effect either way?

Mostly helps Mostly hurts Not much effect Don't know

11. Different children react to TV in different ways. Which would you say is the best description of your child?

TV calms him/her down TV gets him/her excited Both equally

Depends on his/her mood or time of day Depends on what he/she is watching

12. Are you now employed full-time, part-time, retired, or not employed for pay?

Full-time part-time retired not employed

Homemaker student disabled Prefer not to answer

13. How many TV ads do you think your child sees in a typical day? _____

14. What kinds of ads does your child see? _____

_____

_____

_____

What do you think about these ads? _____

_____

_____

_____

How do these ads affect your child? _____

_____

_____

15. Has your child ever experienced finding out something he/she saw on television was *not* true? If so, please explain briefly. An example would be seeing a commercial for a toy that promises to do something (e.g., fly in the air) and then finding out after buying the toy that it does not in fact do what the commercial promised.

_____

_____

_____

_____

Please continue the survey on the next page.
Thank you.

Parenting Survey

Please respond to the following questions by thinking about the kinds of things you want to encourage in *your children*. e.g., how much do you agree that you want to encourage *your child* to be a very analytical thinker (question #5)?

I want to encourage my child to…

	Definitely agree				Definitely disagree
1. Be very good at solving problems that require careful logical analysis…….……..…..1	2	3	4	5	
2. Not avoid situations that require thinking in depth about something ...……1	2	3	4	5	
3. Like having to do a lot of thinking…..……1	2	3	4	5	
4. Feel that thinking is an enjoyable activity…..….1	2	3	4	5	
5. Be a very analytical thinker…...……..……1	2	3	4	5	
6. Feel that reasoning things out carefully is a personal strong point.……1	2	3	4	5	
7. Feel that thinking hard and for a long time about something gives satisfaction……..1	2	3	4	5	
8. Reason well under pressure...……...1	2	3	4	5	
9. Have no problem thinking things through carefully…….……..……..1	2	3	4	5	
10. Feel that using logic usually works well in figuring out problems in life……..……1	2	3	4	5	
11. Usually have clear, explainable reasons for decisions……...…1	2	3	4	5	
12. Feel that learning new ways to think is very appealing……...…….1	2	3	4	5	

Please respond to the following questions regarding how *YOU* feel about parenting your children using the following scale:
1 – strongly disagree
2 – disagree
3 – neither disagree nor agree
4 – agree
5 – strongly agree

	Strongly disagree			Strongly agree
1. Children under five should always accept what their parents say as being true……..…..1	2	3	4	5
2. A child should not be allowed to talk back to his parents……..…….1	2	3	4	5
3. Pre-school children should pay more attention to what they are told……...…….1	2	3	4	5
4. There are many things a 5-year-old must do with no explanation from his parents……..……1	2	3	4	5
5. In a well-run home, children should have their way as often as parents do…….....1	2	3	4	5
6. It is for my children's own good to require them to do what I think is right, even if they don't agree….1	2	3	4	5
7. When I ask my children to do something, I expect it to be done immediately without questions……...1	2	3	4	5
8. Once family rules have been made, I discuss the reasons for the rules with my children…….1	2	3	4	5
9. I always encourage discussion when my children feel family rules and restrictions are unfair……..1	2	3	4	5
10. Children need to be free to make their own decisions about activities, even if this disagrees with what a parent might want to do……1	2	3	4	5
11. I do not allow my children to question the decisions that I make……1	2	3	4	5
12. I direct the activities and decisions of my children by talking with them and using rewards and punishments…1	2	3	4	5

	Strongly disagree				Strongly agree
13. Other parents should use more force to get their children to behave……....1	2	3	4	5	
14. My children do not need to obey rules simply because people in authority have told them to…….……1	2	3	4	5	
15. My children know what I expect from them, but feel free to talk with me if they feel my expectations are unfair..1	2	3	4	5	
16. Smart parents should teach their children early exactly who is the boss in the family……..…….1	2	3	4	5	
17. I usually don't set firm guidelines for my children's behavior ……..1	2	3	4	5	
18. Most of the time I do what my children want when making family decisions……..…...1	2	3	4	5	
19. I fell my children what they should do, but I explain why I want them to do it……..……...1	2	3	4	5	
20. I get very upset if my children try to disagree with me…….....……1	2	3	4	5	
21. Most problems in society would be solved if parents would let their children choose their activities, make their own decisions, and follow their own desires when growing up...1	2	3	4	5	
22. I let my children know what behavior is expected and if they don't follow the rules they get punished……...1	2	3	4	5	
23. I allow my children to decide most things for themselves without a lot of help from me……....1	2	3	4	5	
24. I listen to my children when making decisions, but I do not decide something simply because my children want it…1	2	3	4	5	
25. I do not think of myself as responsible for telling my children what to do…….1	2	3	4	5	
26. I have clear standards of behavior for my children, but I am willing to change these standards to meet the needs of my children……..1	2	3	4	5	

	Strongly disagree			Strongly agree
27. I expect my children to follow my directions, but I am always willing to listen to their concerns and discuss the rules with them……...1	2	3	4	5
28. I allow my children to form their own opinions about family matters and let them make their own decisions about those matters……..…1	2	3	4	5
29. Most problems in society could be solved if parents were stricter when their children disobey……..……...1	2	3	4	5
30. I often tell my children exactly what I want them to do and how I expect them to do it…….1	2	3	4	5
31. I set firm guidelines for my children but am understanding when they disagree with me……..1	2	3	4	5
32. I do not direct the behaviors, activities, or desires of my children…….....1	2	3	4	5
33. My children know what I expect of them and do what is asked simply out of respect for my authority……..…...1	2	3	4	5
34. If I make a decision that hurts my children, I am willing to admit that I made a mistake……...…….1	2	3	4	5

Appendix 2 – Video Scripts

"Explosion"

Actor: *Close-up on actor's face.*"Hi there, how are you doing? My name is Vanessa and I want to show you something that I can do that's really neat – I'm going to make a really fun explosion. Do you want to see?"

Camera pans out

Actor: "To make the explosion, we need *[materials appear on screen as she lists them]* a bowl, a dish to under the bowl, some white powder and some green liquid. Now watch what you can do with these. *[Actor does actions as she describes them]* Put this bowl into this other bowl so we don't make a big mess with the explosion. Then, put some white powder into the bowl, just like this. Then, take some of the green liquid and put it in the bowl with the white powder, and just wait to see what happens – it's going to be great! Watch!"

Close up on explosion

Actor: "Did you see how you do that? It exploded right in the bowl! Wasn't it great? You should try it too!"

"Magnet"

Actor: "Hey. How's it going? My name is Nadia and I have something really fun to show you. Do you see this ball? I can make it stand straight up in the air, all by itself. Did you know that you can make this ball stand up in midair all by itself? *[Actor shows materials and does actions as she talks about them]* Look in this jar – there's a ball sitting there, right at the bottom. Look what you can do. If you take the lid, screw it on, and turn the jar

upside-down, and when you turn it back, right-side up… ta da….the ball stands straight up in the air!! Isn't that cool? Now you try!"

Appendix 3 – Questioning Prompts

At the end of each induction clip, the experimenter asked the child if Vanessa (explosion) or Nadia (magnet) was saying the right thing. If the child answered incorrectly, the experimenter started asking the following questions, stopping when the child answered correctly.

Explosion

Level 1 prompt: "Well she told us that we'd make an explosion if we put this powder and this liquid together and we tried, and did it work? So was she telling us the right thing or the wrong thing?"

Level 2 prompt: "Hmm, so she told us we'd make an explosion and we didn't. We did exactly what she told us to do and the explosion didn't happen the way she said it would. So was she telling us the right thing or the wrong thing?"

Level 3 prompt: "Well, you know what? She actually was telling us the wrong thing! You know why? She told us that if we put this liquid with this powder, we'd make an explosion it didn't. She was not right – she told us the wrong thing!"

After the child responded correctly, or after the experimenter said the level 3 prompt (whichever came first), she said: "Yeah, she told us the wrong thing! It didn't explode like she said it would. Sometimes people on TV do not say the right thing. Well, let's watch some more television and see what else we have."

Magnet

Level 1 prompt: "Well she told us that we'd make the ball stand up in mid air all by itself if we put this lid on the jar, and we tried, and did it work? So was she telling us the right thing or the wrong thing?"

Level 2 prompt: “Hmm, so she told us we’d make the ball stand up all by itself and we didn’t. We did exactly what she told us to do and the ball didn’t stand up the way she said it would. So was she telling us the right thing or the wrong thing?”

Level 3 prompt: “Well, you know what? She actually was telling us the wrong thing! You know why? She told us that if we put this lid on the jar, we’d make the ball stand up by itself it didn’t. She was not right – she told us the wrong thing!”

After the child responded correctly, or after the experimenter said the level 3 prompt (whichever came first), she said: “Yeah, she told us the wrong thing! The ball didn’t stand up like she said it would. Sometimes people on TV do not say the right thing. Well, let’s watch some more television and see what else we have.”

Appendix 4 – Testimony Condition Scripts

Explosion

"That was neat. You know what? I've tried that with exactly the same powder and liquid that she used and you know what happened? It did not explode like she said it would, nothing happened. It did not work – she was not right, she told us the wrong thing. Sometimes, people on TV do not say the right thing. Let's watch some more television and see what we have."

Magnet

"That was neat. You know what? I've tried that with exactly the same jar and the same lid that she used and you know what happened? The ball did not stand up in mid air all by itself like she said it would, it just stayed at the bottom of the jar. It did not work – she was not right, she told us the wrong thing. Sometimes, people on TV do not say the right thing. Let's watch some more television and see what we have."

Appendix 5 – Commercial Scripts

Food commercial 1

Actor is sitting at a table writing. She looks up and says…

Actor: "Gosh, I can hear my stomach rumbling! What am I going to do?"

Two baskets of food slide in front of her

Actor: "Wow – perfect timing. Let's see, what should I eat?"

Actor looks at both foods, she picks one and eats it.

Actor: "Wow, this is great!"

Voiceover: "So full of flavor, and so fun to eat! For a taste that's better than ever…

Actor: "…these things are excellent!"

A still photo of the food she picked appears next to the actor.

Food commercial 2

Actor looks disgusted as she tosses a snack she is holding back into its bag.

Voiceover: "Tired of the same old boring snacks?"

Actor shakes head in agreement.

Voiceover: "Want something new that's full of a more rockin flavor?"

Actor smiles and shakes head in agreement. Two hands appear on the left and right side of the screen presenting two different snacks in clear plastic bags.

Voiceover: "You've never tasted such an intense blend of flavors that takes you to the next dimension of cool."

The actor takes the bags and looks at them both. She then picks one to eat and puts the other one down.

Voiceover: "These taste great!"

Actor: "Mmm these taste good. You'll just want to wolf them down. It's the new snack that rocks."

Scene ends with close up of the actor holding up the snack she chose.

Toy commercial 1

Actor is sitting at a table in a library reading a big book. She looks up and whispers…

Actor: "It's really quiet in here." *Louder:* "I think we need to make some noise!"

The camera pans out to show two different toys on the table.

Actor: "Look what we have here"

The actor picks up one toy, puts it down and picks up the other.

Actor: "This one's the greatest!"

Actor begins to play with toy and make noise

Voiceover: "It does so many things! Listen to how much noise it makes. It's so hot, you won't be able to stop!"

Actor: "Everything is more fun when you make noise with this noisemaker!"

Scene ends with close up of the actor as she holds up the toy

Toy commercial 2

Actor is sitting on a couch looks straight at camera.

Actor: "Psst, hey you, do you like goo?"

Lifts the bowls with both toys up to shoulder height.

Actor: "We're serving up some fun with the stickiest, most squishiest stuff around."

Actor looks at both toys then lowers one.

Actor: "This one's my favorite."

Camera pans out to show actor playing with the toy.

Voiceover: “You can stretch it tear it squish it and mush it. It’s unlike anything you’ve ever seen.”

Actor: “It flops, glops, plops, and kerplops. The fun is non-stop ‘cause it’s the tops.”

Scene ends with actor continuing to play with her chosen toy.

Appendix 6 – Parent Survey Descriptive Statistics

For full survey given to parents, please see Appendix 1

Most data are collapsed across age as there were, at most, negligible differences between responses from parents of 3-year-olds and parents of 5-year-olds (e.g., means differed by one or two tenths of a point). Data are reported separately only for questions on which there was more than a slight difference between age groups. Unless otherwise marked, all data is presented in the following form: Mean (SD)

TV use:

For questions 1-4: (1 = all of most of the day to 4 = no time at all)

1. On a typical day, how much time does your child spend…

TV	DVD	music	play out-side	reading	computer games	computer-not games	electronic book
3.3 (0.5)	3.4 (0.5)	2.8 (0.6)	2.7 (0.5)	2.8 (0.5)	3.6 (0.5)	3.8 (0.5)	3.9 (0.4)

2. How much time do you spend with your child: 2.0 (0.7)

3. On a typical day, how much time do you spend…

Watching own shows on TV	Using a computer
3.4 (0.5)	2.7 (0.6)

4. How many TV sets are in your household?

Mean (SD)	Mode
2.2 (1.3)	2

For questions 5-6: (1 = always to 7 = no TV in house)

5. When someone is at home in your household, how often is the TV on *overall*, even if no one is actually watching it: 4.5 (1.1)

6. How often is the TV on in your home *specifically* when no one is watching: 5.6 (0.9)

7. How often does your child to the following…

(1 = every day to 5 = never; 6 = too young; 7 = not allowed)

TV	music	Read	DVD	computer	online
2 (1)	1.4 (0.7)	1.0 (0.2)	2.6 (0.9)	3.2 (1.1)	3.9 (1.2)

8. What types of shows does your child watch most often:

Watches mostly shows specifically for kids around his/her age. If so, are they:	91%
Mostly educational shows	41%
Mostly entertainment shows	6%
Both types equally	49%
Don't know	0%
Watches *mostly* shows for all ages (including adults)	1%
Watches shows for kids and shows for all ages about *equally*	5%
Too young/NA	2%

9. TV in child's bedroom?

	Yes	No
3-year-olds	0%	100%
5-year-olds	10%	90%

If TV in bedroom, how much time does child spend watching TV in bedroom (1 = all the time to 5 = none of the time): 4.2 (0.8)

10. Does TV mostly help or hurt children's learning?

Mostly helps	Mostly hurts	No effect	Don't know
30%	36%	15%	19%

11. How does child react to TV?

(note: some parents chose more than 1 response)

Calms	Excites	Calms & Excites	Depends-mood	Depends-TV show
46%	5%	2%	20%	32%

13. How many ads does your child see in a typical day?

(note: many parents gave a range, e.g., 20-30, in which case the higher number in the range was used the compute the mean and median.

Range	0 to 20-30
Mean	5
Median	1

Dogmatism (1 = less dogmatic to 5 = more dogmatic): 2 (1)

Parenting Style:

(1 = less agreement with style to 5 = more agreement with style)

Authoritarian	Authoritative	Permissive
2.9 (0.6)	4.1 (0.5)	2.3 (0.5)