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Early Learning with Digital Media: A Naturalistic, Ethnographic Investigation of Children's  
Engagement with and Learning from Television and Digital Technology in Early Childhood

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A dissertation  
submitted in partial fulfillment of the  
requirements for the degree of

Doctor of Philosophy

University of Washington

2012

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Program Authorized to Offer Degree:

College of Education

University of Washington

**Abstract**

Early Learning with Digital Media: A Naturalistic, Ethnographic Investigation of Children's Engagement with and Learning from Television and Digital Technology in Early Childhood

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Digital media is a broad concept that includes everything from movies to video games to websites. These media are cultural norms for young people, becoming part of their identity as they use and create content. In this dissertation I discuss the observed diversity of interactions that children from infancy through kindergarten have with digital media. Specifically, in this dissertation I investigate what and how children learn from digital media and under what social conditions children actively viewed television shows, DVDs, movies, and YouTube videos. I

address the following research questions: How do television shows encourage active viewing behaviors; how do children respond to those forms of encouragement; how do children learn from digital media through their interactions with the media and themselves, other people, and objects in order to make their viewing experiences social; and how do children's experiences with digital media lead them to extend that learning from digital media to other contexts of their everyday lives?

I employed a longitudinal, naturalistic, qualitative, and ethnographic approach to my dissertation research. For one year, I followed 16 children (8 boys and 8 girls, ages 12 months to 6 years of age) and their actions and interactions with and around digital media. I video-recorded the children in their homes, allowing me to investigate what young children are doing and learning through their interactions, and whether their viewing and interactions affect or manifest in other aspects of their everyday lives. I created split-screen images consisting of in-show images and in-room activities; these data were analyzed and supported with parent diaries and numerous interviews with parents and children.

Findings include a novel data visualization method for understanding how "interactive" television shows prompt children to interact, and analyses of case studies of children's joint media engagements as well as their diachronic learning with and from the media they watched. The collective results of my analyses reflect the need for a more nuanced perspective on children's consumption of digital media, as the children in this study actively applied and demonstrated the knowledge they obtained from digital media to other contexts of their everyday lives.

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## ACKNOWLEDGEMENTS

Creating and writing this dissertation was quite a journey, and it was a journey that I could not have embarked upon or completed without the help, love, and support of many people whom I would like to thank here.

To begin I would like to thank the children and their families in the study, who let me come into their homes and lives in hopes of better understanding how and what they do. Without all of their continued collaboration and fortitude this project would not have been possible.

I would also like to thank my advisers and dissertation committee: Dr. Reed Stevens for seeing a future researcher in a media-loving, filmmaking art student and for designing a unique project that allowed me the freedom to learn and explore the research process from the bottom up; Dr. Phil Bell for challenging me and helping me understand how to better present this work through the literature so that people in the field and beyond could relate to it on multiple levels; Dr. Cap Peck for giving me a great working opportunity and mentoring me throughout the years and helping me understand my work from the perspective of scholars who are outside the learning science community; Dr. Diane Carlson Jones for mentoring me in many respects and helping me better understand the developmental foundations of children's learning; and Dr. Jan Spyridakis for always being there as a mentor and a friend, and for always believing in me and giving me the encouragement I needed along the way.

I would never have finished this work without the help and collaboration of the Learning, Media, and Interactivity (LMI) research group and my other colleagues at the LIFE (Learning in Informal and Formal Environments) Center, specifically: Dr. Reed Stevens, Dr. Siri Mehus, Stephanie Scopelitis, Dr. Sheldon Levias, Dr. Amit Saxena, Dr. Lionel Enns, Lauren

Penney, Katherine Dexter, and Linda Grigholm. They were all wonderful collaborators on this project. All of our conversations and consistent, critical listening aided me to no end.

I'd also like to thank my friends, colleagues, other research group members, and professors at the University of Washington: Dr. Lari Garrison, Dr. Laurie McCarthy, Dr. Tiffany Lee, Dr. Andy Jocuns, Dr. Tom Satwicz, Dr. Rachel Scherr, Nate Parham, Dr. Karin Forssell, Suzanne Perin, Dr. Mark Chen, Dr. Yen-Ling Lee, Dr. Heather Toomey Zimmerman, Dr. Rachel Phillips, Giovanna Scalone, Jen Wallen, Dr. Melissa Braaten, Paul Teske, Dr. Leah Bricker, Dr. Elizabeth Falsberg, Heather Lewis, Dr. Vanessa Svihla, Dr. Cap Peck, Dr. Phil Bell, Dr. John Bransford, Dr. Brinda Jegatheesan, Karen Harris, Marcie von Beck, Dr. Min Li, Dr. Leslie Herrenkohl, Dr. Sue Nolan, Dr. Mary Clevenger-Bright, Sally Luttrell-Montes, Dr. Marty Howell, Dr. Elham Kazemi, Dr. Mike Knapp, Dr. Charlotte Lee, Dr. David Farkas, the late Dr. Bill Winn, Dr. John Fredrickson, Dr. Laada Bilaniuk, Dr. Steve Kerr, and Dr. Diane Carlson Jones. All of you challenged and pushed me to become a better researcher; thank you for listening and being a friend when I needed one.

In addition I want to thank Drue Gawel, Dr. Allison Hintz, Dr. Kersti Tyson, Dr. Veronique Mertl, Derya Baykent, Sasha Lotas, Julia Berger, Dr. Charlotte van Hooijdonk, Dr. Lex Van Velsen, Drew Paine, Mark Hanna, Matt Queen, Micaela Ellison, Frank Chang, Janelle Brown Chang, Dr. Chris Chapman, Cristi Chapman, Dr. Dan Odell, Irini Spyridakis, and Dr. Jan Spyridakis. All of you gave me unending support and friendship through thick and thin.

Finally, I thank Hank Clark and Scott Macklin for having and sharing their enormous technical experience with me throughout my study and to Nancy Price, the late John Organ, Beth Koemans, and Kent Jewel for all their help and administrative expertise.

Moreover, I would like to thank the LIFE Science of Learning Center and the National Science Foundation's grant (NSF#0354453) for funding this dissertation project. Any opinions, findings, and conclusions expressed in this dissertation are mine and do not necessarily reflect the views of the National Science Foundation. For more information on the LIFE Science of Learning Center see: <http://life-slc.org/>.

Likewise, I want to extend a special thanks to Professor Jan Spyridakis and Assistant Vice Provost and Assistant Dean Rebecca Aanerud for all their help and support throughout my dissertation process. And, Jofish Kaye for seeing in me what I can potentially do in the future.

I also want to thank my colleagues, friends, and teachers that I worked and studied with prior to graduate school, for believing in me, inspiring me, and helping me discover what it was that I needed to do with my life: Jen Phipps Beck, Crispian Paul, Mickie Smith, Erin Martin, Price Wooldridge, Jamie Rue, Chuck Berg, John Tibbetts, Brian Bartelt, John Moncrief, Donald Bramlett, Marisa McKendree, Garron Hillaire, Thomas Cheshire, Chris and Sydney Ledford, Dan Vincent, George Vincent, Ilana Kennedy, Kevin Hagood, Darlene Stoll-Ochoa, Josh Holm, Tim Webber, Debra Feammelli, Megan Richards, Jack Herbert, and last but certainly not least, my three favorite teachers ever: Mr. Stavros, Mrs. Schindelar, and Ms. Wyman.

Finally, and most importantly, I want to thank my family and friends. The simple words written here can never fully acknowledge how much you all mean to me and how much you have sacrificed for me throughout this project and all these years. However, I hope this small bit of appreciation will suffice as words can never truly express the thanks and gratitude I have for everything you've all done for me. To my best friends, especially Crispian Paul and Jen Beck, and others who I have already listed above, you guys are my rocks. To my Aunt Joanie and Uncle Jim, Aunt Kathi, Uncle Mike, Uncle Kevin, Uncle Dan, Grandma Mimi Garons, Aunt

Anne, Aunt Kim, Aunt Tara, Cousin Kali, Cousin Scott, Cousin Rebecca, and Cousin Tim:

Thanks for being there for me and supporting and loving me always (finally another doctor in the family). To my husband's family, Vera and Dave Nunnally, David Thayer, Diane Shannon, and all Alex's aunts, uncles, grandma, and cousins: Thank you for all your love and support, and I'm happy I could add to the doctors on your side of the family too.

To my best friend Nicole Loorbach who talked me into going back to graduate school and helping me find out who I wanted to be when I grew up – thank you, you inspire me every day and this is not only our year but our life. Enjoy! The best is yet to come.

To my grandma Mimi Dugan - I am everything I am and strive to be because of you.

To my brother and best friend John D. Dugan. Thanks for being there for me from day one and giving me the encouragement I needed to do this. I am so lucky to have such an awesome brother and friend.

To my parents John M. Dugan and Eileen (Terry) Dugan whose life-long support and encouragement have led me here. I never thought I could do it (“me, get a PhD?”) but you always believed in me and talked me through it and were there every step of the way. Your love, honesty, and endless support through it all is something I will always treasure. I know I have the best parents in the world and I am honored to call myself your daughter.

To my loving daughter MJ Thayer, Mama is done! More time for fun, walks, and kisses. We will get outside in the sun more now I promise. It was hard and several times I wanted to give up but then I'd look into your sweet, smiling baby-blue eyes and know I had to do it. If not only for me, for you, because Mama wants you to be proud of her and see that women can accomplish anything they set out to do even when other people may think it's impossible. We

might have to wait a little bit longer to get that puppy but you can have plenty of chocolate and Mama time now, the puppy will come eventually.

Finally, to my totally awesome husband, Alex Thayer, I thank you from the bottom of my heart, for everything you do for me from today to tomorrow, from that first email about Walter Benjamin's idea about aura, to the end of the world: You are my best friend, my soul mate, my colleague, my collaborator, my editor, my co-pilot, and my maestro. And, none of this project would be possible without all of your undying love and sacrifice. Thank you for being there with me every day and night and for giving me the courage and constant encouragement to do it and stick with it through to the end. I love you!

## **DEDICATION**

To my wonderful husband Alex Thayer,  
my lovely “little scientist” and daughter Mary Jane (MJ),  
my amazing family,  
and my friend and mentor Professor Jan Spyridakis.

## Chapter 1: Introduction

Digital media is a broad concept that includes many forms of media, from movies to video games to Web sites. These forms of media are cultural norms for young people, becoming part of their identity as they use and create content. The phrase “Shi Jinrui” is a particularly relevant way to describe this phenomenon (Carrington, 2005). Shi Jinrui is “a term coined by Japanese parents meaning ‘new mankind’, that is used to depict a younger generation which is forging ahead in terms of their technological practices” (Marsh, 2005, p. 5).

Television remains, by far, the most popular medium through which young people consume content (Kaiser Family Foundation, 2010; Livingstone, 2002; Nickelodeon/Harris Interactive, 2001; Rideout, 2003; Rideout, 2006; Roberts, Foehr, and Rideout, 2005). Its continued relevance as a form of contemporary media is matched by the unparalleled amounts of content available through hundreds of different cable television channels. This bounty of content is also available on demand through cable television and digital video recorders (DVRs), on Web sites such as *YouTube* and *Hulu*, through tablet computer applications, through video games, and on mobile devices. Given this proliferation of content, the impact of digital media on young people’s learning is clearly a rich and important area of study.

These media forms dominate the lives of children around the world. In the US, for example, teenagers spent more than 111 hours watching television, using the Internet, or watching video on mobile phones in May 2008 (Nielsen Media Research, 2008). Additionally, according to the Kaiser Family Foundation (1999), young people are spending a lot of time with television, “averaging 2 hours a day for children between ages 2-7, 3.5 hours from 8-13 years of age, and about 2.75 hours per day during teen years” (Fisch, Kirkorian, & Anderson, 2005, p. 372). And by the time they reach the age of 65, Americans have spent an average of 9 years of their lives watching television (Herr, 2007).

### **Research Questions and Rationale**

For the past 50 years, researchers have studied television and, in some cases, criticized it for its potential to influence children's behavior and absorb time that might otherwise have been used more productively (cf., Buckingham, 1993; Fisch, 2004; Kirkorian, Wartella, & Anderson, 2008; Maccoby, 1952). Much of the criticism of television focuses on the negative behavioral outcomes associated with the amount of violence shown on television, the connection between childhood obesity and television viewing, and the possibility that television turns frequent viewers into substance abusers (Ray & Jat, 2010).

Recently, however, developmental researchers have suggested that very young children should not watch any television at all. Zimmerman, Christakis, and Meltzoff (2007) have found that viewing television was associated with slower vocabulary development in children under three. Additionally, Christakis, Zimmerman, Di Giuseppe, and McCarty (2004) suggest that young children's television viewing may have some relationship to attention problems. Moreover, another recent study, (Christakis et al., 2009) found that audible television in a child's environment is associated with lower levels of adult and child interaction, providing a possible mechanism to explain the previous finding of television's negative effect on language development. In response to studies such as these, France banned educational television for children under three years of age in August of 2008 (Markel, 2008; MSNBC and Associated Press, 2008) despite the existence of research that found opposing results (Fisch, 2004; Kirkorian et al., 2008; Kondo & Steemers, 2007; Pecora et al., 2006).

However, while the Christakis et al. (2009) study did sample children's daily experience, there have been no naturalistic, longitudinal, ethnographic studies that attempt to understand what types of learning may be occurring when children do watch television and/or interact with digital media. Therefore, very little is known about *how* children watch television and interact

with digital media, and *what types* of social interactions and activities take place while the television is on, apart from the specific outcomes measured by empirical lab-based studies. As Kirkorian et al. (2008) point out, it is unclear what is happening when children appear to be “vegging out” in front of the television. In fact, toddlers have demonstrated many signs of cognitive and developmental progress from watching and interacting with television (Fisch, 2004; Kirkorian et al., 2008; Kondo & Steemers, 2007; Richert, Robb, & Smith, 2011).

In this dissertation I discuss the observed diversity of interactions that children from infancy through kindergarten have with digital media, observations that are at odds with the findings of Zimmerman et al. (2007) and Christakis et al., (2004, 2009). Specifically, in this dissertation I investigate *what and how children learn from digital media and under what social conditions children actively view television shows, DVDs, movies, and YouTube videos* through analysis of the following research questions:

- How do television shows encourage active viewing behaviors, and how do children respond to those forms of encouragement?
- How do children learn from digital media through their interactions with the media and themselves, other people, and objects in order to make their viewing experiences social?
- How do children’s experiences with digital media lead them to extend that learning from digital media to other contexts of their everyday lives?

I employed a naturalistic, qualitative, and ethnographic approach to my dissertation research, allowing me to investigate what young children are doing and learning when they are watching television and interacting with digital media in their homes, and whether their viewing and interactions affect or manifest in other aspects of their everyday lives.

### **Literature Review and Background Information**

Television programming and research began in earnest in the early 1950s (Pecora, Murray, & Wartella, 2006). Since that time, much positive and negative scholarship has been written about the effects of television on children’s learning (Bryant & Anderson, 1983; Chu &

Schramm, 1968; Fisch & Truglio, 2001; Fisch, 2004; Huston, Bickman, Lee, & Wright, 2006; Kondo & Steemers, 2007; Lemish, 2007; Lerner, Nelson, & Schramm, 1977; Maccoby, 1952; Moeller, 1996; Richert et al., 2011; Zimmerman et al., 2007), as well as about the medium of television and its role in social interaction (Buckingham, 1993; Comstock, 1978; Dyson, 1997; Fisherkeller, 2002; Marsh, 2005).

Despite this decades-long discussion, the educational value of television programming and the medium itself remains far from settled (Kirkorian et al., 2008). Scholars disagree about how, and under what conditions, this multi-billion dollar industry helps or hinders young people's development (Bryant & Anderson, 1983; Comstock, 1978; Fisch, 2004; Huston et al., 2006; Kirkorian et al., 2008; Kondo & Steemers, 2007; Lemish, 2007; Zimmerman et al., 2007), social skills (Buckingham, 1993; Dyson, 1997; Fisch et al., 2005; Fisherkeller, 2002; Kirkorian et al., 2008; Kondo & Steemers, 2007; Marsh, 2005; Richert et al., 2011), academic achievements (Huston et al., 2006; Kirkorian et al., 2008; Kondo & Steemers, 2007; Lemish, 2007; Richert et al., 2011), and cognitive, developmental, and social abilities (Kirkorian et al., 2008; Kondo & Steemers, 2007; Richert et al., 2011).

Clearly, a deeper analysis of the available literature is warranted. Therefore, in the following sections I examine the research on what and how children may be learning from television, with a particular focus on behaviors, beliefs and attitudes, cognitive skills, and attention and comprehension abilities, as well as on the connections between school subject learning, readiness, and academic achievement in the context of educational television.

**Television-Related research into children's behavior.** Many researchers have described their concerns with the potentially negative behavioral consequences of violent or coercive television programming (Eron, Huesmann, Lefkowitz, & Walder, 1972; Maccoby,

1952). However, according to Moeller (1996), much of the research about behavior comes from studies related to advertising. She explores how the research into understanding young people's behavioral learning from television is hard to clarify because "learning...occurs in two stages: acquisition and performance" (p. 2). In other words, if researchers want to understand whether the children in a study are learning certain behaviors directly from television, they need to observe the children in the study doing something that proves the connection. This sort of measure is nearly impossible to obtain, in part because it is possible for children to learn something from television without expressing that learning in any way, and without changing their behavior as a result of viewing a given set of content (Moeller, 1996). Additionally, Buckingham (1993) asserts that many television learning studies are specifically designed to prove a learning connection, and owe much of their interpretation to the analysis and the motivations of the researchers themselves.

Moeller (1996) attempts to address this issue by citing "three major mechanisms for behavioral effects of television...they include imitation, arousal, and disinhibition" (p. 2). According to some scholars, imitation refers to how young people seemingly learn from digital media by watching what is happening on the screen, acting it out, or copy it (Fisch et al., 2005). These scholars reference a canonical example of researchers observing imitation behavior: the Bandura, Ross, & Ross (1961) study of young children watching a film of researchers abusing a doll. After the children in the study viewed the film, they were let into a room to play, a room with toys that included the same abused doll they had seen in the film. In some cases, certain children abused the doll more violently than they had observed in the film when playing with it in the lab space. Bandura et al. interpreted these findings as evidence that the children transferred the violence they saw on film to their own behavior.

Perhaps children are transferring behavior they view on screen into their own lives, but it is not always a negative thing. In their review of the literature, Kondo and Steemers (2006) ascertain that there is much scholarship on pro-social behaviors that demonstrates children who have learned from viewing educational television shows exhibit these behaviors (Gunter and McAleer, 1997). For example, a group of young children who watched the pro-social program *Mr. Rogers' Neighborhood* every day were compared to children who watched more aggressive programming or nature shows. Ultimately, the children who watched the pro-social show were more likely to follow pro-social "interpersonal behavior and self control" than students who viewed other programming (Friedrich & Stein, 1973 as cited in Fisch et al., p. 373). Finally, Kondo and Steemers (2006) surmise that,

pro-social television programmes can result in positive changes in children's social behaviour including increases in 'altruism, helpfulness, generosity, and other social skills (Gauntlett, 2005: 55). Other skills associated with pro-social behaviour include self-control, delay of gratification, sympathy and empathy for others, learning to persist in a task, and reduction of stereotypes. As Gunter and McAleer point out, 'Television programmes contain many examples of good behaviour, of people acting kindly and with generosity. It is equally logical to assume that these portrayals provide models for children to copy, too' (1997:117). (p. 12)

One logical conclusion would be that the content that children view has a great impact on how they interpret behaviors they see in the shows they watch. This notion has framed arguments for and against what children may or may not be learning for decades. Yet, I believe these examples only scratch the surface. While I believe it is important to monitor the content that children view, there are many more factors that play into how a child will respond to any

programming they view. Research into digital media needs to go much deeper and this is why doing naturalistic studies in children's homes is so important.

Furthermore, researchers believe that television programming can cause feelings of arousal, which can affect children's behavior as they watch the programming. According to Zillman (1982), arousal is "a unitary force that energizes or intensifies behavior that receives direction by independent means" (Zillman, 1982 as cited in Moeller, 1996, p. 3). Stated differently, arousal describes the responses of a person's body when he or she watches television. In the course of collecting data for a research study, I witnessed a little girl (age 3) scream and cover her head with a blanket while watching *Dora The Explorer*. The girl started shaking and told her mother to turn off the television. Although it is clear this girl was negatively engaged by the content of the television show, it is unclear how this arousal behavior might translate into a deeper understanding about what the girl learned from this episode. The girl had learned that covering her head and screaming would cue her parents to turn off the television or change the channel, a statement with which her parents agreed.

Moeller (1996) describes the behavioral mechanism of disinhibition by claiming that: repeated exposure to socially sanctioned behaviors may increase the likelihood of viewers to let go of the constraints on their actions and display such behavior. This theory suggests that television not only influences the acquisition of novel behaviors, but also may have an effect on whether or not already acquired behavior patterns will be performed. (p. 3)

Many children's television shows encourage interactive behavior, such as dancing, singing, repeating words or phrases, and/or answering trivia questions. When children watch these shows,

they may acquire new knowledge related to the activities being performed (as in a sing-along scenario), or they may express previously learned knowledge by acting out the roles shown.

For example, the show *Yo Gabba Gabba!* includes a regular segment titled “Dancey Dance Time” that is designed to get children on their feet and dancing at home (Yo Gabba Gabba!, 2011). By showing celebrity adults dancing with kids and characters from the show, *Yo Gabba Gabba!* portrays dancing as socially acceptable and encouraged. Hundreds of homemade videos on *YouTube* show children performing their own dance moves at home, all inspired by this segment of the *Yo Gabba Gabba!* television show. Again, however, it is unclear whether children transfer this learning to other situations or environments when they are not watching television, or whether they understand the larger message that being silly and dancing improvisationally are socially acceptable behaviors in some contexts but not in others.

Regardless of how children think about such activities, I think that giving children the time to just “let loose” and be silly in the comfort and privacy of their homes surely aids in their longer-term understanding of acceptable social practices, which might deepen and transform over time.

**The Influence of television on children’s beliefs and attitudes.** Many researchers believe that, as a child grows and continues to be a member of “kid” popular culture (and eventually adult culture), that child’s interactions with television and digital media influence his or her beliefs and attitudes about the world. Some researchers (Fisch, 2004; Hawkins, 1977; Hodge & Tripp, 1986; Huston, Bickman, Lee, & Wright, 2006; Moeller, 1996; Richert et al., 2011) conclude that children’s attitudes and beliefs about television are related to the content of the shows they watch, and that as children grow up they learn to distinguish between what is real and what is imagined in the reality of the show. Additionally, children may use television shows to better explain and understand their own self identity, and form beliefs and attitudes about

themselves and their world. Or, as Buckingham (1993) claims, young people may use television as its own form of literacy or language to make meaning from their everyday lives.

FisherKeller (2002) follows this line of reasoning from Buckingham (1993), asserting that young people use the real people they see on television, as well as the characters these people play on television, to explore and understand cultural dilemmas as they grow up. In her ethnographic study, FisherKeller (2002) follows the lives of three culturally diverse students as they maneuver through adolescence. She finds, for example, that one girl is using television to take on the identity of Madonna, whom she sees as a strong woman who has earned great respect, power, and success. FisherKeller also follows a boy who uses television shows and symbols, such as the characters from *Quantum Leap*, to cope with fitting into a new place after a recent move, just as the character Sam Beckett must do in every episode as he leaps through time and space. This boy also looks to Bill Cosby and *The Cosby Show* to learn how to interact more effectively with his father, and uses knowledge he gains from watching professional basketball to fit in with the basketball crowd at his new school.

FisherKeller follows the life of another girl who considers herself to be a tomboy. This girl longs to play sports with the boys and still be accepted by the girls in her school. She uses tactics she learns from the Murphy Brown character on *Murphy Brown* to better approach these interactions with the boys and girls in her school. Thus, through long-term study and analysis, and through the words of the study participants themselves, FisherKeller concludes that young people, particularly from diverse populations, use the characters in shows and the interactions with real people and content on television to shape their understanding, attitudes, and beliefs about their own world.

Furthermore, in her long-term ethnographic study of children's narrative construction, Dyson (1997) explores how different media and media-related objects and characters are used in young people's lives, and how they can take on or employ some of the characters' identities when needed from the toys, shows, video games, and other media children interact with in their lives and "kid culture." She specifically looks at how children spend "much intellectual and social energy trying to figure out how to position themselves among others in the world" (p. 12), and how many of the sources of this influence and position come from the media. Like other researchers, including Marsh (2005), Dyson is well aware of how the "transmedia" franchise phenomenon influences young children's lives. Transmedia storytelling is the practice of storytelling across multiple forms of media in an attempt to create "'entry points' through which consumers can become immersed in a story franchise's world" ("Transmedia storytelling," Wikipedia, 2011). By establishing multiple points of entry through which children can become familiar with a particular storytelling franchise, the creators of these media establish a level of familiarity with the franchise for their young audience members that resembles a form of literacy.

Buckingham (1993) discusses this emergent literacy in his study of 90 children in England between 7 and 12 years of age, all of whom come from diverse ethnicities and social backgrounds. He observed the ways in which children "talk" television when conversing in small groups, and how they make meaning out of the medium itself in their daily lives and experiences. Using extensive interviews and observations, Buckingham describes how dialogues on individuals' experiences and understandings of the television programs they watch can help them develop more in-depth understandings of their world. He asserts that television itself is a form of literacy, and the children who watch and interact with it create "texts" and engage aspects of

these texts in their everyday lives. According to Buckingham, “television is instrumental in constructing and sustaining my social relationships and thus my sense of my own social identity” (p. 39). Moreover, discourse about television is a “social force...[and] a major site of the mediation of television meaning, a site where television meanings fuse with other meanings into a new text to form a major interface with the world of action and belief” (p. 39).

As these ethnographic studies demonstrate, the medium of television is particularly potent. Children engage with a specific storytelling franchise in many ways, but their time spent watching television may impact their lives and cultural identities most significantly compared to their interactions with other forms of media. Ethnographies enable the sorts of detailed investigations required to make such a determination; as stated earlier, it can be difficult or impossible to determine a direct link between the media content consumed and a child’s resulting behavior unless scholars know more information about the child, his or her background, and the environment in which he or she lives and learns. Quantitative and lab-based studies do not necessarily provide an externally valid, detailed look at this phenomenon. Ethnographic study allows for a much more thorough investigation of subjects in their natural environments, where they feel more comfortable to express their true feelings, attitudes, and beliefs about the content they see in their own words and through their actions.

**Children’s development of cognitive skills in the context of television viewing.** The question of whether television aids or hinders children’s cognitive skills continues to cause contention among researchers. Some scholars believe that television can potentially “retard children’s capacity for intelligent thought” (Winn, 1985 as cited in Buckingham, 1993, p. 7). According to Singer (1980), “frequent changes in scenes and content disrupt young children’s ability to sustain attention” when watching television (Singer, 1980 as cited in Kirkorian et al.,

2008, p. 45). Many scholars in the 1980s, including Singer, proclaimed television as being completely “cognitively passive and under the control of salient attention elicitation features of the medium such as fast movements and sound effects” (Kirkorian et al., 2008, p. 40). Singer (1980) even designed a theory that stated that the “busyness of television leads to sensory bombardment that produces a series of orienting responses that interferes with cognition and reflection. As a result, children cannot process television content and therefore cannot learn from it” (Singer, 1980 as cited in Kirkorian et al., 2008, p. 40).

However, Anderson and Lorch (1983) formed a contrary theory of cognitive skills and attention, claiming that “television viewing is based on active cognition” (Anderson & Lorch, 1983, as cited in Kirkorian et al., 2008, p. 40-41). In addition, “they argued that attention in children at least as young as two is guided in large part by program content” (p. 41).

Buckingham (1993) points out other researchers from the same time period who agreed that viewers of television:

[have] an active role in constructing meaning from television: rather than merely responding to stimuli, they are consciously processing, interpreting and evaluating what they watch...by using ‘schemas’ or ‘scripts’ – sets of plans and expectations which they have built up from previous experiences, both of television and of the world in general.

(Wartella, 1979; Bryant & Anderson, 1983; Dorr, 1986; as cited in Buckingham, 1993)

Moreover, the ways in which television programs display information may aid in the cognitive processes described above. According to Salomon (1979), research has “demonstrated that watching slow zooms in the detail of a large picture teaches children visual analytic skills” (Salomon, 1979, as cited in Moeller, 2005, p. 5). Lemish (2007) extends the idea that there may be cognitive value in certain types of television programming by claiming that “different media

cultivate different cognitive skills, and therefore, also affect different learning processes” (p. 160). Furthermore, as children interact with hypermedia texts, including pictures, spoken words, music, and print on the screen, they must arrange everything they are consuming to make sense of the material being presented, a process that requires a lot of cognitive ability and processing (Lemish, 2007; Lemke, 2002; Mayer, 2005).

Age may also play a role in the development of specific cognitive skills. Anderson and Pempek (2005) assert in their work with children aged 12-24 months that the children were more apt to watch shows like *Teletubbies*, which was designed for their viewing audience age and cognitive levels in mind, more than *Sesame Street*, which is designed for an older preschool audience. However, they ultimately felt that children were more likely to learn from real people rather than the screen (Anderson & Pempek, 2005). In addition, as Huston et al. (2006) explain, children may pay attention to television more readily as they get older because they become “increasingly capable of decoding the audio and visual messages of television making time with the medium more pleasurable and more informative” (p. 44). This process is also associated with how much time the child spends with the television until the child becomes a “master television viewer” (p. 44) by around age 10, when their heightened cognitive and attention skills from television seem to plateau.

Therefore, it seems many cognitive researchers concur that the act of watching television is too much for a young mind and is ultimately a passive and, therefore, negative activity. However, more recently a number of researchers are coming into agreement that television viewing is an active learning activity (cf., Kondo & Steemers, 2007) and I agree with this perspective. I believe that watching and interacting with television is a strong example of an active learning space. While Kondo and Steemers (2006) believe that children do not “perceive

television in the same way that adults do” (p. 2), they believe that children, “develop televisual skills step by step in line with their cognitive development [and that] age and linguistic maturity determine how a child will respond to and engage with TV” (p. 2). They go on to elaborate on how a child who engages cognitively with television does so in the same stages of development set forth by Piaget (1969):

Children under two experience a ‘sensory-motor’ stage, where their senses and actions show them that objects on television feel differently to those experienced in real life (see Lemish, 2007: 39). During a ‘pre-operational’ stage between 2 and 7 when they are acquiring language, they develop representational thinking skills, which allow them to talk about their experience of television. Between 7 and 12 (the concrete operational stage), children begin to engage in abstract thought which allows them to understand the medium’s codes and conventions sufficiently to follow storylines. They develop levels of perception (televisual literacy), which allow them to understand the chunks and segments that constitute a television programme and how they are linked (Signorielli, 1991: 28). From the age of 12 children are assumed to understand television in a similar way to adults (See Lemish: 2007: 39; also Hodge and Tripp, 1986: 80-81). (p. 2)

Thus, as children grow up they are not only becoming more engaged with television, they are able to develop their own sense of “televisual literacy” (Davies, 1997, p. 3 as cited in Kondo & Steemers, 2007, p. 2) that will spark their “innate human capacity to learn” and their engagement with the world around them. Even very young children could understand the “technical process” surrounding television and discuss what they had seen on screen (Gosling & Richards, 1999 as cited in Kondo & Steemers, 2007, p. 2). Furthermore, as children grow older

they become more critical of the content they view and voice opinions about it more readily (Davies, 1997 as cited in Kondo & Steemers, 2007, p. 2).

**Children’s development of attentional and comprehension skills in the context of television viewing.** Much of the scholarship about how digital media and television may be affecting children’s attention and comprehension has to do with the specific content and form of the show with which the children are interacting. For example, Salomon (1981) created the concept of the Amount of Invested Mental Effort to express the belief that the more passive an activity is, the less mental effort one will expend in that activity, which is linked to potential learning outcomes (Salomon, 1981 as cited in Moeller, 1996, p. 13). Since that time, however, many researchers’ beliefs have shifted to acknowledge that the seemingly passive activity of television viewing does not necessarily preclude learning from the content of the television show being watched. Attention and comprehension outcomes from television may have more to do with the age of the child and how long they pay attention to the content (Kirkorian et al., 2008; Kondo & Steemers, 2007). According to Burns and Anderson (1993), children learn more from television shows “when they can sustain unbroken attention” (as cited in Kirkorian et al., 2008, p. 50).

Furthermore, Fisch (2004) explains that when children watch a show, sometimes several times, they can recall that information at different times and in different settings. This follows studies by Peel, Rockwell, Esty, and Gonzer (1987), who assessed children’s comprehension and problem-solving skills when watching 10 mathematical problem segments from *Square One TV*. They found that 88% of children age 8-11 could recall a story (problem and solution) from a mathematical show, 71% could understand the concepts and skills taught in the show correctly, and 66% could relate or transfer that knowledge to another subject or activity (as cited in Fisch,

2004, p. 73). Additionally, Hodapp (1977) conducted a similar problem-solving study with children aged 5 to 6 who watched *Sesame Street*. Hodapp obtained similar findings for recall and understanding, but observed that younger children could not transfer or extend their learning elsewhere. According to Fisch et al. (2005), however, there is evidence that some children as young as 12 months can demonstrate signs of transfer, like imitation (Barr & Hayne, 1999), after watching various forms of media; however, these results depend on the study design and how the data are interpreted (Barr & Hayne, 1999 as cited in Fisch et al., 2005, p. 374).

Moreover, the ways in which children attend to content also change as they age, which affects whether they will pay extended information to a given television program. The “exploration-search model” (Wright & Vlietstra, 1975, as cited in Huston et al., 2006, p. 49), when applied to children’s television viewing habits, would argue that children begin life as explorers of content because they lack existing familiarity with television shows. As they become more familiar with the medium of television, their “attentional processes become more systematic, goal directed, and intentional” (p. 49). As Huston et al. point out, “children move from attention patterns that are predominantly exploration in infancy and the early preschool years to attention patterns that are predominantly search by middle childhood” (p. 49).

Therefore, as children age, the types of television programs that will hold their attention change as they become more cognitively advanced. This phenomenon, in turn, affects the amount of comprehension that can occur when children watch a given television show: If the show is designed to support exploratory cognitive behavior, but the children watching are beyond that stage, their attention will most likely waver and the cognitive benefits of the show may never be attained for those children.

Researchers agreed during the 1980s that infants and toddlers could not learn or comprehend anything from television, let alone pay attention to the content (Anderson, Lorch, Collins, Field, & Nathan, 1986 as cited in Kirkorian et al., 2008). However, in the late 1990s an abundance of content specifically created and marketed for toddlers appeared on television and video. According to Barr et al. (2003), some videos can hold the attention of infants, who may be learning from the videos' content. But while some of these shows may hold infants' and toddlers' attention, it is unclear whether they are learning from these shows (as cited in Kirkorian et al., 2008). In one study described by Kirkorian et al. (2008), researchers showed children a television with a bowl of popcorn on the screen. They asked children if the popcorn would fall out when the television was turned upside-down. Most children younger than five found it hard to make distinctions between what was happening on the television screen and what was happening in reality, leading Kirkorian et al. to state that some researchers believe "children do not comprehend the symbolic nature of television until they reach the preschool years; evidence and comprehending and learning from television at younger ages than about two and a half is meager" (p. 43). Additionally, Richert et al. (2011) state that "young children demonstrate the ability to use information from a symbolic screen before they have fully developed their dual representational understanding of 3D symbols." (p. 87).

However, interaction with television shows and with others watching the same programs may assist the attention levels of children, resulting in greater comprehension. Buckingham (1993) states that "adult females, puppets, rapid scene changes, and animation tend to increase young children's attention" (p. 13). Other studies indicate that children who watch television programming with their mothers are more likely to exhibit the "largest cognitive gains" and understand more of the content that is being shown (Ball & Bogatz, 1970 as cited in Chen,

1994). According to Kirkorian et al. (2008), “co-viewing adults...can enhance the effectiveness of educational programming by drawing attention to the most important aspects of the program by extending lessons presented in the program” (p. 52). This finding is evident in studies dating back to the 1970s and 1980s (Friedrich & Stein, 1975, as cited in Kirkorian et al., 2008; Salomon, 1983, as cited in Buckingham, 1993, p. 13).

Moeller (1996) follows this line of inquiry, claiming that children are more likely to comprehend a show’s content if they have someone present who can discuss the show and guide their thinking about it. These co-viewers can focus children’s attention toward or away from certain elements of television shows; however, as Moeller points out, “little is known however, to what extent these forms of mediation will affect learning outcomes” (p. 15). Fisch (2004), Huston et al. (2006), Kirkorian et al. (2008), and Lemish (2007) have since expressed similar theories about the potential attention and comprehension benefits of co-viewers. Furthermore, others have also stated that children will learn more with the aid of a co-viewer (Reiser, Tessmer, & Phelps, 1984; Reiser, Williamson, & Suzuki, 1988; Salomon, 1977; Valkenburg, Kremer, Peeters, & Marsielle, 1999; Warren, 2003). Taken together, these researchers indicate that co-viewing habits and parental mediation positively influence children’s comprehension and understanding of media content.

Most recently, scholars at the Learning in Informal and Formal Environments Center (Stevens & Penuel, 2010) have developed a new form of co-viewing that best describes how children can comprehend media. Their term is called joint media engagement or JME. JME:

“refers to spontaneous and designed experiences of people using media together, and can happen anywhere and at any time when there are multiple people interacting together with media. Modes include viewing, playing, searching, reading, contributing, and

creating with either digital or traditional media. JME can support learning by providing resources for making sense and making meaning in a particular situation, as well as for future situations” (p. 1).

I will discuss the conceptual basis for JME in more depth in Chapter 4.

### **Educational television and subject learning, readiness, and academic achievement.**

There is a wealth of information regarding young people’s school subject learning, school readiness, academic achievement, and their connection to educational television programming. Since the 1950s, the Public Broadcasting Service (PBS) has been broadcasting educational television shows. However, early shows failed to hold children’s interest because the shows usually featured scientists or educators who had little if any formal training in how to identify with children (Lemish, 2007).

In the late 1960 and early 1970s, educational programming became popular with children due to shows such as *Sesame Street*, which was designed to appeal to children aged 3 to 7 and prepare them for school. It is the most researched and most watched children’s television show. *Sesame Street* revolutionized learning in young people by helping them learn basic skills in math, language, reading, vocabulary, and science before they began attending school (Bogatz & Ball, 1971). The show also promoted many prosocial behaviors, such as cultural tolerance and understanding others’ viewpoints (Gunter & McAleer, 1997).

Today there are hundreds of shows directly marketed to young people, many of which are marketed as educational programming. Examples of these shows include *Barney and Friends*, *Blue’s Clues*, *Bob the Builder*, *Dora the Explorer*, *Teletubbies*, *Thomas and Friends*, *The Wiggles*, *Baby Einstein*, *Brainy Baby*, and *Sesame Street Beginnings* (Kirkorian et al., 2008). These shows claim to help develop a wealth of skills: sharing, empathizing, helping, cooperating,

problem solving, planning, colors, shapes, foreign language, map reading, numbers, counting, the alphabet, emotional management, conflict resolution, music, dance, diet, body movement, science, poetry, art, and many more (p. 41).

However, Lemish (2007) cites four contrasting hypotheses of the effects of television viewing on children, all of which illuminate the disagreement over whether these shows are actually educational or even helpful to children. Lemish ultimately concludes that educational television “can indeed educate” (p. 179), and advocates in favor of educational television programming. However, Lemish charges parents with the ultimate power over whether watching television helps their children, citing “the responsibility of parents in creating a television environment that is best suited to the needs and abilities of children in different stages of their lives” (p. 154).

In their review of the literature that describes how children are learning from television, Kondo and Steemers (2006) cite research in which parents of young children were surveyed about their thoughts and feelings regarding if they believed their child was learning from television. The overall consensus to the study “revealed that parents were ‘generally very positive about the role of media in their young children’s social, emotional, linguistic and cognitive development’” (Marsh, 2005, p. 5 as cited in Kondo & Steemers, 2007, p. 10).

Many scholars have also identified connections between children’s interactions with digital media and enhanced learning. These areas of learning include vocabulary, math, science, reading, and social studies (Fisch, 2004; Wright et al., 2001); language acquisition skills (Lemish, 2007; Linebarger & Walker, 2005; Naigles & Mayeux, 2001); foreign languages (Kirkorian et al., 2008); and literacy (Buckingham, 1993; Moeller, 1996; Davies, 1997; Dyson,

1997; Hull & Shultz, 2002; Marsh, 2005; Rideout, 2003; Rideout, 2005). Huston et al. (2006) make the case for educational television most compellingly:

“early television viewing appears to have long-term consequences for children’s achievement. In the Recontact Study (Anderson, Huston, Schmitt, Linebarger, & Wright, 2001), I tracked 570 adolescents whose media use and family characteristics were studied in detail when they were 5 years old...the frequencies of viewing three types of television-informative, violent, and all other programming-in preschool years were calculated. Teen’s television viewing diet and total time they had spent watching television as preschoolers were used to predict academic achievement, achievement motivation, leisure reading, extracurricular activities, aggression, health behavior, and self image in adolescents...analysis showed that viewing child informative programs as preschoolers predicted academic success in adolescents. (p. 57)

I agree with the literature that supports the notion that educational television programming is positively affecting children’s subject learning, social skills, literacy, and academic achievement. I believe strong evidence exists and suggests that, as children watch and interact with television in preschool, they learn skills that will aid them academically and socially as they grow up. Although Kirkorian et al. (2008) discuss some studies that show negative correlations between television viewing and academic achievements, the achievement gaps tend to be related not to television viewing but to other factors, such as age, socioeconomic status, gender, culture, and race. They conclude that children who watch educational television have greater future success and engagement at school:

One of the most extensive studies of this kind reported that viewing educational programming at age five was positively associated with high school grades in English,

math, and science. Early exposure to educational programming was also positively linked with a host of other factors such as leisure time reading and involvement in extracurricular activities. In another longitudinal study, the effect of television exposure between six and thirty months of age depended on the content viewed. For example, early exposure to programs such as *Blue's Clues* and *Dora the Explorer* was positively linked with subsequent vocabulary and expressive language whereas viewing *Teletubbies* was negatively linked with performance on these measures. On its face, these findings contradict results indicating little language learning from video in children under two. (p. 49)

The connection between academic achievement and educational television programming needs to be studied in more detail before a definitive answer can be provided about how this connection works, and whether television is primarily a positive or negative influence on academic achievement.

**Television viewing and math and science learning.** Fisch (2004) states that math and science television programming is designed to address three primary areas: children's knowledge of math and science, their performance in math problem solving and scientific discovery, and their attitudes towards math and science. Scholars agree that most informal math and science media programming comes from the *Public Broadcasting System* (PBS) and cable channels such as *National Geographic*, the *Discovery Channel*, and *Nickelodeon* (Chen, 1994; Fisch, 2004). Bell, Lewenstein, Shouse, and Feder (2009) contend that informal science learning can greatly improve children's learning outcomes, especially for children of underrepresented minorities and women. Furthermore, they find that children who watch and interact with educational television

shows that incorporate and teach science are more likely to learn science and enjoy it throughout their life.

The above finding seems to support the notion that children between 6 and 12 years of age retain a lot of knowledge from their time spent watching television. Most research into this process comes from studies on the *Children's Television Workshop* (CTW) and PBS, the network that produces science shows such as *3-2-1 Contact*, *The Magic School Bus*, and *Cro*, and math shows such as *Square One TV*, *Cyberchase*, and *Mathnet* (Chen, 1994; Fisch, 2004). These shows are meant to fill a gap in science and math education and interest: Chen (1994) notes that one reason why some researchers have found that children lack scientific skills or interest in science is because they have not been adequately introduced to science. Fisch (2004) states that educational programming promotes growth in children's knowledge of math and science, problem-solving skills, and attitudes. Children want to learn more once they are introduced to educational programming that motivates and educates them about science and math (Bell et al., 2009).

Chen (1994) asserts that educational television shows "whet the appetite for science, to serve as a springboard for other activities conducted in the home, classroom, the after-school setting, or the science museum" (p. 28). In Chen's (1983) study of 4<sup>th</sup>-6<sup>th</sup> graders who watched *3-2-1 Contact* every day for several weeks in their classrooms, 61% of children and parents stated they carried out further science-related activities after watching programs on science-related topics. Moreover, Fisch (2004) explains that when children watch a show, sometimes several times, they can recall that information at different times and in different settings. Fisch's result follows Peel, Rockwell, Esty, and Gonzer (1987), who assessed children's comprehension and problem-solving skills when watching 10 mathematical problem segments from *Square One TV*.

They found that 88% of children age 8-11 can recall a story (problem and solution) from a mathematical show, 71% could understand the concepts and skills taught in the show correctly, and 66% could relate or transfer that knowledge to another subject or activity (Peel et al., 1987 as cited in Fisch, 2004, p. 73).

Additionally, Hodapp (1977) conducted a similar problem-solving study with children aged 5-6 who watched *Sesame Street* and obtained similar findings for recall and understanding, but noted that younger children in the study could not transfer or extend their learning elsewhere. Yet according to Fisch et al. (2005), there is evidence that some children as young as 12 months can demonstrate signs of transfer after watching various forms of media. However, these signs depend on the study and how the results are being interpreted; there is no general scholarly consensus on when transfer begins in a person's life.

Interestingly, young children are becoming more interested in scientific and mathematical television programming. Chen (1994) emphasizes that although programs such as *3-2-1 Contact* are targeted to an audience of children age 8-12, children as young as 3 to 4 years old are watching, learning, and becoming motivated by these shows. Both PBS and Nick Jr. feature shows such as *Sesame Street*, *Dora the Explorer*, *Go Diego Go*, *Blue's Clues*, *Bob the Builder*, and *The Backyardigans*, all of which incorporate some elements of science and/or math lessons into each show. These shows, which are not specifically about science or math, are designed for pre-school-aged children.

**Parental support for television viewing.** Many scholars stress that parents who are active in their children's informal educational processes and who encourage them to watch educational programming raise children who are more likely to be excited about learning (Bell et al., 2009; Kondo & Steemers, 2007) and promote other "positive science learning behaviors"

(Chen, 1994, p. 33). These other behaviors include getting books from the library, visiting a museum, or participating in science or math related activities at home (Bell et al., 2009). Nearly 40 years ago, Ball and Bogatz (1970) discovered that children who watch television programming with their mothers are more likely to exhibit the “largest cognitive gains” (Ball & Bogatz, 1970 as cited in Chen, 1994, p. 45) from those programs. Kondo and Steemers (2006) assert that when children view an educational television show and have a subsequent lesson to follow up and review what they watched, they were more likely to retain the information, especially in the areas of math, knowledge of the world around them, their bodies, and their health (Marsh, 2005 as cited in Kondo & Steemers, 2007, p. 10).

Parents’ educational backgrounds and values also play an important role in the development of their children’s feelings about science and math. Bloom (1985) studied 120 young men, women, their families, and their teachers from six professional fields in *Developing Talent in Young People*, all in order to better understand the processes of intellectual and personal development:

parents who valued academic achievement and were models of intellectual behavior...were typically more highly educated than the average parent...Perhaps the most significant aspect of these early years was the way the parents responded to their children’s questions. Questions were treated seriously, and when the parents didn’t know the answer, they taught their children how and where to find them. These parents believed that their children were special and shared with them the excitement of discovery...Learning how to learn was more important than what they learned. (Bloom, 1985 as cited in Chen, 1994, p. 48)

During early childhood, parents are the primary influence on children's decision-making skills and values with regard to what is right and wrong and good and bad.

Parents also provide children with the beginnings of their decision-making skills in relation to their future career choices. Parental behavior and influence steer young people toward the development of preferences for certain activities, interest in future careers, and self-expression through everyday behaviors (Maccoby, 1998). At the earliest stage in children's lives, parents typically wield the strongest influence with regard to children's self-image and ideas about different careers and professions.

Educational programming specifically produced for children in early to middle childhood seems to be having a strong impact on children's motivation, problem-solving skills, comprehension, and overall interest in science and math. However, it seems that in order to maintain these high levels of interest, parents must be involved in watching the programming with their children, exposing them to science and math in their everyday activities, and encouraging their children's interests so they will maintain these interest in science and math and other STEM subjects as they grow older.

**Factors affecting children's learning from television.** There are two main factors that seem to affect children's learning from digital media in general and television viewing in particular. First, the characteristics of the audience are important to consider (cf., Buckingham, 1993; Fisherkeller, 2002; King & Multon, 1996; Kirkorian et al., 2008). Buckingham (1993) contends that the social setting and groupings in which children view television can have a significant role in what those children say the television programming means to them, regardless of their social, ethnic, and/or cultural backgrounds. Second, the content and format of the show

with which children are interacting (Reeves & Thorson, 1986). All of these topics are discussed in greater detail in the following sections.

***Audience characteristics.*** A number of characteristics have been used as independent variables in various studies. The age, socioeconomic class, parental education level, education level, gender, culture, and race of the children watching a specific television show significantly affect the children's interpretation of the show's messages, as well as the researcher's interpretation of the children's behaviors and responses. For example, a McDonald's television advertisement during an NFL football game might feature a young African-American family eating hamburgers and watching sports, while an ad for the same product might feature a Caucasian family if aired during a rerun of *Seinfeld*. The same advertisement aired during a children's television show would probably feature children of numerous races playing and having fun at McDonald's. This differentiation enables McDonald's to convey the message they want to members of different audiences and viewing demographics, ensuring their message is interpreted as successful as possible.

With regard to age as an audience characteristic, Kirkorian et al. (2008) review the work of the researchers who claim that a child's age is a significant factor in determining whether that child is learning anything from television. They conclude that, while very young children might be learning some things from interactions with television, "children under two suffer from a video deficit such that they learn substantially less from video than from comparable real-life experiences" (p. 53). Yet, Linebarger and Walker (2005) would disagree because their study results demonstrate that very young children were able to learn, understand, retain, and have better language acquisition after watching educational television shows (Linebarger & Walker, 2005 as cited in Kondo & Steemers, 2007) Furthermore, with regard to socioeconomic class and

its effect on children's learning from television programming, Kirkorian et al. (2008) found that "television viewing is associated with higher achievement in children from lower-income homes and lower achievement in children from higher-income homes" (p. 52). Clearly, age and socioeconomic status are relevant factors when determining whether a specific demographic could benefit from a television program.

With regard to education level and gender, King and Multon (1996) found that the more educated a child's mother was the less television the child was allowed to watch. Furthermore, Kirkorian et al. (2008) discuss a longitudinal study "that separately analyzed different content types [and] found that the positive association between exposure to educational programs at age five and later achievement was significantly stronger for boys" (p. 52), in part because "socialization of girls generally places more emphasis on academics" (p. 52). According to the study findings, boys do not socialize with each other in ways that prepare them as much as girls for the academic requirements of school.

With regard to cultural and racial identity, Fisher-Keller (2002) claims that "young adolescents' experiences as an age group in a particular place and time, and as schoolmates, friends, and neighborhood chums, bear on how they use TV and on how they learn through TV culture" (p. 114). The three subjects of her study come from diverse racial and cultural backgrounds, stating that they "were drawn to TV figures whose fictional experiences of power relations linked to age, gender, class, and race resonated thematically with their experiences of non-TV life" (p. 111). Ultimately, these subjects "learned from TV figures who struggled with some of the same issues" (p. 111), a finding that demonstrates the need for differentiated television programming that enables children with diverse racial, socioeconomic, and cultural backgrounds to identify with the characters they see in the shows they watch

All of these factors are important to consider when designing studies that investigate the impact of educational television programming on children's learning. The specific characteristics of the studies described here are provided only as examples of the many similar studies that reinforce this idea. Television producers should also be cognizant of how these audience characteristics should inform the content they create, as well as the themes, directions, and formats of the shows they develop. Finally, the characteristics cited here are only a few of the factors that can determine whether children will learn from television programming; literacy level, preconceptions about television medium, and motivation among others are also important to consider (Moeller, 1996).

***Viewing and designing content.*** Children's media viewing habits begin at a very young age (Kirkorian et al., 2008; Moeller, 1996; Readout, 2003). Some researchers believe that so-called passive viewers will not learn very much due to their passivity, yet many contend that is just not the case and the act of watching television is a very active activity (Kondo & Steemers, 2007). Furthermore, a successful educational television programs inspire motivation and stimulation to activity in viewers and co-viewers. This motivation and stimulation can result in heightened memory, recall, and use of information that children have learned from other sources (Fisch, 2004; Moeller, 1996).

Moreover, the ways in which viewers adapt the medium of television may also aid in their learning. With the rise in personal computers, DVD and VHS players, and DVRs and on-demand cable service, young and old viewers alike have a lot more power to locate, watch, and repeat information over and over whenever they like. Children can now watch parts of their favorite episodes on the Internet or on demand through their cable television service. Parents can

buy DVDs for their children to watch whenever they like, at home or in the car, and they can record episodes of certain shows using their DVRs.

With this vast power to watch and interact with television programming “on demand,” children have greater access than ever to a wide variety of shows, meaning they can watch the shows they prefer without being constrained by the limited number of channels available, or the times at which certain shows are broadcast. This technological development is significant in part because it has a positive impact on co-viewing potential: Children can watch shows with parents at their mutual leisure.

Furthermore, this digital technology also allows viewers to watch shows out of linear order, which can potentially aid in comprehension. As Fisch (2004) and Kirkorian et al. (2008) acknowledge, children like to repeat programming over and over, which aids in their cognitive processing and comprehension of the show. Giving children the power to skip around within a show also holds their attention on the parts of the show they want to watch. Therefore, children’s viewing habits can be as diverse as they need to be; these habits play an ever expanding role in how children interact with television programming.

The content and the design of a show also contribute to how children can learn from it. Many education television shows are carefully constructed to appeal to young people and their different cultural markers. Additionally, depending on the subject that is being addressed in the show, the format or style may be different. For example, many shows like *Dora the Explorer* follow a similar story arc in every show. Dora is a female bilingual cartoon character who usually embarks on an adventure in order to complete a task. Children interact with her by answering the questions she asks, and by completing visual and verbal tasks along the way. In many shows she has a map and several other characters who help her find her way. Directions

are repeated and sometimes presented in a sing-song style so children can remember and repeat them when prompted. Every episode follows this general profile; as children become repeat viewers of the show, they also become familiar with the format and structure of the series, allowing them to pay attention to the content rather than being distracted by peripheral aspects of the show.

### **Theoretical Framework**

This project is based on three different areas of theory:

- theoretical formation and reasoned approaches towards how people learn in informal learning environments;
- transfer of learning from one situation or context to another;
- understanding transfer in terms of the in game/in room/in world framework.

In the following section I will explore the foundations of these frameworks in detail.

**Informal learning environments.** This project is informed first by ethnographic and socio-cultural research traditions and studies of practice of how people learn in informal environments (Bell et al., 2009; Lave & Wenger, 1991). Among those scholars who discuss informal learning environments, one of the few areas of agreement is the definition of the topic of study. An informal learning environment is an environment in which learning takes place outside a dedicated learning environment, such as a school, and which arises from the activities and interests of individuals and groups. Informal learning environments extend to includes interactions with friends, family, and many forms of media, which are critical points of access to a further understanding of the world (Bell et al., 2009; Buckingham, 1993; Gee, 2003; Stevens & Hall, 1998; Stevens, Satwicz, & McCarthy, 2007). Furthermore, this idea extends to practices and interactions in which young people take part in their everyday lives (Bell, Bricker, Lee, Reeve, & Zimmerman, 2006; Bell, Bricker, Reeve, Zimmerman, & Tzou, in press).

Informal learning environments can augment classroom studies in helping people of any age explore and better understand their world. This fact is particularly important because, in the time it takes to finish 12 years of schooling, students spend “approximately 11,000 hours in the classroom and 65,000 hours, sleep excluded, outside the classroom” (Medrich et al. 1982, as cited in Gerber, Cavallo, & Marek, 2001 p. 536). Gerber et al. (2001) extend this line of reasoning when they claim that informal learning environments are essential areas where students’ lives are influenced and where they pick up most of their attitudes and ideas:

The types and frequencies of activities in which children are engaged during this time may have profound effects on their abilities in school and functioning in society.

Experiences that may occupy children’s’ time may be as varied as the children themselves. Watching TV, playing electronic games, reading, performing family chores and participating in sports are but a few of the myriad of informal activities which may comprise children’s’ experiential time outside formal educational settings. (pp. 536-537)

Gerber et al. (2001) also examine the numerous accounts of informal learning. They state that “informal learning may facilitate the development of reasoning abilities that are prerequisites to learning and understanding...processes and concepts” (p. 537). Thus, informal learning and informal learning environments are essential areas in which we all have the ability to learn something new or pursue something interesting in the comfort of our own homes or communities.

**Transfer of learning.** This dissertation work is also grounded on the idea of transfer, for which there are competing definitions. This study is guided by the Bransford and Schwartz (1999) conceptualizations of the transfer process: Learning can also be employed through practices from one’s past experiences, and a good assessment of learning is the ability for an

individual to be able to extend the knowledge they have formed in one context to another context.

Bransford and Schwartz explore research on transfer and what this body of research has taught scholars to date. The idea of “transfer” has been around for a long time: Thorndike and Woodworth (1901) studied it over 100 years ago. Their work showed that “even though people may do well on a test the specific content they have practiced, they will not necessarily transfer that learning to a new situation” (Thorndike & Woodworth, 1901 as cited in Bransford & Schwartz, 1999, p. 62). From this early work, learning science researchers began to question whether the design of some assessments in formal environments were really demonstrating students’ learning, or whether these assessments were simply testing students’ ability to recall. According to Judd (1908), students need to value “learning with understanding rather than simple mimicking of a set of fixed procedures” (Judd, 1908 as cited in Bransford & Schwartz, 1999 p. 64).

However, as Bransford and Schwartz point out, scholars disagree about what exactly transfer is, when it occurs, or even whether such a phenomenon is a positive thing for learners. They explore several pros and cons that researchers have found with regard to transfer, and they explore their own model of transfer as the concept of “preparation of future learning” (p. 68), or the PFL model. PFL is the idea that one builds on past experiences and knowledge to succeed in the future. Therefore, the better prepared one is to succeed, for example in a new job as a teacher, the more likely that person will be able to learn and transfer that knowledge to new tasks. New teachers are provided support, coaching, and student teaching opportunities, all of which give them the foundation of knowledge they need so they can be prepared for the tasks and issues that will arise on the job. Their preparation for future learning helps them transfer the knowledge they

learned from their own education, their simulated teaching activities, and their coaching to real situations in the classroom.

The PFL model:

is important because it provides a framework for evaluating the quality of particular kinds of learning experiences. A particular learning experience can appear ‘good’ or ‘poor’ depending on the tasks one is eventually asked to perform (Bransford, Franks, Morris, & Stien, 1979; Morris, Bransford, & Franks, 1977). The PFL perspective focuses on ‘extended learning’ rather than one-shot tasks performances. In doing so, it helps reveal the important activities whose benefits are hard to measure from an SPS [sequestered problem solving] perspective. (Bransford & Schwartz, 1999, p. 78)

The PFL model gives educational researchers and practitioners a straightforward way to think about the concept of transfer. Application of the PFL model can help reveal areas of transfer that were missed with other analysis models, and can provide a good baseline for better assessment. For this dissertation I am using this model because it will help yield a deeper understanding of how and what children are learning from digital media. Children are bombarded with media images just as they are beginning to form a knowledge base about their world. As they view and comprehend interactions between characters on television shows, for example, they broaden their understanding of the world. As they grow up, these interactions stay in their minds and continue shaping their perspectives.

Importantly, many of the interactions observed in digital media, such as television, are not necessarily representative of reality. Many of the stories and scenarios portrayed in television, movies, books, and video games are fictional in ways that may not be readily apparent to very young children. For example, if children see the same images of scientists for the first

five years of their lives, and if those images depict the stereotypical “mad scientist,” those children may evolve certain ideas about all scientists. They may express these ideas once they enter their first formal learning environment and encounter different images and descriptions of science and scientists. Ultimately, they must reconcile their desire to transfer these previously collected images and ideas with the truth about scientists: They are not all mad.

If young children are taught from early childhood that scientists can be any gender, race, sexual orientation, or ethnicity, and if they see and interact with these images in the media they consume, they will grow up with very different mental images of scientists than those children who never learn this context. This positive base of knowledge gives children, once they enter school, a well-developed perspective from which they can transfer ideas about scientists to their schoolwork and classmates.

#### **Situating transfer in a modified version of the in game/in room/in world framework.**

This project relies on a modified version of the “in game/in room/in world” framework created by Stevens, Satwicz, and McCarthy (2007). Stevens et al. explore children’s learning while playing video games. The authors concur that in order to know and understand more about “what is or is not valuable about video games” (p. 2), a more thorough exploration is required with regard to what is actually happening when young people play games. While the authors do not specifically explore or define transfer in the same ways as other theorists and researchers have, they explore transfer as “an action that a person actively does rather than an automatic process that happens to a person’s mind under appropriate conditions” (p. 24). However, they also acknowledge that transfer might not be the only phenomenon occurring, and they follow the traditions of “situated, everyday, or distributed cognition” (p. 2), which is the idea that researchers “get out of the laboratories and into the fields of activity” (p. 2), and that people

rather than researchers “organize,” which is sometimes used as “an alternate approach to transfer” (p. 2).

In their study, Stevens et al. examine how video game play is represented in the games themselves, how game play is instituted in young people’s interactions and activities in the room where they play the games, how the learned concepts, ideas, interactions, and experiences from those games are carried into young people’s everyday lives, and how everyday experiences are brought back into game play interactions and vice versa (p. 3-4). They explain that the lives of young children are not black and white but are “tangled up” (Nespor, 1997 as cited in Stevens, Satwicz & McCarthy, 2007, p. 3) in other activities and interactions that children engage in their everyday lives. Furthermore, they do not seek to “provide causal explanations of transfer between videogames and other life activities, but rather to provide a set of careful descriptions of how game play is tangled up with the ‘in room’ and ‘in world’ of the participants” (p. 3). They demonstrate this concept by contrasting their findings with the everyday activity of homework.

Therefore, the Stevens et al. framework can serve as a way to study children’s learning from, and experience with, the digital media that surround them in their lives. For this dissertation research, I employ a modified version of this framework that suits the analysis of children’s television, film, and *YouTube* viewing and learning. I recast the phrase “in game” to “in show,” enabling me to focus on what is happening in the television show or video itself. The “in room” distinction follows the interactions in children’s lives in the rooms in which they watch their shows and interact with others while the shows are on. And the “in world” distinction follows instances of how the “in show” and “in room” interactions affect the children, and how the children’s interactions away from the show and the room affect their viewing and interaction habits and practices. By closely following the trajectory of information from show to room to

world, and back again, I will be able to develop a deeper understanding of how and what children are learning from television and other digital media.

The following list better explains how each section of the framework will be explored in this project:

- “In show” refers to the content and structure of the television program itself. (It must be noted, however, that all interactions are only in the room and the show cannot be changed by the actions of the viewers in the room like a video game can. Furthermore, even though some educational television shows call for elicit viewer responses from the audience and leave a pause in the show dialog for audience members to reply their decision to answer or not answer a show prompt cannot change the content of the show in anyway.)
- “In room” refers to the social and material characteristics of the environment in which the viewing takes places, including the interactions that occur between children, the show, and others present.
- “In world” refers to the ways in which the show and interactions in the room where the show is being viewed reference themselves in other aspects of the child’s everyday life.

**Grounded theory and ecological validity.** As with Stevens et al. (2007), this study uses a grounded theory perspective (Glaser & Strauss, 1967), which means in part that the study began without a specific hypothesis but that research questions evolved after careful analysis of the collected data. Additionally, this study will reconcile the need for “ecological validity” (Stevens et al., 2007) with the search for potential examples of transfer that stretch beyond the participants’ homes. It is important to understand ecological validity in terms of this dissertation. I maintained ecological validity to the best of my ability by trying my best to not interfere with the situations in which the children are watching and interacting with media in their homes.

### **Dissertation Chapter Organization Outline**

In the rest of this dissertation I will explore the methods I used to conduct and analyze this project, followed by three chapters of analysis that explore and answer my research questions, and conclude with a chapter that states the implications and limitations, future research directions through recommendations and next steps for this research.

**Chapter 2: Methods.** The methods for this dissertation follow how the project came about, the data collection techniques, and the various stages of analysis that were conducted for the three analysis chapters. The data described here are drawn from a larger, 1-year naturalistic, ethnographic study of children watching and interacting with digital media in their homes funded by the LIFE Center (a National Science Foundation funded Science of Learning Center). The data were collected as children were observed and videotaped in their homes for approximately 1-2 times each week as they watched different types of visual media (such as television programming, DVDs, movies, and *YouTube* videos). Each analysis chapter uses data from a subset of the 16 child participants, their families, and friends. I was present when most of the data from this study were collected; however, in some cases other researchers collected or helped me collect the data, or the parents videotaped their children without any researchers present. And in some cases my colleagues helped me analyze some of the initial passes through the data corpus but the analysis I present here represents my *own* ideas and analyses of the data.

**Chapter 3: In show: understanding the relative success and failure of interactive show prompt styles.** In this chapter, I will expand on the research supporting the notion that educational television shows encourage social activity by answering the following research questions: *How do television shows encourage active viewing behaviors, and how do children respond to those forms of encouragement?* I begin with a brief discussion of the relevant literature. I then use a coding scheme that I developed to analyze television viewing events for the shows *Go, Diego, Go!*, *Dora the Explorer*, *Super Why*, or *The Little Einsteins*, all of which include prompts and pauses for viewer responses in every episode. Through my analysis of the data I catalog what the children are being prompted to do and how they responded to the prompts presented by these shows. Finally, I present transcripts of prompts and prompt responses to

provide the full contextual perspective on what happens when children are exposed to prompts for interaction. This analysis generates a better understanding of the types of prompts and situations that encourage children to respond to “interactive” media most often.

**Chapter 4: In room: understanding how children learn from digital media through social interactions.** In this chapter, I explore the question: *How do children learn from digital media through their interactions with the media and themselves, other people, and objects in order to make their viewing experiences social?* To answer this question, I explore three case studies (self mediated viewing, social viewing, and socio-artifactual viewing) and expand upon existing knowledge of the phenomenon of co-viewing and joint media engagement. Although I developed these case studies while reviewing the entire data corpus, I constrain my data presentation and analysis in this chapter to a set of focal children and their viewing of and interactions with television shows and *YouTube* videos. I selected these children because they interacted with digital media in ways that are broadly representative of the interaction strategies that all children in the study used when watching digital media. This purposeful selection also provides a diverse sample of participants with various social and ethnic backgrounds as well as a spectrum of ages ranging from one to six years of age.

To begin the chapter, I provide some background information on each of the six focal children to better situate the reader into the life, identity, and home of each child. Next, after presenting the study data through short vignettes imbedded within the case studies, I analyze the focal children’s viewing experiences to present evidence of how each child uses viewing strategies they create with themselves, with others, and with objects to learn from and make their viewing experiences more social.

**Chapter 5: In world: understanding what children are learning from interactions with digital media in their everyday lives.** In this chapter I will describe how children's digital media viewing activities are extensions of their broader behavioral patterns, particularly in terms of how they socialize and learn with others and connect with popular culture through pretend play or command and share information they have learned to create new knowledge for others as parts of their daily patterns of life and I conduct this discussion in the context of the following research question: *How do children's experiences with digital media lead them to extend that learning from digital media to other contexts of their everyday lives?* To explore this question, I use two case studies that follow five focal children from the study and explore the social outcomes that can occur when these children engage with digital media. The first case study describes how some children manifest the results of their engagement through their imaginative or critical interactions with and around show characters; the second case study describes how some children express their engagement in socially meaningful ways that reflect their desire to engage other people with the same types of media content they view. Finally, the goal is to demonstrate that learning is occurring as the children's experiences with digital media led them to extend their learning from one context to another.

I begin the chapter by providing an overview of literature relevant to my research question. I then briefly situate the reader in the daily lives and television-related beliefs of five focal children's families from the study. These families were specifically selected because they best illustrate the bridge from in-room learning interactions into in-world learning experiences. I continue with the case studies and associated vignettes before ending with a summary of the cases as they are relevant to the research question.

**Chapter 6: Discussion and conclusion.** The final chapter of this dissertation will begin by enumerating the limitations of the study and the results reported herein. I then reflect on what and how children learn from digital media in the words of the parents in the study. Next, I summarize the analysis and findings presented in Chapters 3, 4, and 5 in terms of the research questions. I conclude with a discussion and set of recommendations that includes ideas for future research into children's learning from interactions with and around digital media and for the design of future interactive television shows and technology for children. Specially, I give recommendations to parents, digital media researchers and the learning science community, and educators, all of whom are considered primary audiences for this dissertation.

## **Chapter 2: Methods**

In order to understand what and how children may be learning from television in informal environments, a year-long study was conducted. The information gathered from this study bridged out of a larger study being conducted by the Early Learning From Television research team (LTV), headed by then Associate Professor Reed Stevens, at the University of Washington's (UW) Learning in Informal and Formal Environments (LIFE) Center, of which I was a member. The data collection and the initial analysis and follow-up questioning for this study began in the late spring of 2008 and lasted through the early fall of 2009; the secondary analysis continued for another 2 years, ending in 2011. My dissertation project corresponds with the LTV work and the data presented here are a subset of the larger LTV data corpus.

### **Participants and Setting**

Children between 12 months and six years of age were recruited for this study, along with at least one of their parents. Participants were specifically selected from different genders, cultural and racial backgrounds, and socioeconomic classes since these different characteristics influence the ways in which television research is interpreted (Kirkorian et al., 2008). All of the data collection took place in the children's homes while the participants were watching television and interacting with parents, friends, siblings, and animals who may also have been present. Participants were recruited using flyers left at places that young children frequent with their parents: daycare centers, playgrounds, community centers, etc. All participants lived in the Pacific Northwest.

The subset of participants, from the larger study, I am using for my dissertation includes sixteen children from nine families (eight boys and eight girls) and at least one parent or caregiver for each of the families. Additional participants included caregivers, parents, older siblings, and friends. Table 2.1 (on the next page) provides more descriptive information about

each family: their names, the ages of the children, the children's ethnicity, and the parent's occupations. For more specific information regarding the families and their specific home setting, digital media viewing habits, and programming they were observed viewing during the study please refer to the end of this chapter.

All participant names and references to participant names in this dissertation are pseudonyms to protect the confidentiality of the participants. All names with an asterisk (\*) before them are the focal children for that family; however, all children under 18 years old are listed for each family. Parents will simply be referred to as Dad and Mom and the child's pseudonym surname (e.g., Mr. Jackson, aka Andre's Dad).

The participants in this study were selected because they answered the flyers, passed the screening process, and were interested in allowing the research team to enter their home and film their child watching and interacting with digital media several times a week for several months. Families were selected based on their availability and willingness to participate. Each focal child's family received \$200 for participating.

**Table 2.1. List of Participants, Ages at Beginning of Study, Ethnicity, and Parent Occupations**

Study Family Code Name	Pseudonyms of Family Members (*study focal child)	Ages of Children (when study began)	Ethnicity of all Children	Occupation of Parents
LTV01	Jackson: *Andre Dad Mom	24 months (Male)	½ African American ¼ Peruvian ¼ Caucasian	Dad: PhD Candidate, Researcher Mom: Lawyer
LTV02	Chambers: *Max *Harrison Le Anne Mom Dad	12 months (Male) 4 years (Male) 6 years (Female)	Caucasian	Dad: PhD Candidate, Teacher Mom: Stay at home Mom, College Student; Community Volunteer
LTV03	Barclay: *Owen Mia Mom Dad	5 years (Male) 12 months (Female)	Caucasian	Dad: Public Relations Worker Mom: Stay at Home Mom Preschool Volunteer, Actress
LTV04	Vasquez: *Isabelle Roman Cesar Mom Dad	3 years (Female) 12 months (Male) 13 years (Male-cousin)	½ Pacific Islander ¼ Hispanic ¼ Caucasian	Dad: University Professor Mom: Stay at Home Mom, Part-time Researcher, Real-estate Agent
LTV05	Chapmans; *Adam Madeline Dad Mom	5 years (Male) 8 years (Female)	Caucasian	Dad: University Professor Mom: University Professor, Artist Dad: PhD Candidate, Researcher
LTV06	Dawson: *Hannah Dad Mom	5 years (Female)	Caucasian	Mom: Documentary Film Maker, Writer & Director Dad: Internet Publisher and Marketer
LTV07	Baker: *Bethany Dad	5 years (Female)	¼ Pacific Islander ¼ Asian ½ Caucasian	Caucasian Dad: Research Scientist
LTV08	Roberts: *Payton *Sydney Mom Dad	2 years (Female) 4 years (Female)	Caucasian	Mom: Research Scientist
LTV10	Ito: *Xavier *Preston Mom Dad	2 years (Male) 4 years (Male)	½ Asian ½ Caucasian	Dad: Librarian Mom: Librarian; Stay at Home Mom; Former Classical Musician and Music Educator

### **Data Collection**

This study follows the ethnographic and cognitive sociocultural research traditions of Erickson (1986) and Merriam (1998), is informed by studies of how people learn in informal environments, and situates itself among similar research studies investigating social interaction and learning (Stevens, 2000; Stevens & Hall, 1998; Stevens, Satwicz, & McCarthy, 2007). Case studies were created for each of the families in the study and the following data collection methods were employed to create these case studies:

1. Observing and videotaping young children (12 months to 6 years old) watching television and interacting with digital media in their homes.
2. Interviewing parents and having the parents interview their children about the child's television viewing and digital media interaction activities.
3. Providing caregivers with a journal to track children's learning in their everyday life when researchers were not present.

By using these multiple methods to gather the data, a more detailed view of what and how children may be learning from digital media was attainable than would have been possible using any particular method separately (Erickson 1986; Merriam, 1998).

**Observations and videotaping.** Beginning in spring 2008, the children in this study were videotaped in their homes as they watched educational television shows and/or shows created for a child's audience. However, participants watched many different kinds of shows throughout the data collection study and researchers did not tell participants what to watch. The selection of shows was up to the parents.

The main objective of this method is to better understand how children watch television in their homes and how they interact with adults, other children in the home, and the sounds and images from the shows themselves. Also, in order to determine whether television shows elicit any learning or other behavior and dialogue outside the specific times when the children have watched the shows the video recording was intentionally left on for several minutes after the

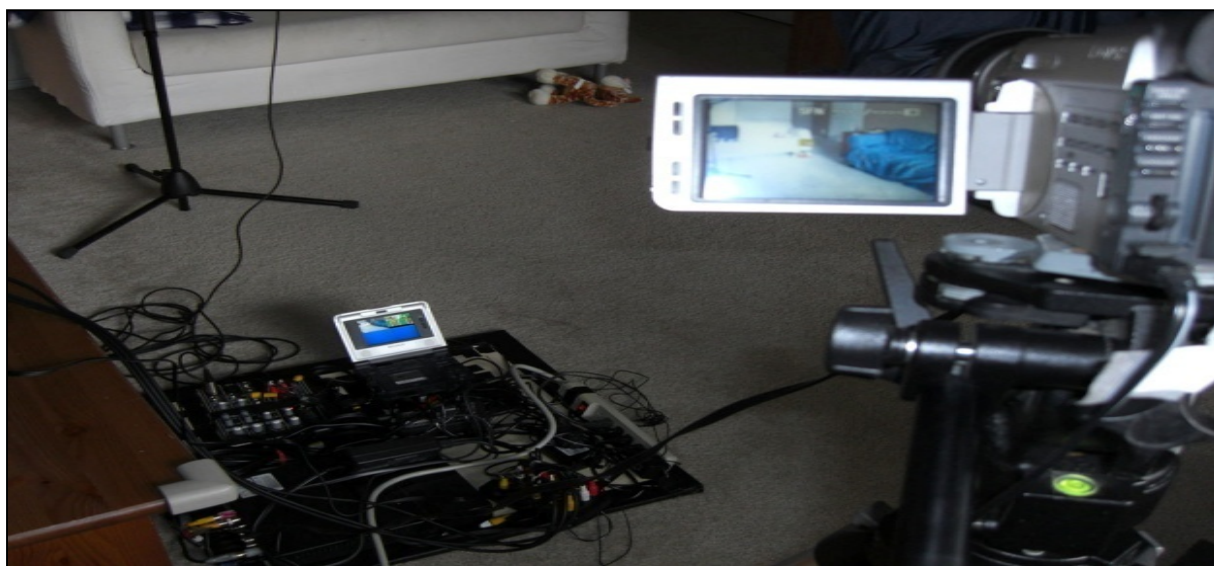
show ended, because this additional information helped the researchers identify whether learning was occurring as well as what is actually happening when children watch and interact with the digital media programming (Chen, 1994; Fisch, 2004; Stevens et al., 2007).

All data collection took place in the children's homes while they were watching television and interacting with digital media as well as parents, friends, siblings, and pets. Children were observed and videotaped in their homes as they watched television and other media for one to two hours once or twice each week during the period of the study. A detailed list of how many hours of video that was collected for each family is described in more detail later in this chapter in the Participant Background Information section.

During each session, a videotape record was created (Stevens et al., 2007) and ethnographic field notes were written (Emerson, Fritz, & Shaw, 1995; Holms, 1998). Sessions were scheduled for times when the children were most likely to be watching television to avoid interfering with their home schedules and normative routines. Since the overall goal of the study was to capture the most naturalistic setting in which participants usually watch television and/or interact with digital media and have the children behave as they usually would on an average day, they were encouraged to watch television with friends and parents if that is how they would typically watch television.

A goal in this study was to record as closely as possible children's actual experience of watching television and interacting with digital media in their homes. In order to do this, an unconventional data collection method was employed that involved simultaneously recording the video stream from the television and the activity of children and others in the viewing space. In order to ensure accurate coordination of the two video streams, a device that synchronized the two streams at the time of recording was used.

In the early stages of the study, the dual-recording equipment was set up (see Figure 2.1) and the researcher stepped out of the room while the children were watching the media.



**Figure 2.1. Home Setup Example A of Equipment Used When Researchers Were Present**

As the study progressed, a greater degree of naturalism was achieved by leaving the equipment with the families for a week or more, during which time the parents would turn on the equipment when the children were watching the media excluding the researchers interaction with the children and allowing the videos to be more natural.

In addition, some families also watched video programming on their computer. For those families, a software program called Screenium was provided that simultaneously recorded the computer screen and the video stream from the computer's internal camera (see Figures 2.2 and 2.3).



**Figure 2.2: Home Setup Example B When Researchers Were Present and Isabelle Was Watching *Word Girl***



**Figure 2.3. Example of Screenium Screenshot with LTV10 Children Watching and Interacting with *Little Einsteins***

As Table 2.2 illustrates, I will use data from seven of the nine families included in this study.

**Table 2.2. Total Time (in Minutes) Each Family Was Recorded**

LTV01	LTV02	LTV03	LTV04	LTV06	LTV08	LTV10
24.46	48.4	28.03	52.15	59.09	24.42	24.07
38.57	68.18	50.08	32.09	33.39	18.16	*25.42
63.43	57.12	26.19	34.3	38.38	27.36	*49.52
	47.28	35.44	59.01	55.55	70.34	*23.43
	68.57	36.48	60.49	41.55		*49.38
	58.31	27.15	58.07	97.49		*24.14
	56.07	23.28	33.08	70.06		*26.06
	53.53	36.21	60.37	49.17		223.32
	51.35	61.52	62.27	48.33		
	47.57	47.42	39.16	37.57		
	65.11	57.27	48.52	100.48		
	62.3	49.58	50.24	633.46		
	59.3	52.11	42.05			
	59.27	34.18	24.54			
	50.22	55.47	65.03			
	53.58	61.21	15.37			
	56.12	65.13	30.26			
	964.18	23.14	3.25			
		773.09	24.56			
			60			
			13.35			
			65.1			
			936.1			

Some families were visited more than others due to their availability. Each number in Table 2.2 represents the time a session was recorded in the study. The numbers written in italics represent families that collected data when no researchers were present; an asterisk represents those families that used *Screenium*. Approximately 60% of the data were collected with a researcher present and the other 40% were collected when a parent controlled the data collection process. In total, although 62 hours, 49 minutes, and 14 seconds of data were collected from the families in the study, for this dissertation I will only be using 61 hours 8 minutes and 4 seconds of video

from 7 families due to technical limitations with the remaining video. Finally, the numbers in red are the total data collection times (in minutes) for each participating family.

Each research session began with the researcher setting up the data collecting video equipment so that a split-screen image was created. The signal from the television (“in show”) and the signal from the camera (“in room”) were directed into a video mixer; the room and television audio were also directed into the mixer. These signals then created a four-section grid with audio from the in-room interactions and the in-show sound and dialogue. Figure 2.4 shows an example of the resulting image. Eventually the bottom two panels were removed using Final Cut Pro during analysis.



**Figure 2.4. Four-part Grid “Raw” Image of Harrison “In Room” Sitting on His Couch Beginning to Watch the *Dora the Explorer* “In Show” Image from the Television**

**Interviews.** After each session, the parents or caregivers of the children usually informally interviewed the child or children about what they watched, and how they may have felt about the show(s). Most parents conducted these interviews on their own without a researcher prompting them to do so. These informal interviews provided a great assessment of what the child thought about their viewing experience right after experiencing it. More formal

interviews were given by the mother to each child and were videotaped throughout the study (see Figure 2.5).



**Figure 2.5. Examples of Parent-Child and Parent Interviews from Top Left: Mrs. Barkley Interviewing Owen (LTV03); Mrs. Vasquez's Formal Parent Interview (LTV04); Isabelle, Roman, and Mrs. Vasquez Interviewing Isabelle and Roman After a Show (LTV04); Mrs. Chambers Interviewing Harrison, Le Anne, and Max (LTV02)**

Furthermore, the parents of the children were also interviewed and/or given a written questionnaire about their child's viewing habits, television learning experiences, and their own personal feelings about television and digital media and their place in their home. More specific questions and a follow-up questionnaire were administered to participant's parents via email as the analysis continued.

**Parent journals.** Parents and/or caregivers of the children were given a journal in which they recorded instances of learning and discovery in their children's everyday lives when no

researchers were present. These journals were critical with regard to determining whether children’s viewing habits and interactions when watching television and digital media affected their everyday activities. The journals enabled the connection of “in show” content and “in room” interactions with “in world” experiences (Stevens et al., 2007). Table 2.3 provides an example of a parent’s journal for part of December 2008.

**Table 2.3. Excerpt from Mrs. Chambers’ (LTV02) Diary, December 2008**

Date/Time	Show Name	Activities/Actions Child Partakes in When Watching Show	Connections from Shows in Other Settings	Observed Learning Moments from Shows	Other Comments
12/28/08 – HARRISON	Clifford the Big Red Dog	Harrison just sat and watched			
12/28/08 – MAX	Clifford the Big Red Dog	Max sat and watched about six or seven minutes at a time. He panted whenever the dogs were on screen.	Max pants whenever he sees a dog or a picture of a dog		
12/28/08 – HARRISON	Reading Rainbow	Harrison asked to check out the books that were talked about in the show at our local library		Le Anne and Harrison told me that they should watch this more often because “it was a good show and helped us learn.”	This is the first time Le Anne and Harrison watched this show
12/28/08 – MAX	Bob the Builder	Max sat and watched during the entire twenty minute show.			
12/29/08 – HARRISON	VeggieTales Singalong	Harrison only watched for about three minutes, then he and Le Anne asked to turn it off because it was “just songs and not a real movie.”			We turned it on, but Le Anne and Harrison were disappointed it wasn’t a “real” movie, so we turned it off.
12/30/08 – MAX	Diego: Safari Rescue	Tuned in and out – played more than he watched. He likes the music and animal parts the best.			
12/30/08 – HARRISON	Diego: Safari Rescue	Called out answers, interacted when Le Anne did (she usually instigated it)			Harrison asked for this DVD for Christmas

**Project positionality.** In this dissertation, I used naturalistic, longitudinal, ethnographic methods to study 15 children (8 boys and 7 girls from 8 families) with diverse backgrounds as they watched television and interacted with digital media in their homes. I followed these

children's learning and interactions with the media across contexts: from the content of the shows they watched to their interactions with shows and others with whom they co-viewed or interacted with in the room, and out into the world and their everyday experiences. I then analyzed these interactions closely using interactional and conversational analysis techniques.

When using longitudinal, naturalistic, ethnographic methods it is important to point out that, as a researcher entering a family's home, the researcher can sometimes affect what happens within the home simply by being present. Moreover, in order to do this type of research one must forge relationships with the participants. It is also important for the researcher to state his or her perspective on the research project in order to limit any ethical or methodological concerns and reflect on how this may affect the interpretation of the findings (Hammersley & Atkinson, 1995). Therefore, in this section I provide these details in order to give a clearer indication of how I am interpreting the results of the study.

I have worked and studied in a media-related environment since attending an arts high school 16 years ago. I then went onto receive my undergraduate degree in Theater and Film Studies and worked at several television news networks including NBC and PBS. My previous professional experience also includes working as a television producer and documentary filmmaker. Prior to graduate school, I worked as an Emmy-winning associate producer and production assistant for the Public Broadcasting affiliate (PBS) at the Oklahoma Educational Television Authority (OETA). Furthermore, I wrote and created several award winning documentary films that explored my dual heritage as a Cherokee and Mi'kmaq Native American and Caucasian women, women's rights and domestic violence, the arts, and cultural and educational diversity. I have also spent many years as a babysitter, nanny, and early childhood

educator as an assistant pre-school and elementary Montessori teacher before becoming a mother to my own child.

All of this experience has aided in my interpretation and understanding of how children are learning, understanding, and interacting with media and others within their homes. Therefore, I come into this project with vast professional, educational, and personal experience in media, the arts, and early childhood education, which I recognize may affect how I interpret the results of the naturalistically-gathered data. However, I do not believe that my experience taints my interpretation and analysis of the data. Rather, I believe my background and experience provide me with a unique perspective on what is going on within the shows that the children in the study watched, as well as what is happening in and beyond the rooms in which the children watched the shows. It is from this perspective that I will analyze and explore the data throughout this dissertation.

### **Data Analysis**

The analysis for this dissertation was completed in several steps. The beginning of the analysis was completed within the LTV research group. In this initial investigation, many learning possibilities, including interactional skills, literacy skills, social and cultural knowledge, moral lessons, technological awareness and abilities, and any others that emerged from a deeper analysis of the fieldwork were considered (Mehus & Stevens, 2008). However, as the study progressed I began my own analysis of the data as well. In the following sections, I will therefore explain what was done to analyze the data in the greater LTV study as well as what I have done specifically in terms of my analysis for this dissertation.

**What counts as learning from television and digital media?** As discussed in Chapter 1, I approach this analysis not with a specific hypothesis, but from the grounded theory perspective (Glaser & Strauss, 1967). Combined with the adapted Stevens et al. (2007) “in

show,” “in room,” and “in world” framework, this theoretical approach helps me structure and examine the ways in which children watch and interact with the media of television and other forms of digital media, and how these interactions are exhibited in the shows they are viewing, the room in which they are watching, and in their everyday lives.

Learning in this study is guided by the idea that a good assessment of learning is the ability for an individual to be able to extend the knowledge they have formed in one context to another context (Bransford & Schwartz 1999; Fisch, 2004). Furthermore, learning from television, in this study, will be guided and assessed based on the criteria presented by Fisch and Truglio (2001) (these criteria will be explored further in Chapter 3). In my analysis, I will be reporting on what I find participants doing when they watch television and interact with digital media based on what they are viewing, with whom they are watching with, and how they use elements from these interactional experiences in their everyday lives. Through this trajectory I hope to explore what I think children might be learning from television.

**Analysis organization.** The videotapes of children watching television were synchronized with the video stream from the television. Next, the content from all the four-part video grids were digitized using Final Cut Pro and reformatted to remove the bottom half of the grid and produce a two-frame, split-screen image. These split-screen videos were then compressed and exported into a QuickTime Pro file for analysis (Stevens et al., 2007). Creating the split-screen images allowed me to analyze each image more easily and create a transcript that followed what was going on in the room and on the show simultaneously. Figure 2.6 (below) provides an example of a typical video image.



**Figure 2.6. Two-part Split-screen Image of Harrison “In Room” Sitting on the Couch, and His Brother Max Sitting in a High-Chair behind Him Beginning to Watch *Dora the Explorer***

Once all the videos were converted into split-screen images, all of the videotaped data was imported into Inqscribe (a video transcription program) and content logs were created to locate examples of interactivity (see Figure 2.7).

**Figure 2.7: Example of a Content Log Using Inqscribe Transcription Program for the Jackson Family (LTV01) Watching *Elmocize***

These initial codes were designed to tag instances in the videos in which the children were interacting and/or responding to the media:

- Moments of Media Interactivity (MOMI), instances or moments in which the children (or people in the room) were interacting with each other about the media.
- Participant Interactions About the Media (PIAM), and instances and interactions between in-room people that were unrelated to the media
- Participant Interactions Not About the Media (PINAM).

During this first phase of analysis and content review, video segments with specific beginning, middle, and end points that fit into these categories were logged for all 62 hours, 49 minutes, and 14 seconds of videotaped data. The different kinds of interactivity were chosen to represent the first round of coding in order to better understand the different types of interactions the children were making with the media and with others within the room.

Once all the videos were logged using these codes, an Excel spreadsheet, the LTV Master Log was created. This log was designed so that all the information and documentation about a specific video and participant family could be located in one place. This log and the corresponding coding scheme helped me find related clips for comparative analysis and relate back to the specific instances of learning I was searching for. The log includes six worksheets:

1. 1st Worksheet – Master Family Data Log: Log contains a written Excel spreadsheet of every LTV visit to every family, date, time, show, video name, log name, field note name, and key segments of interesting time code from *Inqscribe* logs. (Refer to Figure 2.9 for an example log segment)
2. 2nd Worksheet – Tape Location/Content/Digitized Log: Log contains a color coded record of when each tape was collected in order by date, tape time, and if it has been digitized and where it is located. (Refer to Figure 2.9 for an example log segment)
3. 3rd Worksheet – Interview Logs: List of all interviews by family, date
4. 4th Worksheet – Number # of visits/tapes per family
5. 5th Worksheet – Analysis Themes: Preliminary coding analysis
6. 6<sup>th</sup> Worksheet – Total viewing times

After all the initial codes (MOMI, PIAM, PINAM) were logged in the *Inqscribe* content logs for all of the videos, I selected key segments using the following codes as noted in the Master Family Data Log. These segments were coded only in this log by time codes (refer to Figure 2.8 for a visual example):

- (RWP = Repeats word prompts out loud);
- (AS? = Answers Show's Questions);
- (SING = Singing);
- (DAN = Dancing/Jumping/Physical action);
- (NTALK= Interesting talking about something not in the show);
- (STALK = Interesting talk about something happening or going to happen in show);
- (LEARN = Child says/indicates learned something);
- (COLAB = Group collaborative talk or activity);
- (HELP = Child helps out other child or gets them to do something);
- (COVIEW = Caregiver helps or instigates conversation or watching show)
- (UPSET = Child gets upset about something in room or on show)

Visit #	Family	Date	Program Children Watched	Participants on Camera	Video File Name	Duration (Tape Time)	Key Segments (RWP = Repeats word prompts out loud); (AS? = Answers Show's Questions); (SING = Singing); (DAN = Dancing/Jumping/Physical action); (NTALK= Interesting talking about something not in the show); (STALK = Interesting talk about something happening or going to happen in show); (LEARN = Child says/indicates learned something); (COLAB = Group collaborative talk or activity); (HELP = Child helps out other child or gets them to do something); (COVIEW = Caregiver helps or instigates conversation or watching show); (UPSET = Child gets upset about something in room or on show)	Digitized (yes/no)	Content Logged (yes/no) File name	Connected Data: File Names, Parent File Names, Interview Names; & Transcript
1	LTV01 (S. Seattle)	03.26.08	Sesame Street	Andre & Dad	LTV01_052608.mov	*No Audio 24.46	NO AUDIO	Yes	Yes LTV01_20080526.inqscr	LTV01_052608.doc
2	LTV01 (S. Seattle)	10.17.08	Elmo's World	Andre & Dad	LTV01_10172008.mov	38.57	00:02:48.11 (STALK; COVIEW); 00:03:40.24 (DAN; LEARN); 00:06:36.09 (STALK; DAN); 00:09:04.13 (DAN); 00:16:52.07 (DAN; LEARN; COVIEW; STALK); 00:19:37.16 (NTALK); 00:19:52.16 (DAN); 00:20:59.25 (DAN; STALK; COVIEW); 00:23:48.21 (DAN); 00:25:04.21 (NTALK)	Yes	Yes LTV01_20081017.inqscr	Stephanie has field notes
1	LTV02 (Campus)	05.26.08	Dora the Explorer: The Missing Piece	Harrison, Max, LeAnne, & Mom	LTV02_052608.mov	48.40	00:09:19.28 (Harrison and LeAnne-RWP); 00:21:48.21 (Harrison and LeAnne-AS?); 00:33:48.25 (Harrison and LeAnne-AS?);	Yes	*Yes: LTV02_20080526.inqscr	LTV02_052608.doc
2	LTV02 (Campus)	06.19.08	Go Diego Go: Baby Mozart	Harrison, Max, LeAnne, & Mom	LTV02_061908_COM.mov	1:18:18	00:01:08.22 (Harrison and LeAnne-RWP); 00:08:09.10 (Harrison and LeAnne-RWP); 00:09:29.10 (Harrison and LeAnne-RWP); 00:12:32.12 (Harrison and LeAnne-	Yes	*Yes LTV02_20080619.inqscr	LTV02_061908.doc

**Figure 2.8. Master Family Data Log Segment Example**

I chose the secondary codes after I reviewed the first round of coded information and examined the moments of interactivity. While reviewing the moments of interactivity I noticed that the topic of conversation and/or interactions within the room fell into one of the above 11 categories, so I coded the moments of interactivity using these specific categories. Every moment fit into at least 1 of these coded categories.

After the key segments were selected and recorded on the Master Log spreadsheet, I selected clips from the larger video files and edited them down into smaller, theme-specific clips with beginning, middle, and end points. These clips were placed in folders under the following categories (If a clip fit into more than one category, it was included in both relevant category folders):

- Answering show questions
- Repeats words and phrases
- Imitates actions and sequences
- Toys in room related to media in show
- Dancing and singing
- Narrator and anticipated responses
- Learning declarations (“I learned...”)
- Foreign Language
- Scared and nervous anticipations

I selected the above categories after coding for moments of interactivity and applied the 11 secondary codes listed above. I then reviewed the clips I found to obtain the best examples of each theme and selected those to go into each folder. The folder categories were created to hold examples of interactive moments that fit into these categories. The categories were selected because there were at least two examples of each theme found in the data and best represented the different kinds of interactive situations that were collected.

After this activity was completed for each video from every family, all of the videos within each category were reviewed and a *QuickTime* video file was created of all the clips related to that theme (e.g., “Answering show questions”). After these files were created, the clips that best represented each category were selected. These clips were the best detailed representation that could be analyzed for each theme, and were the most representative instances of the broader class of the phenomena. After the clips were selected, they were combined into nine more *QuickTime* “best of” videos, one per category. Finally, one *QuickTime* “best of the

best” video was created that contained the 30 best clips from all categories combined that included the clearest examples of each category. Using this video, an *Inqscribe* transcript was created of all interactions and in-show dialog for each of the 30 best clips. These 30 clips will be the main data sources I will examine and analyze throughout this dissertation.

**Analysis plan.** After analyzing the best of the best video clips I devised the following analysis plan for looking at the “in show,” “in room,” and “in world” examples. I decided the best way to look at the “in show” and “in room” interactions was to follow the moments of interactivity evident in the media examples. In so doing, I was able to explore brief moments of interaction at a micro level, pinpointing the exact moments in time during which certain activities were developing in conjunction with the media being viewed. I found this process more effective than simply reviewing a section of video and trying to guess what was going on. By looking at this data at a micro level I am able to follow a specific moment through the time it occurred in the room and on the show and demonstrate how the moment developed and played out.

After the logging was completed for all collected video recordings (over 62 hours), clips were analyzed using interaction and conversational analysis techniques (Erickson, 2004; Schegloff, 1998). I devised the transcription method illustrated in Figure 2.9 to distinguish between activity in the room and on the show and display how they affect one another.

Character in Show Name/ Persons in Room Name	1 <sup>st</sup> second of video clip	2	3	4	5	6	7	8	9	10 sec. into video clip
1. Leo:	Prepare for blast off we're going to need a lot of power to blastoff pat, pat, pat, pat. June is patting									
2. Rocket:	<i>(begins patting his lap)</i> <i>(continues to pat lap)</i>									
3. Rocket:	<i>(Rocket wiggles)</i>									
4. June:	<i>(blinks, smiles and pats lap)</i>									
5. Quincy:										
6. Annie:										
7.										
8.										
9. In Show										
10. In Room										
11. Le Anne:	Max remember? pat, pat, pat, pat, pat, pat, pat Max likes it									
12.	<i>(leans forward and stretches out arm and sits up on knees and begins patting her lap)</i> <i>(camera pans to Harrison who is patting)</i>									
13. Harrison:	pat, pat, pat hee hee hee									
14.										
15. Max:	pa									
16.	<i>(camera pans to Max patting lap)</i>									
17. Mom:										

**Figure 2.9. Transcript of the Chambers Children Doing the “Blast-Off” Sequence from *Little Einsteins* (Seconds 1-10)**

As Figure 2.9 illustrates, the top part of the transcript shows what is happening on the screen (“in show”) and the bottom part of the transcript shows what is happening in “the room.” The numbers on the top line show the time code in seconds at which specific activities are occurring both in show and in room. The numbers along the left side are line numbers for transcription reference. Transcribed speech is in plain text while actions and visuals are in italics.

An analysis of the prompts that the children viewed in a subset of 32 viewing events from programs that elicit a viewer response was also completed. The initial coding of this subset of data was conducted with the larger research group. I performed the second pass and created a coding scheme to categorize the prompt types, and subsequently analyzed the resulting prompt types. In this first pass, each of the shows that children in the study watched that were “interactive” or designed to elicit a response from viewers were identified. This means the show

characters sometimes ask viewers questions and then leave a pause in the action of the program for the viewer to respond. Each of the 32 episodes of these shows were logged and transcribed using *Inqscribe*. Each time a show character asked the viewers to complete an action or answer a question, that event was considered a “prompt” and was recorded as well as any response from the viewers. All 32 viewing events (separate viewings of these types of shows) were coded for prompts and prompt responses for each participant.

After the initial coding was completed by myself and other members of the research group, I re-coded all 32 viewing events to check the validity of the initial coding. After this second pass of coding for prompts and prompt responses from the viewers, I coded the 32 viewing events a third time by prompt type or the specific type of questioning the characters were asking viewers to participate in. The results of this analysis can be found in Chapter 3.

### **Participant Background Information**

The following section describes in more detail each of the 7 families I discuss in my dissertation. Specifically, each family is described in terms of setting, viewing habits, and television shows watched by focal children during the study.

**The Jackson family (LTV01).** The Jackson family includes: Andre (age 2); his father, a PhD candidate; and his mother, a lawyer. Mr. Jackson is African- American and Mrs. Jackson is half Peruvian and half Caucasian. Andre attends daycare four days a week and spends one day at home with his father each week.

**Setting.** The family lives together in the southern part of a large Pacific Northwestern city in a large split-level single family house up a steep street on a hill. Upon entering their home from the front door one encounters stairs that lead up and that lead down. When one takes the stairs that lead up one enters a large living area with a kitchen to the right and a living room to the left that also acts as a dining space.

This is the primary viewing space in which the Jacksons interact with digital media in their home. The room is filled with numerous couches and chairs that line the walls as well as a bookcase stuffed with books and DVDs. An entertainment center lines the far wall to the right, where the television, DVD player, and a stereo system are located. Across the room from the television is a dining area that includes a table, a side board, and a desk with the family's home computer. On a typical day, numerous digital media devices can be found on the table including a lap-top computer, a digital camera, a web-camera on the computer, and a smart cell phone. On the floor by the couch are numerous children's toys including stuffed animals, puzzles, blocks, Legos, and a train set.

**Viewing habits.** According to a pre-study interview Andre watches approximately five hours of television per week. His father says he typically watched “*Sesame Street, Dora the Explorer, Elmo, Super Why, Thomas the Train, Go Diego Go* and *Barney*.” However, “right now, the show [Andre] seems to watch the most is the Barney episode Barney on the Farm. This show has the fictional dinosaur character Barney introducing kids to animals that live on farms” (LTV01 interview, July 2008).

On average Andre seems to be a very interactive television viewer. In a post-study interview Mr. Jackson said that Andre “loves to get up and move” regardless of what he is watching, and that he interacts with most of the shows he watches whether they ask for his participation as in a show like *Super Why* that elicits a response from viewers or just dancing to the theme music from a show or singing along himself (LTV 01 post-study interview, June 2009). Andre's Dad says Andre “rarely just sits in front of the screen and watches” but is much more dynamic: answering show prompts when prompted, dancing, singing, and playing and talking with his toys as he watches the shows he enjoys (LTV 01 post-study interview, June

2009). Mr. Jackson also says that Andre really “enjoys viewing television with other people and likes to ask questions or point out little facts he has learned” (LTV 01 post-study interview, June 2009). Furthermore, Andre enjoys watching television with his toys and likes to have the corresponding character toy with him in the room watching with him as he watches the corresponding show (LTV 01 post-study interview, June 2009).

**Television shows observed during study.** The following table lists the shows that Andre watched during the study, who watched with him, and how long each of the 2 viewing events lasted. Andre was observed for approximately 1 hour (63.43 minutes).

**Table 2.4. List of Shows Andre Viewed During Study**

Viewing Event #	Date	Program Children Watched	Participants on Camera	Event Time (min)
1	05.26.08	Elmocize	Andre & Mom	24.46
2	10.17.08	Elmocize	Andre & Dad	38.57

**The Chambers family (LTV02).** The Chambers Family includes Harrison, age 3-4 during the study; Max, age 9-21 months during the study; Le Anne, age 5-6 during the study; and Mr. and Mrs. Chambers. The Chambers are Caucasian. Mr. Chambers is a PhD Candidate in finance and a teacher, and Mrs. Chambers is a stay-at-home mom, college student, and community organizing volunteer. Le Anne attends kindergarten each day while Harrison attends pre-school three times a week for a few hours in the morning. Max stays home with his mother and stays with a babysitter when his mother is attending class or community organizing. Mrs. Chambers also volunteers at Harrison’s pre-school two mornings a week while he is there.

**Setting.** The Chambers live in the married student housing provided for students and their families at a large Pacific Northwest University. Their home is located in a large Pacific Northwest city about a half mile from the university Mr. and Mrs. Chambers attend. Upon arriving at their home, one walks up a twisty sidewalk area into a townhouse development. As

one goes through the front door, one walks directly into the living room. Across the living room is the dining area and behind that the kitchen. If one walks straight back from the front door one encounters a storage closet with a washer and dryer and stairs leading upstairs. Upstairs are two bedrooms and one bathroom (the only bathroom in the home).

The living room is the primary space where the Chambers family interacts with media in their home. Throughout the study Mrs. Chambers rearranged the furniture in this room several times. She said it was a small space and was being used as a dining area, play area for the children, a home office, a music room, and a place where the children watched television. Mrs. Chambers said she struggled with how to keep it functioning to meet her and her family's needs.

A typical room setup is as follows: On the left side of the room from the front door angled into the corner there was a 15-inch television, a DVD player, speakers, a radio, and numerous children's DVDs resting on a small entertainment center. Across from the television was a larger couch with blankets, pillows, and cushions on it; next to the couch was a rocking chair. Against the far wall to the left from the front door and the right of the television was a piano, a guitar, and a small bookcase filled with children's books, religious texts, adult fiction novels, and Mr. and Mrs. Chambers' school books. On the other side of the room was a small desk with a large computer and telephone on it along with what looked like Mr. and Mrs. Chambers' school work and bills. Next to the computer was a larger wood table and six wood chairs and a high chair for Max. Behind the large table was a wall with a cut-out window that looked into the kitchen. Finally, several small bins of toys lined the wall next to the piano and several more bins of paper and craft supplies were on the table.

***Viewing habits.*** In this home there were two focal children, Harrison and his younger brother Max. Harrison mainly watched television shows on DVD. In addition:

In a pre-study questionnaire (LTV02 pre-study questionnaire, April 2008) his mother stated that he usually watched about ‘four to six hours of television a week,’ including ‘*Dora and Diego*; *Super Why?* ... movies about animals, non-fiction; some Disney movies; basically anything he can get his hands on; no *Sesame Street* ([he]doesn’t like [it]), [and] age-appropriate videos.’ Many of the shows he watched were animated shows designed to elicit viewer responses and actions, like *Dora the Explorer*, *Little Einsteins*, and *Go Diego Go*. (Dugan, Stevens, & Mehus, 2010, p. 2)

Harrison also watched non-fiction nature programs such as *Eyewitness Amphibians* and *Henry’s Amazing Animals*. These shows employ a narrator and use video footage along with animation to explore animals, their habitats, and their behaviors. Harrison liked “‘nature shows the best’ and would watch them over anything else because they ‘were real’” (Dugan et al., 2010, p. 993). In addition:

Harrison was a very social television viewer in terms of the level of interaction he maintained with other people while watching television shows. He watched shows in his living room, typically with one or more people, who might include his older sister Le Anne, his mother, and his younger brother Max. His mother closely monitored what he viewed on television because he did not like to watch shows he had not already seen and because he would get scared easily: ‘[he] tends to distrust any show if it has new characters’ (LTV02 post-study interview, May 2009). Harrison’s mother also stated that Harrison usually watched shows that allowed him to learn new facts he could share with her and his other family members. ‘[Harrison] enjoys yelling out facts he learns [from shows that] engage him’ (LTV02 post-study interview, May 2009). When watching television with his sister, his mother said that “they usually sit by each other and talk

about the show. If they get scared, they work together to turn the volume down, hide under a blanket, etc. If they are learning something, they shout out to me. Once in a while they correct each other or bicker a little about a show.’ (LTV02 post-study interview, May 2009 as cited in Dugan et al, 2010, p. 994)

Max mainly watched television shows on DVD created for babies or watched whatever Harrison was watching. Max was just learning to walk and talk during the data collection period of this study and at the time the study began Max’s vocabulary consisted of about five words. By the end of the study Max was talking in full sentences and even responding to shows that asked for his participation.

In a pre-study interview, Mrs. Chambers said Max watches approximately “45 min to 1 hour per week” of television programming (LTV02 pre-study interview, April 2008). However, this increased as the study went on and by the end Max was watching just about as much digital media (approximately 4-6 hours a week) as Harrison (LTV02 post-study interview, May 2009). Mrs. Chambers said that Max watched “*Baby Einsteins*... or similar-types of shows.” He also would watch “anything his older siblings were watching in passing”( LTV02 pre-study questionnaire, April 2008). Max began the study mainly just watching shows for several moments before moving on to another activity as the shows did not seem to keep his attention. As he got older he began to watch for longer and longer periods of time, interact more with the show content when prompted, and interact more with his siblings and mother who watched shows with him in the room.

***Television shows observed during study.*** The following table lists the shows that Harrison and Max watched during the study, who watched with them, and how long each of the

17 viewing events lasted. As a family, the Chambers were observed for 16 hours (964.18 minutes).

**Table 2.5. List of Shows Harrison and Max Viewed During Study**

Viewing Event #	Date	Program Children Watched	Participants on Camera	Event Time (min)
1	05.26.08	Dora the Explorer: <i>The Missing Pieces, Boo</i>	Harrison, Max, Le Anne, & Mom	48.4
2	06.19.08	Go Diego Go: <i>The Rescue Sea Turtle</i> ; Baby Mozart: <i>Music Festival</i>	Harrison, Max, Le Anne, & Mom	68.18
3	07.03.08	Leap Frog: <i>Learn to Read at the Storybook Factory</i> ; Disney video: <i>It's a Small World of Fun!</i> , <i>The Reluctant Dragon</i>	Harrison, Max, Le Anne, & Mom	57.12
4	07.09.08	Baby Mozart: <i>Music Festival</i> ; Go Diego Go: <i>Rainforest Rhapsody</i>	Harrison, Max, Le Anne, & Mom	47.28
5	07.14.08	Baby Mozart: <i>Music Festival</i> ; Backyardigans: <i>Castaways</i>	Harrison, Max, Le Anne, & Mom	68.57
6	07.28.08	Backyardigans: <i>Cave Party</i> ; Bernstein Bears: <i>Bears Get A Babysitter, The Baby Chipmunk</i>	Harrison, Max, Le Anne, & Mom	58.31
7	08.06.08	Fisher Price video Little People: <i>Discovering Animals</i> ; Henry's Amazing Animals: <i>Underwater Animals</i>	Harrison, Max, Le Anne, & Mom	56.07
8	08.13.08	Henry's Amazing Animals: <i>Animal Disguises</i> ; The Bernstein Bears: <i>The Family Get Together; The Birthday Boy</i>	Harrison, Max, Le Anne, & Mom	53.53
9	08.20.08	Go Diego Go!: Great Gorilla DVD - <i>Save the Giant Tortoises; Gorilla Fun</i>	Harrison, Max, Le Anne, & Mom	51.35
10	09.11.08	The Backyardigans: <i>Race Around the World</i> ; Go Diego Go!: <i>Rescue of the Red-Eyed Tree Frogs</i>	Harrison, Max, & Mom	47.57
11	10.20.08	Backyardigans: <i>Chicken-Itza Pizza</i> ; Go Diego Go: <i>The Great Dinosaur Rescue</i>	Harrison, Max, & Mom	65.11
12	10.30.08	DK Eyewitness: <i>Amphibians</i> ; Dora the Explorer: <i>It's a Party</i>	Harrison, Max, & Mom	62.3
13	11.17.08	DK Eyewitness: <i>Amphibians</i> ; Little Einstein: <i>How we became the Little Einsteins The True Story</i>	Harrison, Max, & Mom	59.3
14	11.25.08	DK Eyewitness: <i>Amphibian</i> ; Little Einstein: <i>Our Huge Adventure</i>	Harrison, Max, Mom, Le Anne	59.27
15	01.08.09	Go Diego Go: <i>Pigmy marmosets, The Three Little Condors</i>	Harrison, Max, Mom, Le Anne	50.22
16	01.19.09	Little Einsteins: <i>Flight of the Instrument Fairies</i> ; Dora the Explorer: <i>The Fix it Machine</i>	Harrison, Max, Mom, Le Anne	53.58
17	02.02.09	Little Einsteins: <i>The Treasure of the Little Red Door</i> ; DK Eyewitness: <i>Oceans</i>	Harrison, Max, Mom, Le Anne	56.12

**The Barkley family (LTV03).** The Barkley family includes Owen, age 5-6; Mia, age 1; and Mr. and Mrs. Barkley. The Barkley family are Caucasian. Mr. Barkley is a public relations worker and Mrs. Barkley is a stay-at-home mom, pre-school volunteer, and community theater actress. Owen began the study in a full day pre-school program that his mother volunteered in and ended the study attending a full day of kindergarten each day. Mia stayed home with Mrs. Barkley during the day and came with Mrs. Barkley when she volunteered at Owen's pre-school. Mr. Barkley worked long hours and was away traveling or at work most of the time.

**Setting.** The Barkley family lived in a single family home nestled on top of a hill in the southern end of a large Pacific Northwestern city. Their home had two bedrooms, a bathroom, a small living room, and a kitchen on the main floor and a separate living space with a media room, office, laundry room/kitchen and bathroom on the lower floor. To enter the lower floor from the main part of the house one had to go outside onto the deck and down the outside stairs and enter the lower level through a sliding glass door. There was no way to go from the upper floor to the lower floor without going outside. Owen and Mia had bedrooms in the main floor of the home and Mr. and Mrs. Barkley used the media room as their bedroom during the evenings and as a media room during the day. This was the main area where the family interacted with digital media in the home although they also used a computer located in the living room upstairs as well.

Upon entering the media room that was located downstairs one found a large room with blue walls and recessed lighting that could be dimmed and brightened when viewing. On the right side of the room as one entered from the door was a television, a DVD player, a stereo system, two large speakers, and a row of DVDs seated on an entertainment center. Next to the

entertainment center was a small lamp. Along the far wall and across the back of the room were two large over-sized blue couches with lots of cushions on them and throw blankets.

**Viewing habits.** Owen was the focal child for this family. On an average day: “Owen watched media for up to 4 hours in his basement. He was usually unaccompanied when he watched video, although he sometimes watched shows with a friend, with his mother and younger sister Mia (who was 1 year old) in the afternoon, or with his father before bedtime” (Dugan et al., 2010, p. 996).

Owen did not watch any shows that elicited viewer responses in our study observations, yet he frequently responded to the shows he watched. His mother indicated in her journal and interviews that Owen previously watched shows such as *SuperWhy* and *Little Einsteins* that elicited viewer responses when he was a bit younger (LTV03 pre-study questionnaire, April 2008 as cited in Dugan et al, 2010, p. 996).

In a pre-study questionnaire (LTV03, April 2008), his mother stated that Owen usually watched about “fifteen to sixteen” hours of media each week, including television shows on PBS such as “*Curious George; Dragon Tales; whatever is on when he comes home,*” as well as videos on *YouTube* such as “*Bionicles* movies; commercials; vintage tv ads for toys; reviews of toys (home movies), for example *Bionicles* (showing how to put toys together),” and movies such as “...*Pokemon, Digimon* movies; *The Black Stallion*; [and the] *Marx Brothers*.” Owen was observed mainly watching shows on the afternoon block of PBS Kids (*Curious George, Arthur, Dragon Tails, Word Girl, and Fetch with Ruff Ruffman*); he was also observed watching toy reviews on *YouTube* for *Lego Bionicles* as well as *Hot Wheels* cars and *Transformers*. Furthermore, Owen was observed viewing the live-action nature documentary series *Nature: The*

*Beauty of Ugly* and the animated DVD series *Avatar the Airbender* (LTV03 interview, May 2009 as cited in Dugan et al, 2010, p. 996).

Finally, In a post-study interview (May 2009), Owen stated that his favorite shows were “*Curious George* because he can do things we can’t,” “*Fetch with Ruffman* because it’s funny,” and “...*Nature*...because...my favorite thing [is] the rat-tailed scorpion... they, they were – they’re not...insects like scorpions, but they’re not, they’re not like spiders but they’re a different species... and they look weird.” The nature shows were generally more realistic than the other types of programming that Owen viewed in terms of their settings (real life vs. cartoon fantasies) (LTV03 interview, May 2009 as cited in Dugan et al. 2010, p. 996)

***Television shows observed during study.*** The following table lists the shows that Owen watched during the study, who watched with him, and how long each of the 18 viewing events lasted. Owen was observed for approximately 12 hours (773.09 minutes).

**Table 2.6. List of Shows Owen Viewed During Study**

Viewing Event #	Date	Program Children Watched	Participants on Camera	Event Time (min)
1	06.17.08	Bionicle videos; DynoBot II demo review video on YouTube; Transformer video montage; Transformers called Beast Wars	Owen; Mom; Mia	28.03
2	07.08.08	Fetch with Ruff Ruffman; Arthur: <i>Arthur's Green Thumb</i>	Owen; male friend; Mom; Mia	50.08
3	07.14.08	Dragon Tales: <i>Rise and Bloom</i> ; <i>Dragon Scouts</i>	Owen; some Mom & Mia	26.19
4	07.23.08	Biker Trash Wolf's explanations about transformers on YouTube: video is called V log 9 Transformer video with music, Cybertron Hotshot & CDF Hotshot, Cybertron Defense force Grande Value Sized Review	Owen; some Mom and Mia	35.44
5	07.30.08	Fetch with Ruff Ruffman; Arthur: <i>It's a No-Brainer</i> , <i>The Shore Thing</i>	Owen; some Mom and Mia	36.48
6	08.04.08	Fetch with Ruff Ruffman: <i>Plantation</i>	Owen; some Mom and Mia	27.15
7	08.11.08	Word Girl: <i>Chuck!</i> ; <i>Down with Word Up</i>	Owen; some Mom and Mia	23.28
8	10.30.08	Avatar the Last Airbender: <i>The Runaway</i>	Mom, Owen, Mia	36.21
9	11.06.08	Dragon Tales: <i>Wheezie's Last Laugh</i> ; Curious George: <i>The Truth About George</i> , <i>Burgers/Curious George in the Dark</i>	Owen (some Mom & Mia)	61.52
10	11.20.08	Word Girl: <i>Mr. Big Words</i> ; Dragon Tails: <i>Up, Up and Away, Wild Times</i>	Owen (some Mom)	47.42
11	01.12.09	Dragon Tails: <i>Teasing is Not Pleasing</i> ; Curious George: <i>All New Hundley</i> , <i>Signs Up</i> ; Nightly Business Report News; Curious George: <i>Curious George Plumber's Helper</i> , <i>Curious George Takes a Hike</i>	Owen (some Mom)	57.27
12	01.20.09	Curious George: <i>Gutter Monkey</i> , <i>Color Me Monkey</i> , <i>Special Delivery Monkey</i>	Owen (some Mom & Mia)	49.58
13	02.10.09	Word Girl: <i>Return of the Reprise of Lady Redundant Woman</i> , <i>A Simple Plan</i> ; Curious George: <i>Color Me Monkey</i> , <i>Special Delivery Monkey</i>	Owen (some Mom)	52.11
14	02.19.09	Arthur; Cyberchase: <i>Chaos as Usual</i>	Owen	34.18
15	05.06.09	Nature: <i>The Beauty of Ugly</i>	Owen and Mia	55.47
16	05.13.09	Curious George: <i>The Fully Automatic Monkey Fun Hat</i> , <i>Creatures of the Night</i> , <i>Curious George Dog Counter</i> , <i>Squirrel For A Day</i>	Owen and Mia	61.21
17	05.15.09	Nature: <i>Andes: The Dragon's Back</i>	Owen, Mia, and Mom	65.13
18	05.19.09	Nature: <i>The Beauty of Ugly</i>	Owen and Mia	23.14

**The Vasquez family (LTV04).** The Vasquez family includes Isabelle age 3-4 during the study, her brother Roman age 1 during the study, her cousin Cesar age 13 during the study, and her mother and father Mr. and Mrs. Vasquez. Mr. Vasquez is Pacific Islander (he was adopted and raised by a Hispanic family) and Mrs. Vasquez is half Caucasian and half Hispanic. Mr. Vasquez is a community college professor and Mrs. Vasquez is a stay-at-home mom and a part-time researcher. Isabelle and Roman stayed home with their mother every day except Sunday when Isabelle attended Swedish classes at a local church. Cesar attended a local middle school. He joined the family for the year from California after he had gotten into some trouble and had to relocate in order to remain in school.

*Setting.* The Vasquez family lived in a northern suburb of a large Pacific Northwestern city. The home was located in a redeveloped area in a large neighborhood. The particular street they lived on consisted of 15 newly constructed duplexes with a small playground in the middle. Most of the families in this development had children. The Vasquez's home was located in the far end of the block right across the street from the playground. Upon entering the house through the front door one could go straight up the stairs or to the left and enter the living room. Beyond the living room was a large eat-in kitchen and a small powder room under the stairway. From the kitchen one could do down the stairs to a basement area or out a back door into a small backyard that backed up to a main street. Upstairs there were 3 bedrooms and 2 bathrooms. Roman, Isabelle, and their parents each had their own rooms. Cesar slept in a bedroom in the basement.

The living room was the main room in the home where the Vasquez family interacted with digital media. When entering the room from the front door one saw a large blue couch against the wall by the stairs. Across from the couch was a large brown entertainment center that held a television, a DVD player, a VHS player, a Nintendo Wii video game console, several

video games, DVDs and VHS movies, a stereo system, two speakers, a cordless telephone, and a row of books. Next to the entertainment center on the wall by the front window and front door was a small desk with a computer on it and a cell phone dock. This space acted as the Vasquez's home office as well as their living room. On the far wall across the room from the small office was a book case full of books and toys. Next to the bookcase was a small, white futon couch. Under the futon were several musical instruments including maracas, some hand drums, and a glockenspiel; next to the couch were two guitars on stands. In the middle of the room was a small child-sized slide.

**Viewing habits.** Isabelle was the focal child for this family. On an average day she watched approximately two shows according to a pre-study interview with her mother (July 2008). Mrs. Vasquez stated that Isabelle is allowed to view "...no more than 2 shows a day, one show, approximately 25 min, usually [on] PBS...[that is]...one show in the morning, one show in the evening or various configurations" (July 2008). Mrs. Vasquez said that Isabelle enjoyed shows like "*Caillou*, *Angelina Ballerina*, *Franklin*, *Charley & Lola*," and "occasionally" viewed "*Dragon Tales*" and "*SuperWhy*" but that she really did "not" like or was not "interested in *Sesame Street* or *Mr. Rogers*" (LTV04 interview, July 2008). Mrs. Vasquez went on to say that Isabelle really "does not like *Dora the Explorer*... she says it frightens her and she doesn't like the Swiper character because she thinks he is mean" (LTV04 interview, July 2008). However, Isabelle was observed watching *Sesame Street*, *Mr. Rogers*, and *Dora the Explorer* during the study.

Finally, Mrs. Vasquez said that Isabelle really enjoyed several movies that the family had on DVD and VHD too. Isabelle usually watched one of them at least once a week. Isabelle's favorite movie according to her mother was "*Cheaper by the Dozen*" and "she liked to watch it

over and over...” she goes to say Isabelle “has seen the *Lion King* a couple of times but [was] kind of young for Disney” in her opinion (LTV04 interview, July 2008). Mrs. Vasquez stated in an informal interview after the second visit that she did not like Isabelle watching shows from Disney, especially ones about princesses because they were such fantastical stories and she wanted her to watch more educational programming. However, when I asked Isabelle what her favorite shows and movies were in a post-study interview at the end of the project she said she really enjoyed watching “*Hannah Montana*” and her favorite movies were “*Cheaper by the Dozen*” and “*Aladdin*,” which are all Disney shows or movies (LTV04 post-study interview, May 2009).

***Television shows observed during study.*** The following table lists the shows that Isabelle watched during the study, who watched with her, and how long each of the 22 viewing events lasted. Isabelle was observed for approximately 16 hours (936.1 minutes).

**Table 2.7. List of Shows Isabelle Viewed During Study**

Viewing Event #	Date	Program Children Watched	Participants on Camera	Event Time (min)
1	07.07.08	Mr. Rogers' Neighborhood; Barney: <i>Captain Pickles</i>	Isabelle, Roman, Mom & Dad	52.15
2	07.10.8	Franklin: <i>Big Game, Franklin's Reading Club</i>	Isabelle, Roman, Mom & Dad	32.09
3	07.16.08	Caillou: <i>Outdoor Adventures</i>	Isabelle, Roman, Mom & Dad	34.3
4	07.17.08	On Demand selection featuring dragonflies and insects interacting Miss Spider: <i>Web</i> ; Sesame Street	Isabelle, Roman, Mom & Dad	59.01
5	11.05.08	Caillou: <i>Caillou and the Water Slide; Caillou the Sailor; Creepy Crawlies!</i> ; Franklin: <i>Franklin the Weather Turtle; Franklin's Dance Lessons</i>	Isabelle, Mom, some Roman	60.49
6	11.19.08	Arthur: <i>Flaw and Order</i> ; Cyberchase: <i>A Clean Sweep</i> ; Blue's Clues <i>What's Funny</i>	Isabelle, Roman, Mom, Cesar	58.07
7	11.26.08	Caillou: <i>Caroling Christmas</i>	Isabelle, Roman, Mom, Dad, Cesar	33.08
8	01.15.09	Angelina Ballerina: <i>Two Mice in a Boat; The Costume Ball</i> ; Caillou: <i>Caillou the Bookworm; Caillou the Librarian; Caillou the Bookworm; Caillou the Storyteller</i>	Isabelle, Roman, Mom, Cesar	60.37
9	01.29.09	Bob the Builder: <i>Where's Robert, Wendy Welcome</i> ; Franklin: <i>Finder's Keepers for Franklin/Franklin's New Friend</i>	Isabelle, Mom,	62.27
10	02.16.09	Word Girl: <i>The Two Brains Boogie</i> ; Hannah Montana: <i>Would I Lie to you Lilly</i>	Isabelle, Dad, Cesar, Mom	39.16
11	03.06.09	Olivia: <i>Packs Up</i> ; Dora the Explorer: <i>Te Amo</i>	Isabelle, Roman, Mom	48.52
12	03.09.09	Go Diego Go: <i>Gorilla Fun</i> ; The Backyardigans: <i>Garbage Trek</i>	Isabelle, Roman; Mom	50.24
13	03.10.09	Super Why: <i>Jack and the Beanstalk</i> ; Seemore's Playhouse: <i>Lost and Found</i>	Isabelle, Roman	42.05
14	03.16.09	The Backyardigans: <i>Viking Voyage</i> ; Wonder Pets: <i>The Adventures of Bee and Slug</i>	Isabelle, Roman	24.54
15	03.18.09	Dora the Explorer: <i>Dora's Backpack Adventure</i> ; Go Diego Go: <i>Animal Rescue</i> ; The Backyardigans: <i>What's Bugging You</i>	Isabelle, Roman	65.03
16	03.18.09	The Backyardigans (continued): <i>What's Bugging You</i>	Isabelle, Roman	15.37
17	03.19.09	Disney's Handy Manny: <i>Tool in a China Shop, Welcome to Sheet Rock Hills</i>	Isabelle, Roman	30.26
18	03.20.09	Commercials; E News	Isabelle, Cesar	3.25
19	03.22.09	Super Mario Brothers (video game)	Isabelle, Roman. Cesar	24.56
20	03.23.09	Mickey Mouse Club House: <i>Mickey's Great Clubhouse Hunt</i>	Isabelle, Roman	60.0
21	03.25.09	Mickey Mouse Club House: <i>Goofy's Hat</i>	Isabelle, Roman	13.35
22	03.26.09	Mickey Mouse Clubhouse: <i>Mickey and Donald's Balloon Race</i> ; Little Einsteins: <i>The Missing Invitation</i> ; My Friend Tigger and Pooh: <i>Darby Goes Woozle Sleuthin</i>	Isabelle, Roman	65.1

**The Dawson family (LTV06).** The Dawson family includes Hannah, age five during the study, and her parents, Mr. and Mrs. Dawson. The Dawson family members are Caucasian. Mr. Dawson is a PhD candidate in psychology at a local university and Mrs. Dawson is a documentary filmmaker, writer, and director.

**Setting.** The Dawson family lives in the northern part of a large Pacific Northwestern city. Hannah attends kindergarten during the day at a local school.

**Viewing habits.** Mr. Dawson, in a pre-study interview, said that Hannah watches approximately “3-4 hours” of television programming per week. However, sometimes she watches “none” while other times she could watched as much as “8 hours” in a single week (April, 2008). Mr. Dawson said that Hannah really had a “wide variety” of programs she enjoyed. She watches a lot of programs that solicited a response from viewers like *Little Einsteins* but she also really enjoyed *Max and Ruby*, *Looney Tunes*, and *Bugs Bunny* cartoons. He did not think she watched too many educational type shows besides *Little Einsteins* and *The Bear in the Big Blue House*. However, he said that Hannah “loved dinosaurs” and watched anything with them especially her “favorite movie” at the time which was “*Jurassic Park*” (LTV05 pre-study interview, April 2008). Finally, in a post-study interview, Mr. Dawson said that Hannah also enjoys viewing the *American Girl* series and *Back to the Future* (LTV05 post-study interview, May 2009).

**Television shows observed during study.** The following table lists the shows that Hannah watched during the study, who watched with her, and how long each of the 11 viewing events lasted. Hannah was observed for approximately 11 hours (633.46 minutes).

**Table 2.8. List of Shows Hannah Viewed During Study**

Viewing Event #	Date	Program Children Watched	Participants on Camera	Event Time (min)
1	04.21.08	Max and Ruby: <i>Ruby's Easter Bonnet; Ruby Scores; Max's Work of Art</i>	Hannah	59.09
2	04.22.08	Bugs Bunny & Looney Tunes: <i>Haredevil Hare, Baton Bunny, Frigid Hare, Don't Give Up the Sheep, Bugs Bunny Gets the Boid</i>	Hannah; Dad	33.39
3	04.23.08	Bugs Bunny & Looney Tunes: <i>Hareraising Hare, Fast and Furry-ous, Haredevil Hare, Frigid Hare, Hypo Condri-Cat, Baton Bunny</i>	Hannah; Dad	38.38
4	04.24.08	Bugs Bunny & Looney Tunes: <i>Fast and Furry-ous, Hareraising Hare, Haredevil Hare, For Sentimental Reasons, Baton Bunny, Don't Give Up the Sheep, Bugs Bunny Gets a Boid</i>	Hannah	55.55
5	04.25.08	Max and Ruby: <i>A Merry Bunny Christmas</i>	Hannah; Dad	41.55
6	04.26.08	Bear in the Big Blue House	Hannah	49.17
7	04.27.08	Max and Ruby	Hannah	48.33
8	04.28.08	Max and Ruby	Hannah	37.57
9	04.29.08	Little Einsteins: <i>How We Became the Little Einsteins The True Story</i>	Hannah	100.48
10	06.09.08	Bugs Bunny & Looney Tunes: <i>Fast and Furry-ous, Hareraising Hare;</i> Little Einsteins: <i>How We Became the Little Einsteins The True Story</i>	Hannah	97.49
11	06.10.08	Little Einsteins: <i>Huge Big Adventure</i>	Hannah	70.06

**The Roberts family (LTV07).** The Roberts includes Payton, age 2, and Sydney, age 4. Mr. and Mrs. Roberts. The family is Caucasian and both Mr. and Mrs. Roberts are research scientists for a large university.

**Setting.** The family lives in the northern part of a large Pacific Northwestern city near the university where the parents work. Both girls attend a local preschool five times a week.

**Viewing habits.** In a pre-study interview Mr. Roberts said that his girls usually did not watch a lot of television. However, in a typical week they might watch approximately two hours of video programming, usually on DVD. The girls both liked the same type of shows, including “*Little Einsteins, Blue’s Clues, and Dora.*” However, they did not like nor were they allowed to watch any “adult tv” (LTV 07 pre-study interview, April 2008).

**Television shows observed during study.** The following table lists the shows that Payton and Sydney watched during the study, who watched with them, and how long each of the 3 viewing events lasted. Payton and Sydney were observed for just over 1 hour (70.34 minutes).

**Table 2.9. List of Shows Payton and Sydney Viewed During Study**

Viewing Event #	Date	Program Children Watched	Participants on Camera	Event Time (min)
1	05.11.08	Oswald: <i>Roller-skating; I Guess You Never Know</i>	Payton & Sydney	24.42
2	05.12.08	Maya and Miguel	Payton & Sydney	18.16
3	06.11.08	Little Einsteins: <i>Quincy and the Magic Instrument</i>	Payton & Sydney	27.36

**The Ito family (LTV10).** The Ito family includes Preston, age 4; Xavier, age 2; and Mr. and Mrs. Ito. Mr. Ito is Asian and Mrs. Ito is Caucasian. Both Mr. and Mrs. Ito work as librarians in a large Pacific Northwestern city where they also live.

**Setting.** Mrs. Ito stays home with the boys most of the time when she is not working part-time but when she is working the boys attend a daycare and preschool.

**Viewing habits.** Mr. and Mrs. Ito had very strict rules about watching television and interacting with digital media in their home. Mrs. Ito did not really like the boys to watch any television at all; however, she did allow them to view educational programs she had already seen that she could download onto their computer or obtain using the On Demand feature from their local cable provider. The children were only allowed to watch *Super Why*, *The Magic School Bus*, and *Little Einsteins*. Mrs. Ito believed that *Super Why* was a good show because it helped the children to learn to read. *The Magic School bus* was acceptable because it helped the children learn about science and fun and amazing places and *Little Einsteins* was acceptable because of its focus on art and music. Mrs. Ito was a former musician and music educator and really tried hard to make sure the boys learned a lot about music (LTV10 pre-study interview, 2009).

**Television shows observed during study.** The Ito boys always watched the same shows together. The following table lists the shows that Preston and Xavier watched during the study, who watched with them, and how long each of the 7 viewing events lasted. Preston and Xavier were observed for nearly 4 hours (223.32 minutes).

**Table 2.10. List of Shows Preston and Xavier Viewed During Study**

Viewing Event #	Date	Program Children Watched	Participants on Camera	Event Time (min)
1	04.11.09	Little Einsteins: <i>The Silly Sock Circus</i>	Preston and Xavier	24.07
2	04.11.09	Super Why: <i>The Three Little Pigs</i>	Preston and Xavier	25.42
3	04.17.09	Little Einsteins <i>The Legend of the Golden Pyramid</i> ; The Magic School Bus - <i>Butterfly and the Bog Beast</i>	Preston and Xavier	49.52
4	04.19.09	Little Einsteins - <i>The Three little Pigs</i>	Preston and Xavier	23.43
5	04.25.09	Super Why: <i>Cinderella</i> ; Little Einsteins: <i>Annie, Get Your Microphone</i>	Preston and Xavier	49.38
6	04.26.09	Little Einsteins: <i>The Wind-Up Toy Prince</i>	Preston and Xavier	24.14
7	04.28.09	Super Why: <i>Goldilocks and the Three Bears</i>	Preston and Xavier	26.06

### **Chapter 3: In Show - Understanding the Relative Success and Failure of Interactive Show Prompt Styles**

Many educational television shows are designed to encourage interaction and elicit viewer responses (Hayes, 2008). This interaction can be unidirectional, when young viewers verbally or physically respond to characters' calls for action, or bidirectional, when young viewers interact with other people in the room during the show. These observable interactions suggest that certain television shows can elicit a level of activity from viewers.

*Blue's Clues* was one of the first shows to encourage viewers to respond by breaking down the fourth wall and having characters address the camera, ask questions of the viewer, leave time for viewers to answer, and even "respond" to viewers' answers (Wiesmen, 2006). Prior to *Blue's Clues*, shows designed for preschool children did not include characters who spoke directly to the audience and then paused for a reply (Wiesmen, 2006). The addition of this pause revolutionized how television shows for young viewers are produced and is now widely used in numerous other educational television programs for preschoolers.

The design and production techniques of these interactive shows, such as *Dora the Explorer*, *Go Diego Go*, *Little Einsteins*, and *Super Why*, are based on research that seeks to determine how best to rouse young audience members into activity through interactional responses. A number of researchers (Anderson, 2000; Calvert et al., 2007; Crawley et al., 2002; Dugan, Stevens, & Mehus, 2010; Linebarger & Walker, 2005; Mehus, Stevens, & Dugan, 2010) believe that by engaging the bodies and voices of their young viewers, they are likely to learn more from their viewing experiences.

Given this intentionality of design, it seems simplistic to believe "television by nature is a passive medium that hampers rich social interaction" (Park, 2009) without observing first-hand how children view television shows on a longitudinal, naturalistic basis. Christakis and his

colleagues (2009), for example, consider all television shows as inhibitors of language use and acquisition among children under the age of 2. However, based on my observations of children watching a variety of television shows and the other data collected during the study, television is clearly not an inherently passive medium in terms of its impact on children's development of socialization and language skills.

I believe that children are actually learning quite a bit from their interactions with television shows and digital media, although more analysis must be done to better understand *what* is being learned. Therefore, in order to better understand what children are learning from these shows that elicit viewers' responses, it is necessary to focus on *how* children are reacting to these types of programs.

In this chapter, I expand on the research supporting the notion that educational television shows encourage social activity by answering the following research questions: *How do television shows encourage active viewing behaviors, and how do children respond to those forms of encouragement?* I begin with a brief discussion of the relevant literature. I then use a coding scheme that I developed to analyze television viewing events for the shows *Go, Diego, Go!*, *Dora the Explorer*, *Super Why*, or *The Little Einsteins*, all of which include prompts and pauses for viewer responses in every episode. Through my analysis of the data I catalog what the children are being prompted to do and how they responded to the prompts presented by these shows.

Finally, I present transcripts of prompts and prompt responses to provide the full contextual perspective on what happens when children are exposed to prompts for interaction. This analysis generates a better understanding of the types of prompts and situations that encourage children to respond to "interactive" media most often. The results of my analysis

problematize the notion that television is a “passive” medium, particularly with regard to television shows designed to elicit a response from young viewers. Furthermore, through my discussion of the logic behind the production of these shows, as well as the setting for children’s social interactions while viewing such shows, I add to the conversation about the ability of television shows to encourage rich social interaction, investigate the different situations in which children respond to media prompts, and explain what types of prompts children responded to most often and why these responses might be occurring.

### **Children’s Learning from Television Content**

Children’s media viewing habits begin at a very young age (Moeller, 1996; Kirkorian et al., 2008). Some researchers believe that so-called “passive” viewers will not learn very much due to their inactivity (Christakis et al., 2009), while others believe that a successful television program inspires motivation and stimulates activity in viewers and covievers (Fisch & Truglio, 2001). According to this latter group of researchers, motivation and stimulation can result in heightened memory, recall, and use of information that children have learned from other sources (Moeller, 1996; Fisch, 2004).

For example, Fisch and Truglio (2001) discuss the educational show *Sesame Street* and children’s learning, claiming that:

one of the characteristics that distinguishes *Sesame Street* from almost every other series on television is its foundation in a comprehensive educational curriculum and the process that surrounds it. Even among educational television programs for children, most have been produced without a written curriculum, or with only a broad philosophy or small number of general goals that provide little concrete direction for production. (Notably, apart from a few programs such as *Blue’s Clues*, most of the exceptions to this rule are

television series that have also been produced by the Children's Television Workshop) (p. 234).

They also state that children learn from shows such as *Sesame Street* not only because they have detailed curricula attached to them, but because they use the following framework of design for educational television shows:

- **Appeal** – children will pay more attention and comprehend more content if the content is interesting to them and/or they can identify with the characters, and if the content is designed for their target developmental level (p. 235).
- **Explicitness and Concreteness** – Taken from Piaget's developmental models (Inhelder & Piaget, 1958 as cited in Fisch & Truglio, 2001, p. 235) that children think differently at different stages of development. Most shows aimed at young children are designed to be concrete and explicit and do not require too much background knowledge to understand (p. 235).
- **Child-Centered and Child Relevant Content** – Children are better able to understand show content when it is presented in a “narrative” context that is “familiar and meaningful” to them. In other words, if shows include children who look and act like the viewers and discussed situations in which the viewing children might find themselves in their own lives, child viewers will be more inclined to learn from the situations (p. 236).
- **Repetition and Reinforcement** – Children learn the most from content that is repeated and reinforced most often. “Educational content areas that have received the greatest emphasis within the series also produced the greatest effects on child learning” (Ball & Bogatz, 1970 as cited in Fisch & Truglio, 2001, p. 237). Multiple viewings of the same content only help viewers learn more in depth or grasp concepts they might have missed the first time (p. 237).
- **Modeling and Identification** – Who is conveying the information to viewers is just as important as the content itself. Researchers have discovered that children pay more attention and “like” content more when it is being delivered by people who look and act like them. Whether that person is a child or an adult of similar ethnicity or culture background, or someone of their “same sex” (Luecke-Aleksa, Anderson, Collins, & Schmitt, 1995 as cited in Fisch & Truglio, 2001, p. 238).
- **Involving Viewers and the Role of Participation** – Fisch and Truglio (2001) reinforce the idea that children are NOT passive learners from television, in fact, they “are actively engaged in seeking out information and constructing their own understanding of the materials being viewed (Anderson and Burns, 1991 as cited in Fisch & Truglio, 2001, p. 238). Thus, if viewers can be encouraged to rehearse, elaborate on, and work with the educational content presented, they may be more likely to recall that content later” (p. 238).

Furthermore, children are more inclined to participate and actively learn if they are prompted by characters to interact in some way by repeating words or phrases, answering

questions, or participating in some sort of physical activity. This interaction also allows viewers to know whether they are repeating and answering correctly (p. 239).

Moreover, the ways in which viewers fit the medium of television into their lives may aid in their learning. The increasing availability of personal computers, DVD players, and DVRs and on-demand cable service gives young and old viewers alike far more power to play, watch, and repeat information whenever they like. Children are able to watch parts of their favorite episodes on the Internet or on demand through their cable television service. Parents can buy DVDs for their children to watch anywhere, and they can also record shows using their DVRs, enabling their children to watch those shows whenever they like.

This shift to on-demand programming gives children greater access than ever to a wide variety of shows, meaning they can watch the shows they prefer without being constrained by the limited number of channels available, or the times at which certain shows are broadcast. This technological development is significant in part because children can watch shows with parents, siblings, and friends at their mutual leisure.

These new technologies also allow viewers to watch shows in a non-linear manner, which can potentially aid in comprehension. As Fisch (2004) and Kirkorian et al. (2008) acknowledge, children like to repeat programming over and over, an act that aids in their cognitive processing and comprehension of a specific show. Giving children the power to skip around within a show also holds their attention on the parts of the show they want to watch. Therefore, the rise of on-demand viewing technologies allows children's viewing habits to be as diverse as they need to be. These habits play an ever-expanding role in how children interact with television shows.

### **Prompt Analysis**

In the following analysis I examine how the ten children in the study responded to prompts from *Go Diego Go*, *Dora the Explorer*, *Little Einsteins*, and *Super Why*. First I explain the process I

used to develop my coding scheme for categorizing all of the prompts. I then analyze the relative levels of success of the different prompt types based on the frequency with which they elicit responses.

**Methodological overview.** I use content analysis as the methodological backbone for the present analysis. This choice of methodology is advisable partly because the present study is qualitative (rather than quantitative) and includes a nonrandom convenience sample of children. Therefore, the shows that the children watched during the study cannot be considered a random sample of television programming.

Additionally, because the data from this study were collected “in the wild” through a naturalistic, longitudinal, ethnographic, and observational process, and not in the confines of a laboratory, any quantitative analysis of prompts must be approached with caution and skepticism about its generalizability (Hutchins, 2005). The children were observed in their own homes during their naturally-occurring television viewing events; therefore, I have no control over the frequency of viewing or the social configurations of the children’s families that existed as they watched television although the randomness of what the children viewed adds to the ecological validity of how the phenomenon of watching and responding was manifested in the children’s actual social lives.

Given these caveats, in this chapter I do not make generalizable claims about the quality or effectiveness of specific prompt types. Instead, I provide a deeper understanding of the types of prompts and situations that encourage children to respond to “interactive” media. I intend for my analysis and coding scheme to provide the groundwork for future quantitative studies that are designed to create more effective educational programming.

In order to understand how the children in the study responded to the prompts they received from the shows they watched, I set the **television show** as the unit of analysis, or the general phenomenon being studied, and the **prompt** as the unit of observation, or the specific item being measured at the individual level. Using inductive measurement and emergent coding, I generated my prompt coding categories after multiple passes through the television show transcripts. I based my decisions about unit assignment and measurement, as well as my process for developing my coding scheme, on two of the most widely recognized content analysis handbooks (Krippendorff, 2004; Neuendorf, 2003), which provide the appropriate theoretical and practical grounding for the prompt analysis described herein.

**Coding categories defined.** I developed the following coding scheme to categorize the prompts included in the interactive shows that the children in the study watched:

- Short answer (SA)
- Imperative statement (IS)
- Imperative statement with associated action (ISA)
- Yes/no question (YN)
- Foreign language (FL)

The following sections describe each coding category in detail, and are taken from the master code book that I wrote to guide my analysis of the prompts present in the show transcripts.

***Short Answer (SA).*** This prompt type includes short answer questions that usually began with “*what*” or “*where*.” These questions prompt viewers to fill in the blank with their own answer, which is often based on information they should have acquired from the show prior to receiving the prompt.

The following list provides typical examples of this type of prompt for each show viewed during the study; all four shows include SA prompts:

- *Dora the Explorer* – In a segment where Dora asks the viewers to help her solve a puzzle, she says, “*What piece is missing?*”

- *Go Diego Go* – In a segment where viewers are looking at pictures of red eyed tree frogs Diego asks viewers “*Why are they called Red Eyed Tree Frogs?*”
- *Little Einsteins* – In the beginning of an episode Leo and his friends are trying to find a place where their friend Rocket can live. They each live in their homes but Rocket is clearly too big to fit inside. So Leo asks viewers “*Where do you think we can find a house big enough for Rocket?*”
- *Super Why* – In a segment where show characters are trying to help viewers say, sound out, and read the word “stairs” the characters begin by asking the viewers “*What does [the sound] S – T make?*”

***Imperative Statement (IS).*** IS prompts are imperative statements that ask viewers to verbally respond with a specific answer given to them by characters on the show. IS prompts do not require any physical action as a form of response, only the repetition of the suggested answer.

The following list provides typical examples of this type of prompt for each show viewed during the study; all four shows include IS prompts:

- *Dora the Explorer* – In a segment where Dora asks viewers to help her trick or treat on Halloween, she says, “*When the door opens, say ‘trick or treat.’*”
- *Little Einsteins* – The show characters ask viewers to greet Rocket, another character, by saying, “*Hi, Rocket.*” After saying this greeting once, viewers are asked to repeat the same greeting again but in a louder voice by saying, “*I don’t think he heard you, say ‘Hi Rocket!’*”
- *Go Diego Go* – In a segment where Diego has been asking other characters within the show whether a pogo stick will help him jump really high, the other characters tell the viewers, “*Now you tell Diego he needs a pogo stick.*”
- *Super Why* – The characters start a particular show by telling all the viewers, “*Say ‘calling all super readers!’*”

***Imperative Statement with Associated Action (ISA).*** ISA prompts are similar to IS prompts in that they are imperative statements; however, ISA prompts ask viewers to physically respond with a specific action described for them by the characters on the show. These prompts are usually used in situations when characters need “help” from the viewers to accomplish a task.

The following list provides typical examples of this type of prompt for each show viewed during the study; all four shows include ISA prompts:

- *Dora the Explorer* – viewers were prompted to prepare to climb a tree with the characters, and were told to “put your hands out in front of you and spread your fingers.” Next, viewers were prompted to climb the tree: “Now, *climb, climb, climb, climb!*”
- *Go Diego Go* - The viewers in this show were prompted to “*Push! Push! Push!*” the air in front of them to help Diego in the show help a sea turtle get across the water.
- *Little Einsteins* - The viewers were prompted to “*Pat, pat, pat*” their laps to help give Rocket the power to rev up and blast off.
- *Super Why* – The viewers were asked to “*Roll, roll, roll*” their arms in front of them to help a show character roll a ball.

**Yes/No (YN).** YN prompts are quite basic in that they only ask viewers to respond with either “yes” or “no.” These prompts usually take the form of questions that start with “do,” “can,” or “does.”

The following list provides typical examples of this type of prompt for each show viewed during the study; all four shows include YN prompts:

- *Dora the Explorer* – The question “*Do you like puzzles?*” was asked before the viewers were asked to help Dora solve a puzzle.
- *Go Diego Go* – The question “*Can you see the sea turtles?*” was asked when viewers were shown a sea turtle on the screen.
- *Little Einsteins* – The question “*Does this sound like the little caterpillar’s musical tree?*” was asked when viewers were told to select the sound of the caterpillar’s musical tree, which they had heard earlier in the show, from a selection of three tree sounds.
- *Super Why* – The question “*Do you see super letters?*” was asked of viewers during a story segment about the story *Goldilocks and the Three Bears*. The super letters are special letters that help solve a riddle from each show.

**Foreign Language (FL).** FL prompts were only used in two shows during the study: *Dora the Explorer* and *Go Diego Go*. These shows include certain words in Spanish so young viewers can learn the meanings of both English and Spanish words. Generally, when viewers are presented with an FL prompts, they are first provided with a YN prompt to set the context for the interaction, and then they are asked to repeat a specific word in a language other than English.

The following list provides typical examples of this type of prompt for the two shows that include FL prompts:

- *Dora the Explorer* – In reference to helping Dora solve a jigsaw puzzle, Dora asks, “*What about this piece?*” The next prompt is “*y este?*” which means “and this?” in English, and which continues the narrative of the story.
- *Go Diego Go* – Viewers are first given a YN prompt: “*Can you say ‘mas abajo?’*” They are then prompted to “*say ‘mas abajo.’*” Diego then begins to use the words “*mas abajo*” (Spanish for “below”) in a song.

**Coding process and measures of reliability.** I served as the only coder and used printed copies of the television show transcripts as my code sheets, noting on each transcript the appropriate code for each prompt and every instance of a prompt response. I coded all of the transcripts over the course of several hours, ensuring that I maintained the strongest level of consistency given the fact that I was the only person doing the coding. This act of solo coding is acceptable partly because the prompts represent manifest content rather than latent content, making the coding process more of an accounting activity and less of an interpretive activity (Neuendorf, 2003, p. 146).

I had a second coder perform a reliability check of my coding scheme to ensure its reliability as a repeatable scheme for others to use. This second coder went through 10% of the printed transcripts from the study and coded the prompts without seeing the results of my own coding process. It is acceptable for ensuring the reliability of a coding scheme to use this subset of data for coding by a second person (Neuendorf, 2003). Because I am not using my coding results as data that could generate quantitative analyses of the prompts, I was only concerned about the reliability of my coding scheme in terms of its future value as a scheme to categorize prompts presented by interactive television shows. Therefore, I relied on the measure of simple percentage agreement between my coding process and that of the second coder. Using the master code book descriptions provided in the previous section, the second coder and I achieved greater than 90% agreement of coded prompts for the same set of transcripts, providing independent verification of the quality of my coding scheme.

After coding the transcripts, I stored the results in a Microsoft Excel workbook. I recorded the date, episode, and total time of each viewing event, the children who viewed the show, the total number of prompts for each show, the total number of prompts each child viewed for each show, the total number of prompts each child responded to for each show, and the percentages each child viewed for each show.

### **Analysis, Themes, and Discussion**

In this section I first provide an overview of the prompts and prompt responses as a function of my coding results. Next, I explore how each child responded to prompts within the four shows. I then explore how each family responded to prompts. I conclude with a discussion of the frequencies with which each prompt received a response from a child, as well as the phenomenon of prompt chains and how children respond when several prompts of the same type are presented in succession.

**Overview of prompt data.** The following table provides a snapshot of the coded prompts for the interactive shows included in the study; show names are abbreviated using their initials to save space.

**Table 3.1. Overview of Prompts and Responses for Each 32 Viewing Events**

<b>Show Title</b>	<b>Total Prompts</b>	<b>SA</b>	<b>ISA</b>	<b>YN</b>	<b>IS</b>	<b>FL</b>	<b>SA reply</b>	<b>ISA reply</b>	<b>YN reply</b>	<b>IS reply</b>	<b>FL reply</b>	<b>Total Replies</b>
<i>DTE</i>	534	184	158	134	17	41	23	5	19	1	10	<b>58</b>
<i>GDG</i>	1799	270	823	309	119	278	63	88	63	30	77	<b>321</b>
<i>LE</i>	1031	153	642	226	10	0	57	133	74	2	0	<b>266</b>
<i>SW</i>	265	115	116	32	2	0	46	8	14	0	0	<b>68</b>
<b>Grand Total</b>	<b>3629</b>	<b>722</b>	<b>1739</b>	<b>701</b>	<b>148</b>	<b>319</b>	<b>189</b>	<b>234</b>	<b>170</b>	<b>33</b>	<b>87</b>	<b>713</b>

**Table 3.2. Percentages of Prompts and Prompt Responses Across 32 Viewings**

Show Title	Sum of SA	Sum of ISA	Sum of YN	Sum of IS	Sum of FL	Sum of SA reply	Sum of ISA reply	Sum of YN reply	Sum of IS reply	Sum of FL reply	Sum of Total reply
<i>Dora the Explorer</i>	34.5%	29.6%	25.1%	3.2%	7.7%	12.5%	3.2%	14.2%	5.9%	24.4%	<b>10.9%</b>
<i>Go Diego Go</i>	15.0%	45.7%	17.2%	6.6%	15.5%	23.3%	10.7%	20.4%	25.2%	27.7%	<b>17.8%</b>
<i>Little Einsteins</i>	14.8%	62.3%	21.9%	1.0%	0.0%	37.3%	20.7%	32.7%	20.0%	N/A	<b>25.8%</b>
<i>Super Why</i>	43.4%	43.8%	12.1%	0.8%	0.0%	40.0%	6.9%	43.8%	0.0%	N/A	<b>25.7%</b>
<b>Grand Total</b>	<b>19.9%</b>	<b>47.9%</b>	<b>19.3%</b>	<b>4.1%</b>	<b>8.8%</b>	<b>26.2%</b>	<b>13.5%</b>	<b>24.3%</b>	<b>22.3%</b>	<b>27.3%</b>	<b>19.6%</b>

As Table 3.1 and Table 3.2 reflect, the children in this study watched 32 separate viewing events of 4 interactive shows, and 1 or more children were exposed to 3,629 prompts from those episodes. Of those 3,629 prompts, the children responded to 713 prompts, yielding a prompt response rate of 19.6%. The unit of observation in the present analysis is the prompt, not the child. Therefore, this percentage intentionally avoids consideration of the fact that multiple children often viewed the same prompt as they co-viewed shows together.

The following figure provides a comparative snapshot of the frequencies with which different prompts were used in the 32 episodes that were watched during the study.

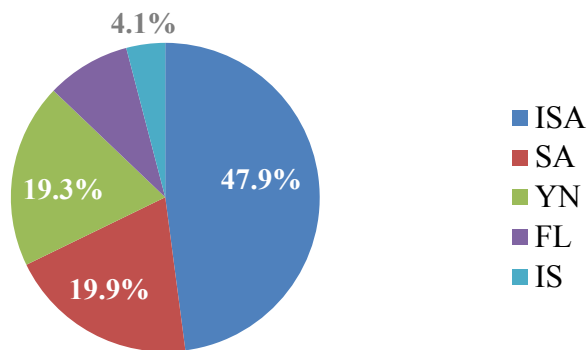
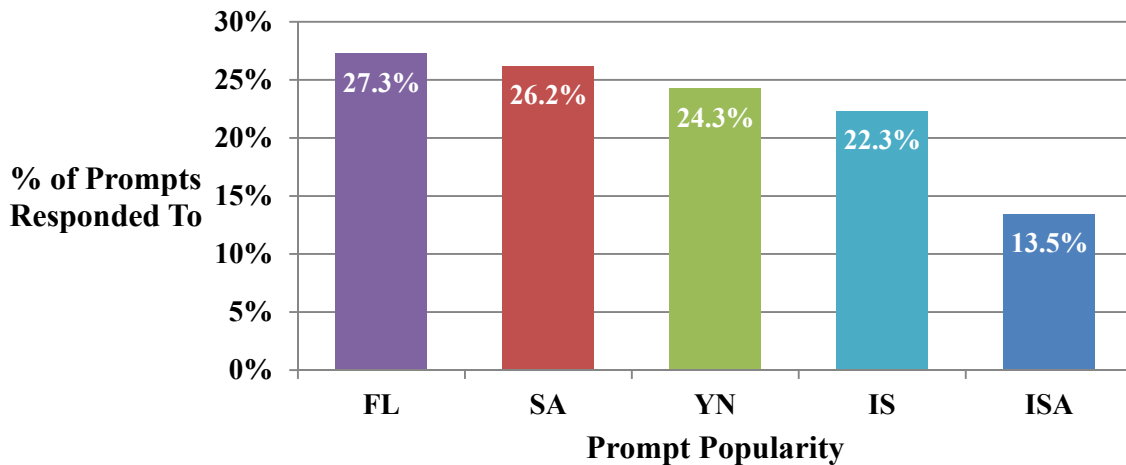
**Figure 3.1. Prompt Usage Frequency For All 32 Episodes Watched During Study**

Figure 3.1 shows that ISA prompts were used most frequently in the episodes of the shows that the children in the study viewed, representing nearly half of the total number of prompts. This information is interesting in the context of how successful each prompt type was in terms of eliciting a response from the children in the study.

The following figure provides a look at the relative popularity of each prompt, where “popularity” is defined as the frequency with which children in the study respond to each prompt type.



**Figure 3.2. Prompt Popularity For All 32 Episodes Watched During Study**

As Figure 3.2 shows, the ISA prompt was by far the least popular prompt type, while the other 4 prompt types all fell within 5% of each other with regard to how often they elicited responses from the children in the study.

The FL prompt was the most popular prompt with a response rate of 27.35%, even though it was only used in 2 out of the 4 shows reviewed and was the second least used prompt. Furthermore, SA, YN, and IS prompts were responded to 26.2%, 24.3%, and 22.3% of the time, respectively.

These data indicate potential response trends that could impact how developers of interactive television programming use prompts to elicit audience engagement. However, the table and graphs shown here only tell part of the story.

In the remainder of this section, I will describe the prompts and their popularity across each show beginning with a short description of the main ideas and learning goals for each show and then conclude with a report on the total prompts provided to the children in the study from each show, the prompt popularity of the show, and how the children responded to that show.

**Dora the Explorer.** *Dora the Explorer* is an educational television show that airs on the Nickelodeon network and is written and created by Chris Gifford, Valerie Walsh, Rick Velleu, and Eric Weiner (Nick Jr.com, 2011; Wikipedia, 2011). *Dora* follows the life of Dora Marquez, a seven-year-old, bilingual Latina girl, along with her best friend Boots the Monkey, as they try to find new places to explore around the world (Nick Jr.con, 2011). Children are encouraged to interact with Dora by answering the questions she asks, and by completing visual and verbal tasks along the way.

In many shows Dora has a map and several other characters who help her. The antagonist of the show is named Swiper, a sneaky fox who tries to steal or “swipe” items such as Dora’s map or other items from her backpack so that she has trouble finding her way. Frequently, when Swiper takes something, Dora asks viewers to “help” her find it or figure out where she is going. Directions are repeated and sometimes presented in a sing-song or lively musical style so children can remember and repeat them when prompted.

Every episode follows this same general profile; as children become repeat viewers of the show, they also become familiar with the format and structure of the series, allowing them to pay attention to the content rather than being distracted by peripheral aspects of the show.

The writers and developers of the show state that the overall goal of the show is to aid children in learning:

“basic Spanish words and phrases along with math and music skills and physical coordination. Children also learn with Dora how to observe situations and solve problems... In each episode of *Dora the Explorer*, Dora solves a problem based on specific words and phrases in conversational Spanish, which preschoolers learn as they solve the problem with her. These words and phrases include a variety of basic nouns, adjectives, and commands, such as ‘azul’ for ‘blue’, and ‘cuidado’, which means ‘watch out’”(nickjr.co.uk.com, 2009).

According to writer and show developer Valerie Walsh,

“educators believe that introducing a second language to a child before the age of 6 or 7 is an important factor in his/her ability to achieve fluency. For many of our preschool viewers, *Dora* is their first encounter with a foreign language. As such, the show might teach them a little Spanish and make them curious and interested in learning more, or simply make them aware of and comfortable with foreign languages. For our Spanish-speaking preschool viewers, seeing *Dora* use Spanish might encourage them to take pride in being bilingual” (nickjr.co.uk.com, 2009).

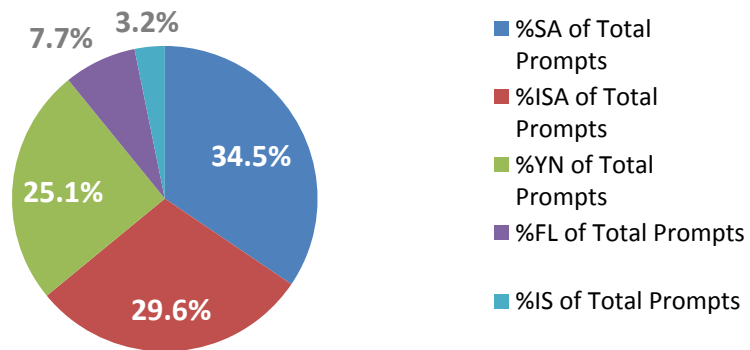
Therefore, *Dora the Explorer* has been designed by its written and producers to:

- Expose children to foreign (or second) language like Spanish (FL prompts)
- Promote math and music skills (IS prompts)
- Get children up and moving around (ISA prompts)
- Observe a situation and answer questions about it (SA, YN prompts)
- Help *Dora* out of a dilemma (all prompt types)

In the following section, I will describe the prompts that were most used in the episodes of *Dora the Explorer* that the children in the study watched, the prompts the children responded

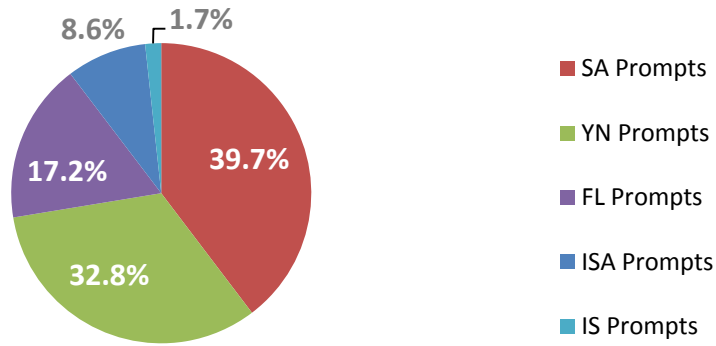
to the most, which prompts were most popular to respond to in this show, and how the children from the families who viewed the show responded. I end this section with a brief description of whether the show appears to be reaching its stated goals based on the frequencies of prompts and prompt responses.

***Dora the Explorer prompts and responses.*** In this study *Dora the Explorer* was the viewed 11 times during 5 distinct viewing events by 2 different families. ISA was the most used prompt type at 34.5%, as Figure 3.3 illustrates, while SA and YN prompts were presented 29.6% and 25.1% of the time, respectively. The least used prompts were the FL prompt at 7.7% and the IS prompt at 3.2%.



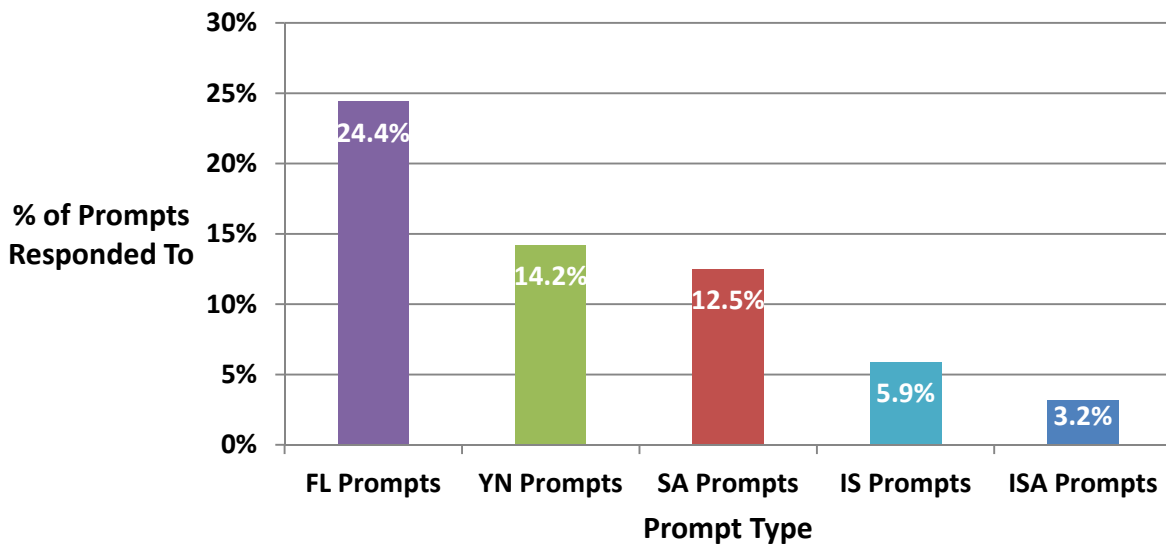
**Figure 3.3. Relative Frequencies of the 534 Prompts Presented in *Dora The Explorer***

However, as Figure 3.7 shows, SA prompts were the most responded to at 39.7% followed closely by YN prompts at 32.8%. FL prompts were responded to 17.2% of the time, ISA were responded to 8.6% of the time, and Imperative Statements (IS) were responded to 1.7% of the time.



**Figure 3.4. Prompt Response Distribution for *Dora the Explorer***

Again, these figures only tell part of the story. Figure 3.5 shows that the FL prompts were the most popular at 24.4% response rate, followed by YN at 14.2%, SA at 12.5%, IS at 5.9%, and ISA at 3.2%. IS and ISA were the least popular prompt types as well as the least responded to, even though they represented more than half of all the prompts that were presented. Moreover, when the actual responses from the 5 children in the study were broken down individually and across families, it is evident that some prompt types were preferred over others.



**Figure 3.5. Prompt Popularity for *Dora The Explorer***

Finally, five children across two families viewed *Dora the Explorer* throughout the study. Harrison, Le Anne, and Max Chambers viewed the show several times. Harrison watched it four times while Max watched three times and Le Anne watched it twice. Out of the four times Harrison watched this show, he watched one episode alone, one episode with his younger brother Max, and two episodes with Max and his older sister Le Anne together. Isabelle and Roman Vazquez watched this show one time together.

**Table 3.3. Participants' Responses to *Dora the Explorer* Prompts**

	Sum of Total reply	Sum of SA reply	Sum of ISA reply	Sum of YN reply	Sum of IS reply	Sum of FL reply
<b>Harrison</b>	20.7%	24.1%	4.4%	26.7%	11.1%	52.9%
<b>Le Anne</b>	15.2%	20.0%	6.7%	50.0%	0.0%	0.0%
<b>Max</b>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Isabelle</b>	1.5%	0.0%	0.0%	0.0%	N/A	11.1%
<b>Roman</b>	4.5%	4.3%	5.3%	6.3%	N/A	0.0%

As Table 3.3 illustrates, Harrison and Le Anne responded the most to this show. Isabelle, Roman, and Max viewed it but seldom responded. Harrison viewed this show the most often of all the children and responded most frequently to FL prompts (52.9% of the time). Harrison also responded to all the prompt types, although he responded to ISA prompts least often (4.4% of the time). Furthermore, even though Le Anne viewed fewer shows than Harrison, she responded to YN prompts 50% of the time but did not respond to any of the FL prompts. Max did not respond to any of these prompts despite viewing the show episodes with his older siblings. Isabelle and Roman did not respond very frequently to this show; when they did respond, Isabelle preferred to answer FL prompts while Roman responded to YN prompts 6.3% of the time, ISA prompts 5.3% of the time, and SA prompts 4.3% of the time. Unlike his older sister he did not respond to FL prompts at all, whereas Isabelle did not respond to any SA, ISA, or YN prompts.

Therefore, out of the 534 total prompts presented to the children in the study, the children responded to 58 prompts. Compared to the other three shows that the children watched, this

show had the lowest prompt response rate at 10.9%. It seems, however, that even though the overall rate of response to show prompts was low, this show is doing a good job at getting children to respond and engage with foreign languages, a goal the show designers say is fundamental to its design. It also appears to do well at encouraging the children to observe the actions going on in the show and respond to the SA and YN prompts, which “help” Dora solve. One area this show could improve is in its success rate at encouraging the children who view it to get up off the couch and engage more physically with the show by responding to ISA prompts. Almost half of the shows’ total prompts were ISA prompts, yet the viewers only responded to 3.2% of these prompts. I explore the possible reasons for this relatively low response rate later in this chapter.

**Go Diego Go.** *Go Diego Go* is a half-hour, interactive, animated, educational television show that airs on the Nickelodeon network. It is a spin-off show from *Dora the Explorer*. It was created by Chris Gifford and Valery Walsh who also made *Dora the Explorer*. The show follows the adventures of 8-year-old Diego Márquez who is Dora’s older cousin. The show revolves around Diego helping animals that are in danger or in need usually in the rainforest. He also has a jaguar friend named Baby Jaguar who assists him on many of his adventures (Wikipedia, 2010). Diego also has the help of his faithful 11 year old cousin Alicia, his trusty back pack, Rescue Pack, his camera, Click, and his mischievous little monkey friends the Bobo brothers (nickjr.com, 2010). According to Nickjr.com (2010):

“Diego’s mission is to help rescue an animal in trouble. Using observation skills and scientific tools like computers, a field journal, and cameras--and with help from young viewers at home--Diego succeeds in his goal while introducing kids to information about each animal’s sound, movement, habitat, diet, family, and physical characteristics.”

Each episode is designed to encourage interactions and introduce children to Spanish words as well as “encouraging movement, incorporating songs, and teaching kids to overcome challenges” (nickjr.com, 2010). Diego is a great lover of nature and the world, and his character is designed to model “important attributes for young children, such as a love of learning, a respect for the environment, and a desire to help others” (nickjr.com, 2010).

Each episode has four primary goals:

- To discover scientifically accurate facts about an animal.
- To recognize the similarities between living things--such as the need for air, food, and water for survival.
- To reveal important characteristics about an animal, such as the connection between an animal's physical characteristics and how it lives in its environment.
- Diego and the viewer use resources and scientific methods to discover and document information about the featured animal” (nickjr.com, 2010).

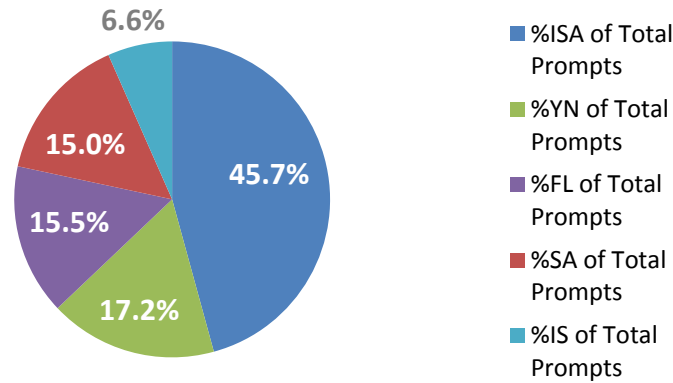
Therefore, the designers and producers of *Go Diego Go*'s have designed their show to address the following learning goals:

- Aid young children in learning Spanish as a second language (FL prompts)
- Encourage viewers to engage physically with the program through actions and musical segments (IS, ISA prompts)
- Understand about scientific tools such as journals and cameras (SA, YN prompts)
- Learn facts about science, including animal life and habitat (SA, YN prompts)

In the following section, I will explore what prompts were most used in *Go Diego Go*, what prompts the children responded to the most, which prompts were most popular to respond to in this show, and how the children from the families who viewed this show responded. I will then end this section with a brief description of whether the show appears to be reaching its stated goals based on the frequencies of prompts and prompt responses.

***Go Diego Go prompts and responses.*** *Go Diego Go* was viewed 23 times by the children in the study on 9 distinct viewing events across families. Two different families in the study

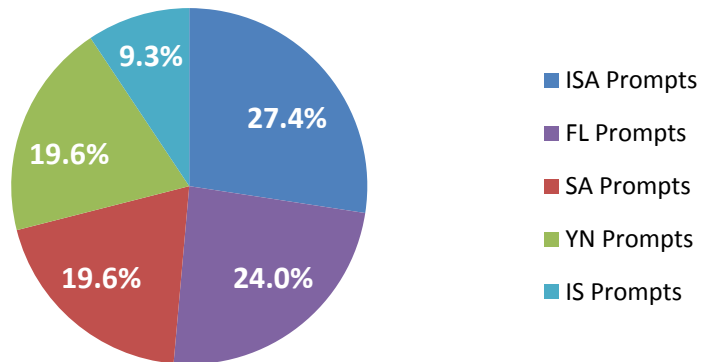
watched the show. Across all the viewing events of *Go Diego Go* it presented viewers with 1799 prompts. Of these presented prompts 823 or 45.7% were ISA prompts as Figure 3.6 illustrates.



**Figure 3.6. Relative Frequencies of the 1799 Prompts Presented in *Go Diego Go***

These action prompts made up more than three quarters of all the prompts in the entire show. YN, FL, and SA prompts were presented roughly around the same amount while IS were presented the least at 6.6%.

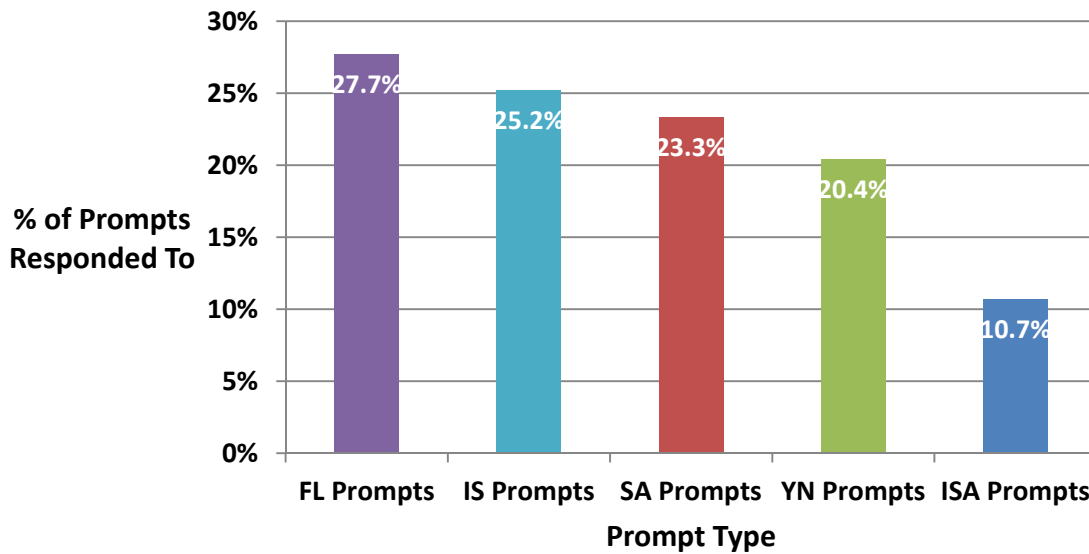
However, as Figure 3.7 shows the children’s responses to the shows were more evenly distributed.



**Figure 3.7. Prompt Response Distribution for *Go Diego Go***

Children responded 321 times or 17.8% of the time to the presented prompts. Children did respond to ISA prompts the most with 27.4% followed closely by FL prompts at 24.0%. The least responded to prompts were IS prompts with 9.3%.

Yet, despite the fact that the children responded to the ISA prompts the most, these prompts were not at all popular to respond to as Figure 3.8 indicates.



**Figure 3.8. Prompt Popularity for *Go Diego Go***

Furthermore, the children in the study did like to respond to FL prompts the most with 27.7% popularity. IS prompts were the second most popular with 25.2% followed closely by SA and YN prompts at 20.4%.

Finally, five children across two families viewed *Go Diego Go*. These were the same families and children who viewed *Dora the Explorer*. Harrison, Max, and Le Anne Chambers viewed this show several times. Harrison watched eight different times, while his younger brother Max watched six times and their older sister Le Anne viewed seven times. Harrison, Max, and Le Anne all watched this show together five times, while Harrison and Max viewed an

episode together, and Harrison and Le Anne viewed two episodes together. Isabelle and Roman Vazquez viewed this show once together.

As Table 3.4 shows, Harrison watched the most shows and responded the most out of all the children viewing with a rate of 29.0%. He and his older sister Le Anne preferred to respond to FL prompts more than any other prompt type. However, Harrison responded to IS prompts second most at 39.5% while his sister preferred to answer SA prompts more. Furthermore, their younger brother Max favored answering IS prompts most often with 11.8%. Finally, Isabelle and Roman watched an entire episode of this show but did not respond to any prompts at all. It is unclear why they did not respond.

**Table 3.4: Participants' Responses to *Go Diego Go* Prompts**

	Sum of Total reply	Sum of SA reply	Sum of ISA reply	Sum of YN reply	Sum of IS reply	Sum of FL reply
<b>Harrison</b>	29.0%	36.9%	18.5%	34.6%	39.5%	40.3%
<b>Le Anne</b>	21.0%	32.1%	11.5%	24.4%	21.4%	35.1%
<b>Max</b>	1.6%	0.0%	0.9%	0.0%	11.8%	2.4%
<b>Isabelle</b>	0.0%	0.0%	0.0%	0.0%	N/A	N/A
<b>Roman</b>	0.0%	0.0%	0.0%	0.0%	N/A	N/A

Thus, *Go Diego Go* presented viewers in this study with 1799 total prompts across 9 separate viewing events and 2 families but the children in the study only responded to 321 total prompts (17.8%). Like *Dora the Explorer*, (which was written and produced by many of the same people who made *Go Diego Go*) this show did meet its goals of eliciting the viewers to respond to FL prompts but it also lacked the ability to get the children to respond to calls for physical actions through ISA prompts. Yet, the children in the study did answer non-physical calls to “help” Diego with the animals by answering IS prompts. Furthermore, the show seems to also be encouraging the viewers to answer prompts about scientific facts and tool usage, which is evident in the children’s preference in answering SA and YN prompts.

**Little Einsteins.** *Little Einsteins* is an interactive, 3D, animated, educational television show designed for children from 3 to 6 years of age. This show airs on the Disney Channel's *Disney Junior* block and is produced by Curious Pictures and The Baby Einstein Company. Douglas Wood created the *Little Einsteins* concepts and characters, while a group of television designers including Jeff Borke, Olexa Hewryk, and *Dora the Explorer* co-creator Eric Weiner produces the show. The show originated with a straight-to-DVD compilation called *Our ~~Big~~ Huge Adventure*, but was so successful it became a recurring series on television (Disney.go.com, 2009; 2011).

According to the *Little Einsteins* website:

The mission of Little Einsteins is to take preschoolers on exciting musical adventures set in the real world (and inside a few great pieces of art!). On each adventure, your children will help the Little Einsteins team solve an important mission, meet new friends, visit interesting destinations, learn about and make music, and laugh along the way. Music plays an essential role in each of the Little Einsteins adventures. As the lovable team sets out to complete each mission, classical music takes a special role that helps advance the story while setting the tone of each show. From the very beginning of every show, preschoolers are encouraged to interact and collaborate with the Little Einsteins team in a fun-filled effort to achieve the goals of each mission. Whether it's patting their laps to create more power for Rocket to blast off, or locating the footprints of a missing reindeer in the snow, your little one will be immersed visually and interactively in each mission. Little Einsteins encourages your child to investigate their own curiosity, helping develop a lifelong passion for discovery and learning. Appreciation of music and art are made fun

and exciting as the team discovers the real world and interacts in a whole new way with music, art, nature and more. (Disney.go.com, 2009)

*Little Einsteins* has five main characters: Leo, June, Annie, Quincy and Rocket. The first four characters are children (two boys and two girls), each with their own unique interests: Leo loves to conduct, Annie loves to sing, Quincy loves to play instruments, and June loves to dance. Rocket is the mode of transportation as the children embark on missions to help friends, solve problems, or accomplish tasks in places all over the world. The antagonist in this series is named Big Jet. He does not show up in every episode, but when he does he usually tries to steal something from one of the characters so they have trouble completing their mission.

Every episode follows the same essential formula. The show begins with the theme music and the characters singing along. A curtain rises on a stage to introduce the episode and the episode's highlighted artist and music. Art and music appreciation is integrated into the scenery, plot, and soundtrack of each episode. After the introduction, the story unfolds with one of the children usually headlining the episode.

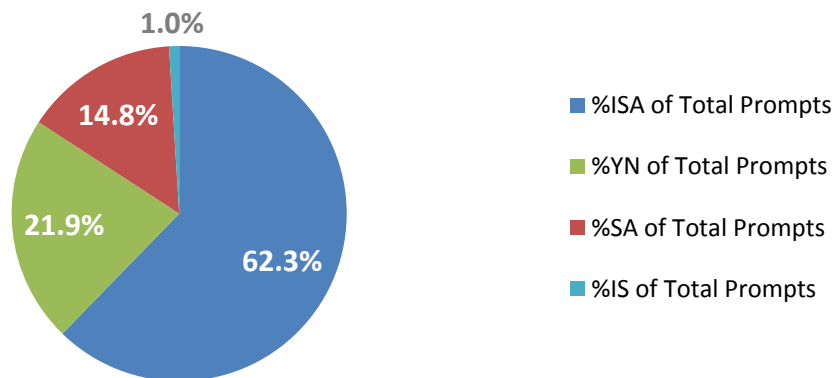
In every episode, the children speak not only to each other but directly to the audience members, encouraging them to interact with the characters in the show by patting their laps to help the Rocket blast off and by singing, gesturing, and answering questions to help the characters accomplish their missions. At the end of each show, the children clap and ask the viewers to clap with them to recognize the featured visual artists and musician, and to congratulate them on a completed, successful mission. They clap for the highlighted child character, the rest of the child characters, the Rocket, and the viewers themselves.

Therefore, the designers and producers of *Little Einsteins* have designed their show to address the following learning outcomes:

- Promote music appreciation (SA, IS, ISA, YN prompts)
- Promote fine art appreciation (SA, IS, ISA, YN prompts)
- Encourage active investigation and curiosity (SA, IS, ISA, YN prompts)
- Solve problems (SA, IS, ISA, YN prompts)
- “Help” the show characters complete a mission (SA, IS, ISA, YN prompts)

In the following section, I will explore what prompts were most used in *Little Einsteins*, what prompts the children responded to the most, which prompts were most popular to respond to in this show, and how the children from the families who viewed this show responded. I will then end this section with a brief description of whether the show appears to be reaching its stated goals based on the frequencies of prompts and prompt responses.

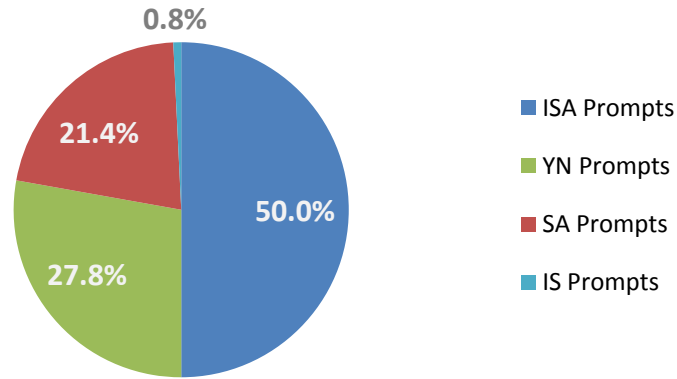
***Little Einsteins prompts and responses.*** *Little Einsteins* was viewed 28 times on 14 separate viewing events throughout the study by 8 children in 4 families. *Little Einsteins*’ presented viewers with 1031 total prompts throughout the viewings. Of these prompts, 642 were ISA prompts or 62.3% of the total prompts presented (see Figure 3.9).



**Figure 3.9. Relative Frequencies of the 1031 Prompts Presented in *Little Einsteins***

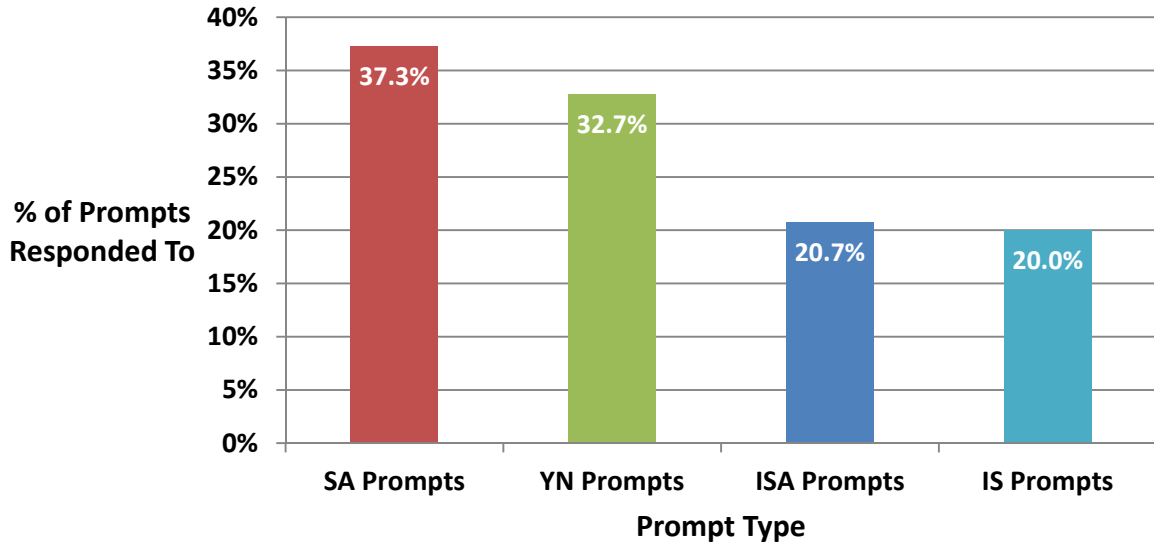
YN prompts were the second most presented prompt type with 21.9% followed by SA prompts with 14.8% and Imperative Statements with 1.0%. This show did not have any FL prompts. Therefore, by a ratio of almost 3:1, ISA prompts were the prompt type most often used in this show.

Furthermore, ISA were also the most responded to prompts in this show with 50% as Figure 3.10 illustrates. YN and SA prompts were responded to fairly evenly with 27.8% and 21.4% respectively. Imperative Statements were responded to the least with only 0.8%.



**Figure 3.10. Prompt Response Distribution for *Little Einsteins***

However, when the prompt popularity is explored a different picture of what the children actually liked responding to most often is drawn, as Figure 3.11 illustrates. While ISA prompts were the most presented and the most responded to they were almost as equally unpopular on average as the IS prompts which were hardly presented at all throughout these shows. SA prompts were the most popular with 37.3% followed by YN prompts at 32.7% even though these prompts were presented only about a third as often as the ISA prompts.



**Figure 3.11. Prompt Popularity for *Little Einsteins***

Finally, 8 children across 4 families viewed *Little Einsteins*. Harrison Chambers watched this show 4 times, his older sister Le Anne watched it 3 times, and his younger brother Max also watched it 4 times. Harrison watched 3 episodes with both his brother and sister and 1 episode with just his brother. Hannah Dawson watched the show 3 times by herself and Payton and Sydney Roberts watched it once together. Preston and Xavier Ito watched the show 6 times together.

Table 3.5 lists how the study participants responded to the show prompts.

**Table 3.5. Participants' Responses to *Little Einsteins* Prompts**

	Sum of Total reply	Sum of SA reply	Sum of ISA reply	Sum of YN reply	Sum of IS reply	Sum of FL reply
<b>Harrison</b>	28.0%	26.3%	32.1%	21.2%	0.0%	N/A
<b>Le Anne</b>	10.8%	0.0%	11.4%	12.0%	N/A	N/A
<b>Max</b>	12.3%	5.3%	17.8%	3.6%	0.0%	N/A
<b>Hannah</b>	18.9%	9.5%	30.0%	4.5%	100.0%	N/A
<b>Payton</b>	31.6%	33.3%	32.1%	25.0%	N/A	N/A
<b>Sydney</b>	3.1%	0.0%	4.3%	0.0%	N/A	N/A
<b>Preston</b>	46.2%	82.1%	29.2%	81.8%	0.0%	N/A
<b>Xavier</b>	20.6%	38.5%	7.7%	54.5%	0.0%	N/A

Harrison Chambers responded most often to ISA prompts 32.1% of the time followed closely by SA and YN prompts. However, even though he was always viewing with his older sister or younger brother they did not respond to any prompts nearly as much. Harrison responded 28% of the time overall while his sister only responded 10.8% and his brother 12.3%. Furthermore, while Hannah Dawson watched all of the viewing events by herself, she still responded quite frequently at 18.9%. She also responded greatly to ISA prompts at 30.0% but also responded 100% of the times to IS prompts. She was the only child in the study who responded to every IS prompt type given across all the shows and she was the only child who viewed this show that responded to IS prompts at all.

Payton and Sydney Roberts watched the show together but Payton responded to prompts almost 3 times more often than her sister. Payton preferred to answer SA prompts but also responded almost evenly to ISA and YN prompts. Finally, while Preston and Xavier Ito watched all the viewings of this show together Preston responded almost twice as many times as his brother. Furthermore, while many of the children in the study responded around 20-35% of the time to most prompt types, Preston responded much higher, responding to SA prompts 82.1% of the time and YN prompts at 81.8% of the time. Moreover, while many of the children who viewed this show responded to ISA prompts the most, the Ito boys responded to them much less often than the other children. The IS prompt was the only type they responded to less often.

Therefore, while *Little Einstein's* presented the 4 families' children in this study with 1031 prompts across 14 separate viewing events, the children responded 266 times or 25.8% of the time. This show was the most widely watched across families and also yielded the highest response rates out of the 4 interactive shows being analyzed. However, at 25.8% the children were only responding to 1 out of every 4 prompts they viewed. The overall goals of the

producers and designers of this show are the promotion of music and art appreciation, active investigating and curiosity, and problem solving.

When assessing whether these goals were being met by looking at the responses to prompting, it is hard to say which prompts are doing a better job at getting children to respond to them since this show uses various prompt types to address the same learning outcomes throughout the show. What must be noted, however, is that there were almost three times as many ISA prompts presented to viewers and the children responded to these prompts most often. However, because there were so many of these prompts, they were not the most popular type based on relative frequency of response. The children much preferred to respond to SA and YN prompts, where they were answering trivia-type assessment questions or “helping” show characters solve problems in their missions than getting up and moving their bodies.

**Super Why.** *Super Why* is an interactive, 3D, animated, educational television show that airs on the Public Broadcasting Service (PBS) network. Angela C. Santomero (co-creator of the show *Blue's Clues* and a former executive at Nickelodeon) and Samantha Freeman Alpert created and developed the show together in 2007. Each 24-minute show is designed to help children from 3 to 6 years of age learn critical reading skills, including alphabet skills, word families, spelling, comprehension, and vocabulary.

The show includes four main characters named Red (from *Little Red Riding Hood*) who likes to rollerblade, Pig (from *The Three Little Pigs*) who likes to drive a tricycle, Princess (from *The Princess and The Pea*) who loves tea and parties, and Whyatt, the curious younger brother of Jack (from *Jack and The Beanstalk*). Whyatt is the leader and can fly inside books and help find answers to questions. In every episode,

one of the friends encounters a problem with another Storybrook Village character (For instance, Jill from the Jack and Jill rhyme is not being nice). As in real life, the problems require preschool social skills to resolve... Whyatt calls his fairy tale friends to their secret clubhouse, named 'The Book Club,' where they transform themselves from mere mortals into literacy-powered super heroes: Alpha Pig with 'Alphabet Power,' Wonder Red with 'Word Power,' Princess Presto with 'Spelling Power,' Super Why with the 'Power to Read,' and your child-Super You, with the 'Power to Help.' Using their super powers, these Super Readers literally fly inside books. (pbs.kids.org, 2009)

A typical episode beings as follows:

as the Super Readers find out how famous fictional characters handled similar situations (Why is the big bad wolf so big and bad?). This adventure inside a book helps the Super Readers figure out the answers to their own problems... As soon as the Super Readers solve the fictional problem and gather all the Super Letters they need, they fly back in their Why Flyers to the Book Club. There, they decode the Super Story Answer, or theme, on the Super Duper Computer and reveal how to realistically resolve their own problem. (The big bad wolf is acting bad because he was so sad. He has no friends.) The episode ends with the characters modeling the behavior so kids can actually see the problem being fixed. (pbs.kids.org, 2009)

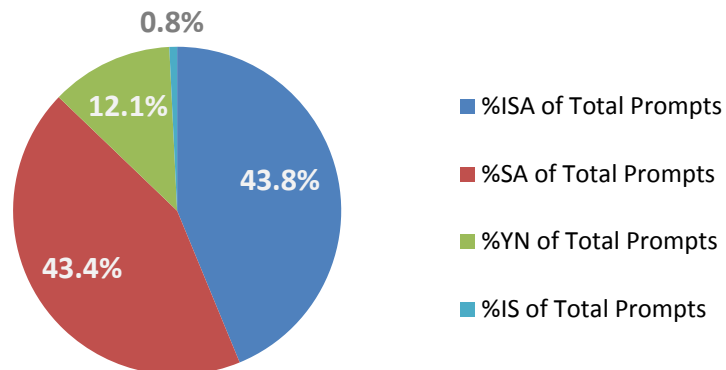
Finally, episodes conclude with a congratulatory song and dance that praises the efforts of the "Super Readers" and the viewers at home named "Super You" (pbs.kids.org, 2009).

Therefore, the designers and producers of Super Why have created the show to address the following learning goals:

- Promote social skills (SA, IS, ISA, YN prompts)
- Understand of the alphabet letters and the sounds the letters make in context (SA, IS, ISA, YN prompts)
- Understand of the fundamentals of reading (SA, IS, ISA, YN prompts)
- Understand the fundamentals of spelling (SA, IS, ISA, YN prompts)
- Promote courage and enthusiasm to learn (SA, IS, ISA, YN prompts)
- Promote reading books and exploring stories (SA, IS, ISA, YN prompts)
- Help show characters solve problems (SA, IS, ISA, YN prompts)

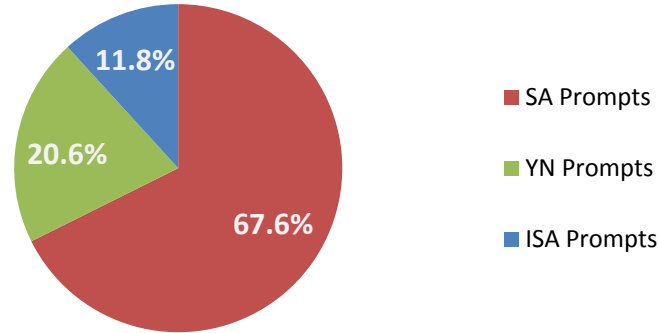
In the following section, I describe which prompts were most used in *Super Why*, what prompts the children responded to the most, which prompts were most popular to respond to in this show, and how the children from the families who viewed this show responded. I end this section with a brief description of whether the show appears to be reaching its stated goals based on the frequencies of prompts and prompt responses.

***Super Why prompts and responses.*** *Super Why* was viewed 7 times on 4 separate viewing events by 2 different families in the study. The study viewers were presented 265 prompts from this show, far lower than all the other shows. ISA prompts were presented 43.8% of the time while SA prompts were given almost the same amount of time at 43.4% as Figure 3.12 illustrates. YN prompts were presented much less frequently at 12.1% and IS prompts were hardly presented at all with only 0.8% of the total prompts seen.



**Figure 3.12. Relative Frequencies of the 265 Prompts Presented in *Super Why***

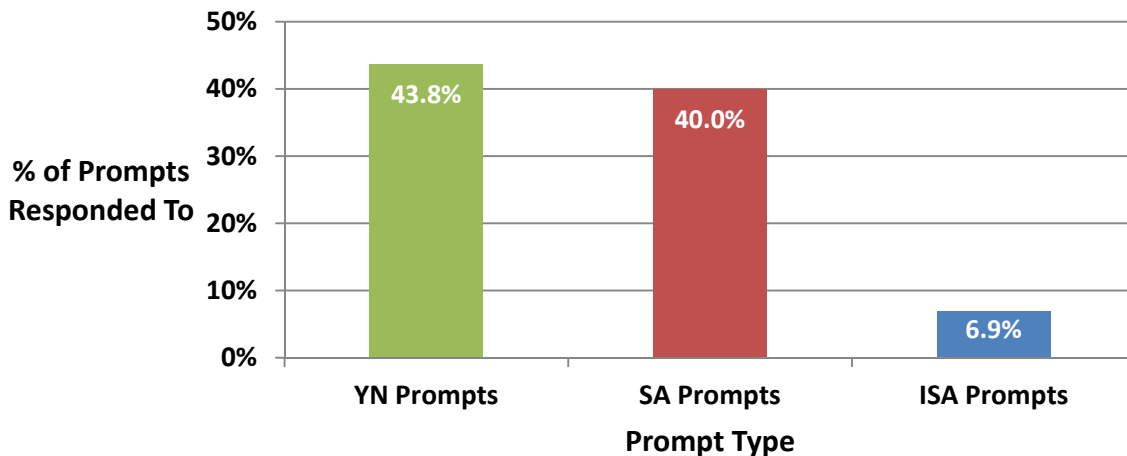
Even though the children were presented ISA prompts almost as much as SA prompts, the children responded to SA prompts 67.7% of the time as Figure 3.13 shows.



**Figure 3.13. Prompt Response Distribution for *Super Why***

Furthermore, while YN prompts were not often used, they were responded to 20.6% of the time. ISA prompts were only responded to 11.8% of the time, and IS prompts were not presented very often at all and were not responded to by any of the viewers.

While SA and ISA prompts were presented often to viewers, YN prompts were the most popular from this show as Figure 3.14 shows.



**Figure 3.14: Prompt Popularity for *Super Why***

This popularity is because there were less YN prompts presented overall. However, SA prompts were much more popular to respond to at 40.0% than ISA prompts at 6.9%.

Finally, as Table 3.6 illustrates, the children in the study had various responses to prompts from this show across the two families.

**Table 3.6. Participants' Responses to *Super Why* Prompts**

	Sum of Total reply	Sum of SA reply	Sum of ISA reply	Sum of YN reply	Sum of IS reply	Sum of FL reply
Isabelle	0.0%	0.0%	0.0%	N/A	N/A	N/A
Preston	24.4%	31.1%	11.8%	38.9%	0.0%	N/A
Xavier	37.5%	57.4%	5.9%	50.0%	0.0%	N/A

Isabelle Vazquez viewed this show 1 time but did not respond to any of the prompts the show presented to her. Meanwhile, Preston and Xavier Ito viewed this show 3 times and each time viewed together. However, even though they viewed together they did not always respond to the same prompts. Preston responded most to YN prompts at 38.9% and overall at 24.4%, yet his younger brother Xavier responded at a higher 37.5% overall and preferred to respond to SA prompts 57.4% of the time and YN prompts 50.0%. Both boys responded much less frequently to ISA prompts and did not respond at all to IS prompts.

*Super Why* presented 3 children from 2 families 265 prompts through 4 separate viewing events. The children responded at an overall rate of 25.7% of the time. This was the second most highly responded to show, but it provided viewers with the least amount of prompts to respond to. The overall goals the producers and designers hoped children would learn from this show include: understanding of the alphabet, letter sounds, reading, and spelling, problem solving, helping show characters solve problems, promoting social skills, and promoting enthusiasm and courage to learn. When assessing if these goals were being met by looking at the responses to prompting it is hard to say which prompts are doing a better job at getting children to respond to them since this show uses various prompt types to address the same learning outcomes

throughout the show. However, like *Little Einsteins*, the show relied heavily on ISA prompts but the children did not respond nearly as much as they responded to SA and YN type prompts. Many of these prompts were used to encourage viewers to “help” the show characters complete a task or solve a problem.

In the next section, I will analyze how the children in the study responded to prompts across families and in context to better understand what situations yielded the most responses and possible reasons for why this is occurring.

### **Analysis of Families’ Responses to Show Prompts**

All of the children in this study had unique experiences with the shows they watched, experiences that helped determine how and whether they responded to the prompts they saw. For example, some children watched numerous episodes of one or more interactive shows and responded to many diverse prompt types, while others had less exposure to prompts and/or responded far less frequently. This section begins with a review across and within families of how each child responded to the prompts they saw. The section concludes with a brief analysis of the factors that might be affecting their response rates.

**Child study participants responses by age.** The children in the study responded to prompts 19.9% of the time overall. While some children responded much more often than others, none of them responded to more than 50% of the prompts they saw. Table 3.7 provides the data that describe the prompt response frequencies across all families included in the study.

**Table 3.7. Frequencies of Prompt Responses Across Families**

Name (Age) <i>Show</i>	Sum of Total reply	Sum of SA reply	Sum of ISA reply	Sum of YN reply	Sum of IS reply	Sum of FL reply
<b>Harrison (3-4)</b>	<b>27.0%</b>	<b>30.7%</b>	<b>18.7%</b>	<b>30.5%</b>	<b>33.3%</b>	<b>41.9%</b>
<i>Dora the Explorer</i>	20.7%	24.1%	4.4%	26.7%	11.1%	52.9%
<i>Go Diego Go</i>	29.0%	36.9%	18.5%	34.6%	39.5%	40.3%
<i>Little Einsteins</i>	28.0%	26.3%	32.1%	21.2%	0.0%	N/A
<b>Le Anne (5-6)</b>	<b>19.4%</b>	<b>29.0%</b>	<b>11.2%</b>	<b>22.4%</b>	<b>20.5%</b>	<b>34.2%</b>
<i>Dora the Explorer</i>	15.2%	20.0%	6.7%	50.0%	0.0%	0.0%
<i>Go Diego Go</i>	21.0%	32.1%	11.5%	24.4%	21.4%	35.1%
<i>Little Einsteins</i>	10.8%	0.0%	11.4%	12.0%	N/A	N/A
<b>Max (1)</b>	<b>3.1%</b>	<b>0.8%</b>	<b>4.6%</b>	<b>0.6%</b>	<b>9.5%</b>	<b>2.3%</b>
<i>Dora the Explorer</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<i>Go Diego Go</i>	1.6%	0.0%	0.9%	0.0%	11.8%	2.4%
<i>Little Einsteins</i>	12.3%	5.3%	17.8%	3.6%	0.0%	N/A
<b>Isabelle (3-4)</b>	<b>0.7%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>N/A</b>	<b>11.1%</b>
<i>Dora the Explorer</i>	1.5%	0.0%	0.0%	0.0%	N/A	11.1%
<i>Go Diego Go</i>	0.0%	0.0%	0.0%	0.0%	N/A	N/A
<i>Super Why</i>	0.0%	0.0%	0.0%	N/A	N/A	N/A
<b>Roman (1)</b>	<b>2.7%</b>	<b>2.9%</b>	<b>2.2%</b>	<b>4.3%</b>	<b>N/A</b>	<b>0.0%</b>
<i>Dora the Explorer</i>	4.5%	4.3%	5.3%	6.3%	N/A	0.0%
<i>Go Diego Go</i>	0.0%	0.0%	0.0%	0.0%	N/A	N/A
<b>Hannah (5)</b>	<b>18.9%</b>	<b>9.5%</b>	<b>30.0%</b>	<b>4.5%</b>	<b>100.0%</b>	<b>N/A</b>
<i>Little Einsteins</i>	18.9%	9.5%	30.0%	4.5%	100.0%	N/A
<b>Payton (2)</b>	<b>31.6%</b>	<b>33.3%</b>	<b>32.1%</b>	<b>25.0%</b>	<b>N/A</b>	<b>N/A</b>
<i>Little Einsteins</i>	31.6%	33.3%	32.1%	25.0%	N/A	N/A
<b>Sydney (4)</b>	<b>3.1%</b>	<b>0.0%</b>	<b>4.3%</b>	<b>0.0%</b>	<b>N/A</b>	<b>N/A</b>
<i>Little Einsteins</i>	3.1%	0.0%	4.3%	0.0%	N/A	N/A
<b>Preston (4)</b>	<b>38.8%</b>	<b>51.0%</b>	<b>25.1%</b>	<b>69.4%</b>	<b>0.0%</b>	<b>N/A</b>
<i>Little Einsteins</i>	46.2%	82.1%	29.2%	81.8%	0.0%	N/A
<i>Super Why</i>	24.4%	31.1%	11.8%	38.9%	0.0%	N/A
<b>Xavier (2)</b>	<b>25.2%</b>	<b>48.8%</b>	<b>7.4%</b>	<b>53.4%</b>	<b>0.0%</b>	<b>N/A</b>
<i>Little Einsteins</i>	20.6%	38.5%	7.7%	54.5%	0.0%	N/A
<i>Super Why</i>	37.5%	57.4%	5.9%	50.0%	0.0%	N/A
<b>Grand Totals</b>	<b>19.6%</b>	<b>26.2%</b>	<b>13.5%</b>	<b>24.3%</b>	<b>22.3%</b>	<b>27.3%</b>

As Table 3.6 shows, Preston Ito, age 4, responded to the most prompts out of any of the children in this study at rate of 38.8%. He was followed by Payton Roberts, age 2, who responded 31.6% of the time. However, Preston was present for several more viewing events than Payton. Next, Harrison Chambers, age 3-4, responded to 27.0%, followed by Preston's brother Xavier Ito, age 2, at 25.2%. Le Anne Chambers, the oldest child in the study at age 5-6, responded to 19.4% while Hannah Dawson responded to 18.9%.

While the children in the study who were between 4-6 years old responded, on average, more often and to more different types of prompts than the younger children, some of the youngest children in the study did reply to prompts more often than some of the older children. Roman, age 1, responded 2.7% of the time while his older sister Isabelle, age 3-4, responded 0.7% of the time. Moreover, Sydney, age 4 responded 3.1% of the time while her younger sister Payton (age 2) responded 31.6% of the time. These within-family responses are analyzed in more detail in the next section.

**Study participants responses by family.** Across families, the Ito brothers responded more often on average than the children in the other families. They were also the only children to watch every show together with one another; in no other families did all of the children watch all of the shows together. Even though Xavier was only 2 years old he responded to 1 out of every 4 prompts he was presented at 25.2%. Moreover, Isabelle, age 4, and her brother Roman, age 1, responded the least across families. Finally, the children viewed many shows together and alone. The Chambers and the Ito children watched the most shows together. However, while many of the children in each families watched some shows together and some alone, Hannah Dawson, age 5, was the only child who viewed every show by herself.

**Most responded to prompts.** The children in the study also responded to show prompt types at various different rates. When looking across all the families together, FL prompts were the most responded to at 27.3%; however, not every family viewed them. These were followed closely by SA at 26.2% and YN prompts at 24.3% which were viewed by every child. The least responded to prompt type across all families were ISA prompts at 13.5%.

When looking at individual families, the most responded to prompts are somewhat different. While the Chambers children (Harrison, Le Anne, and Max) were more inclined to respond to FL prompts than any other family, they were also one of only two families who viewed this type of prompt at all. Isabelle Vazquez, who also viewed this type of prompt, responded 11.1% of the time. While this seems very low, it was her highest response rate to any of the prompts, as she only responded 0.7% of the time overall.

However, when reviewing the children who did not watch any prompts for FL, their most responded to prompts were quite diverse across families. Hannah Dawson responded most to IS prompts at 100% followed by ISA prompts at 30.%, while Payton Roberts responded most to SA prompts at 33.3%. Her sister Sydney, however, responded far less often and only to ISA prompts at 4.3%. Finally, the Ito boys, Preston and Xavier, responded the most to YN prompts. Preston responded 69.4% of the time while Xavier responded 53.4%. The boys also responded quite frequently to SA prompts at 51.0% and 48.0% respectively. The Ito boys did not respond at all to IS prompts.

Therefore, it is impossible to say all children in the study responded to any particular prompt style the most since each family seemed to respond to different prompt types differently. However, I can still draw some conclusions based on these qualitative data. For example, in the context of the shows that used the FL prompts, like *Dora the Explorer* and *Go Diego Go*, show

designers, writers, and producers are trying to get children excited about foreign language and introduce children to a second language. These shows appeared to be doing a good job of eliciting responses from the children who viewed them in this study; these two shows seems to be right on track in providing the encouragement to have children reply to this prompt type.

Furthermore, the children who were not exposed to FL prompts responded with a level of heterogeneity across families that it is impossible to choose the second most responded to prompt. While overall this prompt type was SA followed closely by YN, each family varied widely from every other family with regard to which prompts were responded to most often. SA and YN prompts were mainly used within the shows to quiz children about facts they were learning or “help” the characters solve problems. Based on the response rates and popularity across shows and families, it seems like the children enjoyed responding to these types of prompt situations.

In the next section I discuss the contexts that motivated children’s prompt responses, as well as the ways in which they responded to the different types of prompts.

### **Understanding Prompts in Context**

Throughout the study, each family and child had a different dynamic for when and whether they would respond to a prompt. Here I explore *how* the children responded in the context of the segments from the shows themselves in hopes of describing *why* the children may or may not have responded.

First, I follow Preston and Xavier Ito while they view a segment from an episode of *Little Einsteins* called “The Silly Sock Circus” on April 11, 2009. Figure 3.15 below provides the transcript of the prompts, including the moments when a child responded to a specific prompt highlighted in yellow with red text.

1. [00:13:47.10] [PROMPT]: Help Silly Sock roll like a ball through the tunnel.
2. [00:13:50.27] [PROMPT]: Roll your arms like me to the music.
3. [00:14:05.08] [PROMPT]: Help Silly Sock bounce through the bouncy part.
4. [00:14:08.29] [PROMPT]: Bounce your head up and down to the beat.
5. [00:14:13.29][PROMPRES P] Preston: (*nods head and moves to beat*)
6. [00:14:13.29][PROMPRES P] Xavier: (*slightly bounces head*)
7. [00:14:21.14] [PROMPT]: Help Silly Sock wiggle through the wiggly part of the tunnel.
8. [00:14:25.23] [PROMPT]: Wiggle your whole body like me.
9. [00:14:36.02] [PROMPT]: Now rolls your arms to help Silly Sock roll.
10. [00:14:38.05][PROMPRES P] Xavier: (*rolls arms*)
11. [00:14:43.19] [PROMPT]: And bounce your head.
12. [00:14:49.27] [PROMPT]: Wiggle your body.
13. [00:14:57.07] [PROMPT]: Roll.
14. [00:14:59.25] [PROMPT]: Bounce.
15. [00:15:02.14] [PROMPT]: Wiggle.
16. [00:15:04.10] [PROMPT]: Roll.
17. [00:15:04.14] [PROMPT]: Bounce.
18. [00:15:06.03] [PROMPT]: Wiggle.
19. [00:16:38.16] [PROMPT]: To get to super fast we have to start at adagio (pats laps slowly). Pat the beat on your lap slowly.
20. [00:16:50.00] [PROMPT]: Moderato, now pat the beat on your tummy a little faster.
21. [00:16:59.26] [PROMPT]: Allegro, now pat the beat on your shoulders even faster.

**Figure 3.15. Prompt Transcript Example from *Little Einsteins* episode “The Silly Sock Circus”**

When Preston and Xavier viewed shows, they always viewed them together. However, they would not always respond to prompts together or at the same time. Moreover, they did not always respond to prompts that called for them to complete actions; they were more likely to respond to questions that asked them to answer a question with a short answer fact or a “yes/no” statement.

I believe Preston and Xavier respond less often to the most-used prompt simply because the shows they watched used this prompt type too often. While the ISA prompt seems, on average, to be presented more often than other prompt types, this prompt type does not seem to be working well as a mechanism for getting children up off the couch and moving their bodies.

As Figure 3.15 shows, this episode of *Little Einsteins* included a group of 18 ISA prompts in the space of 3 minutes and 12 seconds. These prompts were intended to get audience members to perform a variety of physical actions: rolling their arms, bouncing their heads, and wiggling their bodies, all in an attempt to “help” the Silly Sock get through the “bouncy parts.” No other prompt types occurred during this segment of the show, meaning the children were exposed to 18 consecutive ISA prompts.

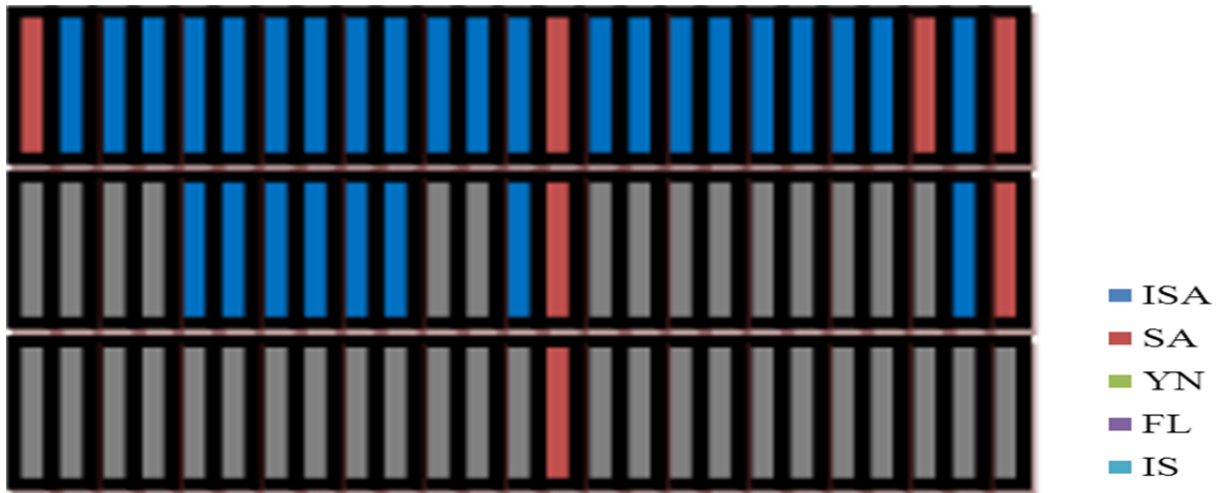
Clearly these prompts did not elicit much interaction from Preston and Xavier, who responded once and twice, respectively. It is obvious from the recording of this viewing session, however, that the boys are paying attention to the show. Additionally, in the 13 minutes prior to this set of ISA prompts, Preston had responded to 6 SA prompts, 4 YN prompts, and 1 ISA prompt; Xavier had responded to 5 (SA) prompts, 4 (ISA) prompts, and 3 (YN) prompts. Yet, when the show presented the boys with 18 consecutive ISA prompts, they seem to have given up and elected not to respond anymore. This “prompt chain,” or sequence of identical prompt types, seems to be an attempt at establishing a rapid, back-and-forth dialog of sorts between the show characters and the audience members. To make this work, three or more identical prompt types must be presented in a row to be considered a chain; two identical prompt types in a row is representative only of consecutive prompt types. However, as I make clear above, this design does not always work.

#### **Understanding prompt chains and their affect on children’s prompt responses.**

Prompt chains are an appealing area to investigate further because it is unclear whether they are a successful mechanism for encouraging responses and interaction. Sometimes, as in the previous example, the prompt chain failed to elicit much of a reaction from audience members. At other times, the children in the study got into the rhythm of responding to a rapid-fire succession of the

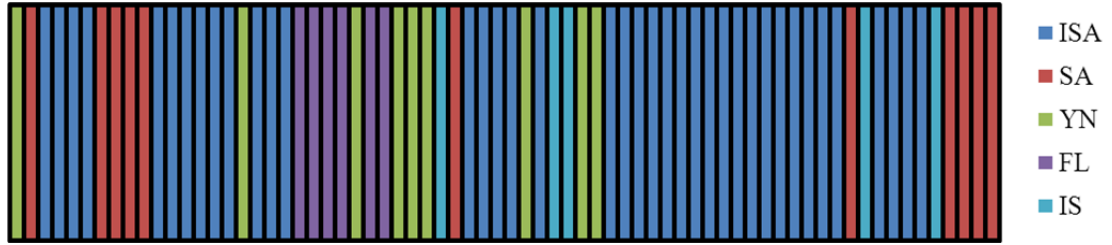
same type of prompts. I developed a data visualization method that better reflects what happens when a prompt chain occurs during a show, and how it looks when children respond to prompts.

In the first example, Payton (age 2) and Sydney (age 4) are watching an episode of *Little Einsteins* called “Quincy and the Magic Instrument” from June 8, 2008. As Figure 3.16 illustrates, the show presented 1 SA question followed by a succession of 12 imperative statement action prompts, then 1 short answer question and another 8 imperative statement action prompts followed by another short answer prompt and then 1 imperative statement prompt and 1 short answer prompt. Payton responded to the first prompt chain by responding to 7 of the first 12 imperative statement prompts and then she and her sister Sydney both responds to the short answer prompt but do not respond to the next prompt chain of 8 imperative statement prompts. Payton then responds to a since ISA and a single SA while Sydney does not.



**Figure 3.16. Prompt Visualization Example from *Little Einsteins* of Payton and Sydney Roberts' Responses to a Segment of “Quincy and the Magic Instrument”**

In the next example, Harrison (age 4) and Le Anne (age 6) Chambers are viewing an episode of *Go Diego Go* from July 9, 2008. Figure 5 illustrates the prompts from a portion of this episode called “Rainforest Rhapsody.”

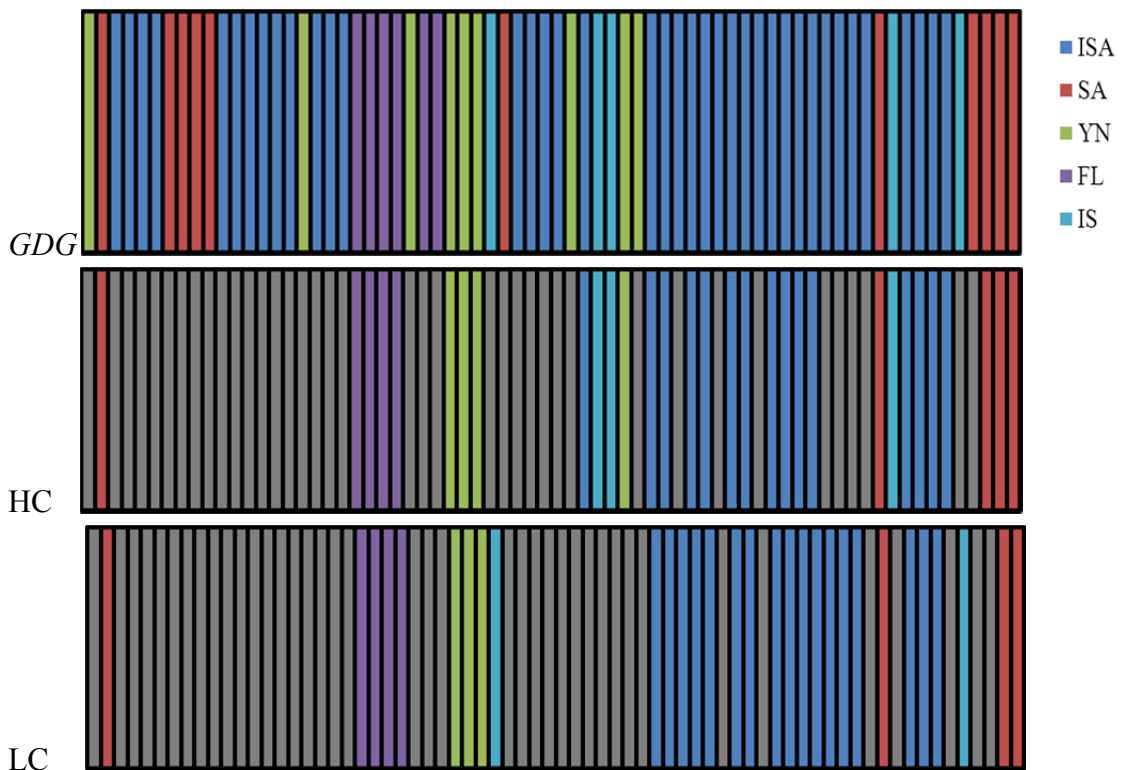


**Figure 3.17. Prompt Visualization Example from *Go Diego Go* episode “Rainforest Rhapsody”**

As Figure 3.17 indicates, there are several prompt chains during this episode:

- The longest prompt chain consists of 17 ISA prompts; the rest are comprised of 3 to 6 ISA prompts in a row.
- Of the 10 prompt chains presented in this episode, 6 are ISA prompt chains, 2 are SA prompt chains, and each are YN and FL prompt chains.
- There are no IS prompt chains during this episode.

Figure 3.18 shows the same prompts in the context of Harrison and Le Anne’s responses.



**Figure 3.18. Prompt Visualization Example from *Go Diego Go* episode “Rainforest Rhapsody,” with Harrison Chambers’ responses (middle) and Le Anne Chambers’ responses (bottom) included (ignored prompts are shown in grey)**

As Figure 3.18 demonstrates, Harrison responded to 45% (31 of 69) of the total prompts from this episode of *Go Diego Go* while Le Anne responded to 43% (30 of 69) of the prompts.

Harrison and Le Anne responded to over 77% (24 of 31) of the same prompts at the same time.

These data visualizations reflect a few motivating findings. First, both children responded to just 1 of the first 20 prompts regardless of prompt type. Second, both children tended to respond to the same prompts. The 77% rate of prompt response correspondence is particularly interesting because neither child encouraged the other to join in or answer specific prompts: All prompt responses were spontaneous.

### **Viewing Situations and Children's Responses**

Show design plays a significant role in whether the children in the study responded to the prompts that the shows offered. However, there are some other factors as well that affected the response rates. Therefore, in order to better understand how and why children may or may not be responding to specific prompt types, I must provide a closer look at family dynamics and what is happening within the room as children respond to prompts. While this topic is primarily investigated in Chapter 4, I provide a brief explanation here of how family dynamics can impact prompt response rate.

The children from each family in the study viewed *Dora The Explorer*, *Go Diego Go*, *Little Einsteins*, and *Super Why* together or alone at least once. Sometimes children viewed shows with their older siblings; other times, children viewed shows alone. When analyzing these situations I discovered that many children in the study who viewed programming with another sibling (older or younger) seemed to respond more often.

For example, Max Chambers, age 1, responded to prompts 3.1% of the time. While this rate seems low, it is actually quite high for a young child who turned 1 during the data collection portion of the study as many young children his age find it hard to pay attention to television

programming for very long periods of time. When Max viewed shows like *Go Diego Go* and *Little Einsteins*, he always viewed with his older brother Harrison or older sister Le Anne, or both. Sometimes their mother was present too. On numerous occasions she, or the older siblings, would encourage Max to respond with them to prompts from the shows. He was given lots of praise when he responded, and this praise may have contributed to his relatively high level of response. I consider his response rate relative to that of Isabelle Vazquez, age 3-4, and her younger brother Roman, also age 1. They did not have the same encouragement as Max to respond to prompting from an older sibling or from their parents; it is worth noting they both did not respond as often as Max did.

Moreover, Preston and Xavier Ito always viewed shows together. On numerous occasions Preston would respond to prompts more frequently than his brother. But instead of answering the prompts as well, Xavier would simply nod his head in agreement and not say anything at all. On other occasions Xavier would respond and Preston would agree. In this case the dynamic between the two brothers was important with regard to considering their prompt response rate. This dynamic of repeating a response when the other child was clearly in the groove of responding to show prompts, as well as knowing the other sibling already knew the answer was correct, seemed to be important to how the boys responded.

When Payton and Sydney watched together, Payton responded to numerous different type of prompts at a higher rate than Sydney, and was also praised by her father when she did so. Sydney hardly responded at all to any prompts when she viewed and did not seem to care for praise when responding. This is noteworthy because Payton was 2 years old while Sydney was 4 years old: It seems possible that adult praise while viewing shows together no longer had the motivational power for the older Sydney that it still did for the younger Payton.

Finally, Hannah watched all the shows she responded to by herself; her response preferences were very different from the other children in the study. She seemed to use her time when watching alone to converse more with the show characters themselves since there was no one else in the room when she viewed. Perhaps this is why she responded to show characters' direct calls for help through Imperative Statements (IS) 100% of the time.

### **Conclusions and Implications for the Design of Interactive Digital Media**

As I have described in this chapter, the co-viewing situation, the familial attitude toward the media, the familial assignment of importance to answering and responding to prompts, *and* the design of each show *all* have a powerful impact on whether a child will decide to respond to a prompt. Thus, while many factors contributed to how and if children in the study responded to show prompts, show design played a significant role in whether the children in the study responded to the prompts that the shows offered. Fisch & Truglio (2001) assert that children learn the most from content that is repeated and reinforced most often, and that multiple viewings of the same content only help viewers learn more or grasp concepts they might have missed the first time (p. 237).

However, in the context of responding to interactive shows, repeating calls for action through ISA prompts did not seem to work when children were bombarded with prompt chains. Therefore, show designers should take the apparent failure of the prompt chain style of prompting into consideration when they design interactive shows that call for children to respond physically in a short amount of time. Repetition of other prompt types like FL was seemingly more successful, so perhaps it is only the physical element of the prompt that is problematic.

Finally, it must be noted that this is only a small analysis of the outcomes of "interactive" television shows and the observations provided here cannot be generalized to all interactive television shows, or to the viewing styles of all young children. Instead, these findings suggest

that additional studies of interactive shows are needed using the coding scheme developed for this work. Future studies should focus on how to strike the right balance between the use of different types of prompts and the use of prompt chains in the broader context of each episode. In addition, these prompts must be interpreted in the context of what is happening within the room when the children are watching television as the social dynamics of co-viewing impact the ways in which children respond to the prompts of interactive shows. Therefore, any further study must explore how television producers can design “interactive” shows to not just facilitate interaction between a single child and a screen, “but rather to facilitate and take advantage of the powerful learning opportunities that arise when viewers *interact with one another* around a television show” (Mehus et al., under review, p. 34). Thus, in the next chapter I discuss the children in the study’s in-room social viewing activities with and around their interactions with television shows and *YouTube* videos that ultimately led to their learning.

#### **Chapter 4: In Room - Understanding How Children Learn from Digital Media Through Social Interactions**

The purpose of this chapter is to answer the following research question: *How do children learn from digital media through their interactions with the media and themselves, other people, and objects in order to make their viewing experiences social?* To answer this question, I explore three case studies and expand upon existing knowledge of the phenomenon of co-viewing. Although I created these case studies while reviewing the entire data corpus, I constrain my data presentation and analysis in this chapter to 6 focal children and their viewing and interactions with television shows and *YouTube* videos. I selected these children because they interacted with digital media in ways that are broadly representative of the viewing experiences that all children in the study used when watching digital media, usually television. This purposeful selection also provides a diverse sample of participants with various social and ethnic backgrounds as well as a spectrum of ages ranging from 16 months to 5 years of age.

For each case study, my analyses of learning outcomes are presented with careful consideration for their ecological validity. Learning outcomes are sometimes hard to obtain, in part because children can learn information without expressing that learning in any way, and without changing their behavior as a result of viewing a given set of content (Moeller, 1996). Additionally, many television learning studies are specifically designed to prove a learning connection, and owe much of their interpretation to the analysis and the motivations of the researchers themselves (Buckingham, 1993).

In response to these concerns, I present these data through three cases, each with a set of vignettes (very small segmented examples of interactive moments selected from hours of observation). In this way, I ground my analysis in the supporting literature and in the interview and diary data that best represent each child's motivations, decisions, and responses over time.

The selected vignettes best demonstrate what and how the children learned from digital media as they interacted with themselves, other people, and objects within the social viewing space. The results of this analysis will benefit educational researchers and learning scientists, teachers, and television producers, all of whom can use these results as the basis for new studies, curricula, and digital media content.

I first provide some background information on each of the six focal children to better situate the reader into the life, identity, and home of each child. I then present the study data through vignettes embedded within the case studies. Finally, I analyze the focal children's viewing experiences to present evidence of how each child uses viewing strategies they create with themselves, with others, and with objects to learn from and make their viewing experiences more social.

### **Expanding the Concept of Co-Viewing to Reflect Digital Media Interaction Strategies and Joint Media Engagement**

Past studies have tried to better understand how children's interactions with digital media and with others watching the same media assist their attention levels, resulting in greater levels of comprehension (cf., Anderson & Puzles-Lorch, 1983). Certain media design techniques (such as use of animation and rapid scene changes) impact the levels of attention paid to the content (Buckingham, 1993; Valkenburg, 2004). Additionally, children are more likely to comprehend a show's content if they have someone present who can discuss and guide their thinking about the media being watched (cf., Ball and Bogatz, 1970; Buckingham, 1993; Chen, 1994; Kirkorian et al., 2008; Moeller, 1996; Penuel et al., 2009; Richert, Robb, & Smith, 2011; Salomon, 1983, Stevens & Penuel, 2010; Valkenburg, 2004). This concept is referred to as co-viewing.

Co-viewers can focus children's attention toward or away from certain elements of television shows; however, as Moeller (1996) points out, "little is known...to what extent these forms of mediation will affect learning outcomes" (p. 15). Similar theories about the potential attention and comprehension benefits of co-viewers abound in recent literature, indicating that co-viewing habits and parental mediation positively influence children's comprehension and understanding of media content (Bogatz & Ball, 1970; Fisch, 2004; Huston et al., 2006; Kirkorian et al., 2008; Lemish, 2007; Reiser, Williamson, & Suzuki, 1988; Richert et al., 2011; St. Peters, Huston, & Wright, 1989; Valkenburg et al., 1999).

Recently, scholars from the Learning in Informal and Formal Environments (LIFE) Center, working together with researchers at the Joan Ganz Cooney Center (Lesk, et al., 2010; Takeuchi et al., 2011; Takeuchi & Stevens, 2011), have developed a definition for a new form of co-viewing they refer to as joint media engagement (JME), or the "spontaneous and designed experiences of people using media together" (2011, p. 1). This form of co-viewing "can happen anywhere and at any time when there are multiple people interacting together with media" (p. 1). As I discuss in this chapter, JME is a promising model for understanding how this sort of co-viewing can "support learning by providing resources for making sense and making meaning in a particular situation" (p. 1).

However, while the current definition of JME encompasses experiences of people "using media together," I believe it should also describe the strategies children use to structure how they view media, whether these strategies include viewing media alone, with others, or with objects within the room. Children are interacting with and learning from digital media all the time and in numerous different ways, and it is clear that children who view digital media can become actively engaged with shows that are not designed to encourage active viewing behaviors. As a

result, they can create positive learning experiences from their interactions with and around the media, an outcome that is encapsulated in the idea of JME.

The present analysis provides a more nuanced perspective on JME, and on what it means when young children view television shows and other forms of digital media. I expand the current understanding of JME by analyzing three types of interaction strategies that occur with and around digital media based on children's behaviors exhibited in this study:

- **Self-Mediated Viewing in a Social Space** – children's interactions with themselves while watching digital media;
- **Socially-Mediated Viewing** – children's interactions with other people in the viewing space;
- **Socio-Artifactual Viewing** – children's interactions with objects in the viewing space.

In the following sections I first describe the children who will be included in the case study vignettes. I then describe each case study in more detail before providing the relevant vignettes and discussion. I conclude the chapter with a summary of each case study and a overview of how I address the research question using these cases.

### **Viewing Experiences of Focal Children**

In this section I provide a brief overview of the general context in which each focal child viewed digital media, and the viewing situations these children primarily were involved in during the study (please refer to Chapter 2 for more detailed family background information and viewing habits for each of the focal children):

- Jackson Family: Andre (age 18 months-2 years);
- Chambers Family: Harrison (age 3-4) and Max (age 14-18 months);
- Barkley Family: Owen (age 5);
- Vazquez Family: Isabelle (age 3-4);
- Dawson Family: Hannah (age 5).

**Andre Jackson: the active viewer.** Andre was an active viewer who loved to move his body while he watched and interacted with show content in his living room. While he enjoyed moving and engaging himself as he watched, he also exhibited different interaction strategies

while watching the same show. For example, while watching *Elmocize* for the first time in the study, Andre was engaged in a variety of activities: dancing, eating, playing, rolling, and talking to a toy bunny. During this first viewing, he ignored his mother who was sitting in the room. However, during his second viewing of the same show, Andre again danced, played, and rolled around on the floor, but he also paused his physical play to answer questions that his Dad asked him, as well as interact with his Elmo doll as Elmo spoke in the show.

In both cases, Andre never sat still in front of the television for more than a few moments. He was constantly dancing, jumping, singing, or rolling on the floor, but he was also always aware of what was happening in the show and what was going to happen next. He shared his experiences with the toy version of the character in the show he was watching, such as his toy bunny during the “*Bunny Hop*” song in the first viewing of *Elmocize* or with his Elmo doll in the second viewing.

**Harrison and Max Chambers: the communal viewers.** Harrison was a social viewer who responded verbally and physically to television shows regardless of whether those shows were designed to elicit responses. According to his mother’s journal, and based on our interviews and observations of him and his family, Harrison developed techniques for how to act while watching programs designed to elicit responses. He also liked to share facts and information he learned from watching nature shows with his family, and he applied these skills in his interactions with his family while watching television and in other contexts (Dugan, Stevens, and Mehus, 2010).

Harrison passed along his learned viewing techniques by encouraging his younger brother Max to share in the experience of responding to shows that elicited viewer responses. However, Max was a quieter observer of digital media, mainly television and DVDs. Early in the

study, when he watched baby videos such as *Baby Einstein*, he enjoyed moving his body to the music and looking at the shapes, but these shows rarely kept his attention for more than a few seconds or a minute. However, as he viewed more and more content with his older siblings, he learned how to watch shows and interact appropriately when prompted, either by the shows themselves or by others people in his family. By the end of the study Max was fully participating and commenting on shows, whether they elicited a response or not.

Finally, Harrison and Max (and their sister Le Anne, who is not a focal child in this study) enjoyed performing other activities while viewing show content. While Max seemed to enjoy viewing with corresponding objects, Harrison liked to draw pictures and relate them to the shows he was watching. Their mother stated in several informal interviews and in her parent journal that her children repeated these behaviors quite often as they watched and interacted with digital media in their home (LTV02 field notes; LTV02 parent journal, 2009).

**Owen Barkley: the sensitive viewer.** Owen often displayed sensitivity to what he saw on the screen and is quite a sensitive viewer. On several occasions, especially when Owen watched alone, he became upset when he viewed show characters in embarrassing or suspenseful situations (Dugan et al., 2010). He seemed to have the greatest reaction to programs where characters were accused of things they did not do, did not follow the rules, or did not tell the truth. Owen continuously “elicited a highly-charged emotional, empathetic reaction that seemed quite visceral and difficult for [him] to control” (Dugan et al., 2010, p. 4) when he watched programming he felt was scary or disturbing.

Owen remained sensitive when viewing show content with others. When he viewed with a friend he exhibited many of the same behaviors as when he watched alone; however, when he viewed such shows with his mother, he had less dramatically adverse reactions to the content. As

the study progressed, Owen built coping mechanisms for content that he considered disturbing. For example, he would talk himself through upsetting situations and eventually force himself to watch the rest of the offending programs. Owen used cues from the conventions of the show, including the music and the character's tone of voice, to know when it was "safe" to begin viewing again.

Owen ultimately found solace in making sure the viewers around him knew when the show content was challenging to watch, or helping others understand the content of a show correctly. He became quite angry with his sister when she would say or do things while watching a show that did not make sense or were incorrect. As time went on, Owen seemed to mature as a viewer; instead of getting angry at his sister, he explained what was happening to her, read her the show titles, and corrected her more calmly than before if he felt she was not learning the information properly.

Finally, Owen sometimes viewed digital media while holding the toy that was the subject of the media content. He viewed *YouTube* toy reviews on his computer and held similar toys as he watched; he told the research team that he hoped to make more informed consumer purchases as a result of watching the reviews (LTV04 field notes, 2008). His demeanor was quite different when he viewed these toy reviews. He responded proactively rather than reactively to the review content (Dugan et al., 2010), and he used what he learned from the reviews to make his own videos in an attempt to help others make their own informed consumer decisions.

**Isabelle Vazquez: the passive viewer.** Isabelle appeared to be a very passive viewer, barely interacting with show content during the study. When she viewed programs alone, she typically stretched out on the couch and stared at the screen, and only occasionally did she act out or imitate actions from the screen. Isabelle typically viewed shows with other people in the

room, and was usually silent unless prompted to answer a question by one of her parents. She seldom initiated any communication with anyone while watching television unless she was upset, afraid, or watching something she really enjoyed but was not usually allowed to watch, such as *Hannah Montana* (LTV03 field notes, 2009).

However, Isabelle was very physically active when she watched certain shows. When shows included singing and music, she would dance and sing along from time to time. When she watched a show about taking a trip, she got out her own backpack and pretended to go on a trip in her living room. She used the rings on her backpack to imitate characters on screen wearing monocles (LTV03 field notes, 2009).

**Hannah Dawson: the inquisitive viewer.** Hannah was an inquisitive viewer who constantly moved and used her body, answered show questions, talked, sang, and danced as she watched. She was very interested in understanding what she was seeing, especially when watching cartoons. When watching alone, she engaged with programming that asked for her participation, although she participated on her own terms by continuing to sing and dance long after the prompted songs were over. Furthermore, when she viewed shows with others, such as her father, she used that time to initiate conversations and ask clarifying questions about what she was seeing. Finally, she engaged with objects as she watched specific shows. During one *Bugs Bunny* cartoon, for example, she acted out the entire cartoon from start to finish. She picked up a pen and used it as a baton to conduct an orchestra, mimicking Bugs Bunny in the cartoon.

### **Analysis of Interaction Strategies**

In this section I present three case studies, each with multiple vignettes that illustrate the three interaction types defined earlier, as well as my analysis of each vignette in the context of the specific case study. The three case studies examined here are not meant to represent a taxonomy of possible interaction types in which children can engage; future studies may uncover

additional viewing experiences. Instead, these categorizations of social viewing experiences provides an understanding of how children learn from digital media, as well as the lens through which it is possible to analyze what the children were learning from the media they watched. This analysis will be conducted further in Chapter 5.

Therefore, in this chapter, my analysis focuses on how the three case studies and their corresponding vignettes characterize children's social viewing situations using an enhanced definition of JME, and how these children ultimately learn from the media with which they are interacting. My analysis provides only a small glimpse at brief moments in the children's lives; these glimpses do not reflect the entirety of the children's interactions with the media during the study. However, all these children had some or all of the interactive viewing experiences while watching digital media. In addition, it must be noted that the children's experiences and their learning from them varied from session to session. Some children engaged in all three types of digital media interaction strategies during a single viewing event, while others only rarely engaged in any visible interactive behavior.

Finally, the interaction strategies described here only reflect external manifestations of interaction; "interaction" can also occur internally without any obvious physical manifestation. I do not attempt to interpolate such interactions in my analysis. Instead, I focus only on externally manifested interactions by looking specifically at highlighted moments of activity using interaction and conversational analysis techniques (Erickson, 2004; Schegloff, 1998). To better illustrate this, I devised a transcription method to distinguish between activities going on in the show and in the room, and to display these activities simultaneously. By using these techniques, I illustrate "how each viewer action began, what happened during the action, and how long each action lasted" (Dugan et al., 2010, p. 993). Furthermore, the case studies were created to tie

together the video analyses with interviews and diary reports in order to tell the story of an individual child's television viewing experience and relevant learning (Dugan et al., 2010).

The next section will explore the following three case studies:

- Case Study I: Self-Mediated Viewing in a Social Space
- Case Study II: Socially-Mediated Viewing
- Case Study III: Socio-Artifactual Viewing

**Case study I: self-mediated viewing in a social space.** Children watch and interact with television and other forms of digital media in many different ways. Sometimes they watch by themselves and other times they watch with others in the room but try to tune out what is going on in order to pay attention to the content of the show they are viewing. In order to pay attention children create numerous strategies to navigate through and interact with show content as they view.

In this section I will examine three vignettes that illustrate how children are learning to view and interact with content by themselves in a social space. The first vignette will show how a child used self-mediated viewing to talk himself through media content much as an adult or older sibling would do, but since he was alone he had to act as his own social viewer. The second vignette will explore how a very shy child learned to move her body in such a way as to keep connected with on-screen content in a loud and chaotic room. Finally, the third vignette will illustrate how a very social child learned to view content, imitate it, and learn from it while viewing alone, and then shared it with and “taught” it to a family member at a later time.

***Vignette #1: Owen teaches himself how to view disturbing content in curious george by talking himself through it.*** This vignette from January 12, 2009 illustrates how Owen uses a specific technique that he taught himself to make it through content on a show that bothered him. The vignette begins 5 minutes into an episode of *Curious George* called “All New Hundley”:

Although they are friends, George and Hundley are quite different. George loves nothing better than bounding about and exploring new things, while Hundley loves to guard his lobby and maintain order. So on one morning George is very surprised to find Hundley bouncing, running and playing all around the apartment building. And when this "new fun" Hundley makes a total mess of his beloved lobby, George knows that all is not what it seems. But how can he prove it? Using his camera and his sharp investigative skills, George sets out to solve the mystery. Has George's proud friend changed personalities - or could there be a look-a-like Hundley on the premises?

As this description indicates, Hundley the dog messes up the room and George is accused of making the mess. In this vignette, Owen is visibly upset by the fact that George was accused of something he did not do.

The vignette begins with the Man in the Yellow hat getting verbally annoyed with George when he enters the lobby of the hotel and sees everything in disarray (Figure 4.1, lines 5-7). George shakes his head and indicates that he does not know why the lobby is all messed up (Figure 4.1, line 2). While viewing this, Owen is leaning on the ottoman of the couch with his hands in his lap (Figure 4.1, line 13).

The show then indicates that George believes he might get in trouble for messing up the lobby even though he did not do it (Figure 4.2, line 15). The Man in the Yellow Hat tells George to just "tell the truth" and that "no one will be upset" (Figure 4.2, line 17). But this leaves George with a dilemma. He does not want to get in trouble but he also does not want to tell The Man in the Yellow Hat he did not mess up the room because he does not think he would believe him. George also struggles because he knows the dog Hundley did it and but he does not want to tattle on him.

Name	1 <sup>st</sup> sec	2	3	4	5	6	7	8	9	10 sec.
1. Narrator:										
2. George:		ahh haa	nou ohe				ehh			
3.			(shacks head no)				(thinks to self as music comes on and dog walks in)			
4.										
5. MWYH:		you didn't do it?		well than who did				it's not a big deal		
6.		(looking at George and puts hands on hips)								
7.			(gestures arms out to ask question)							
8. Dog:										
9.										
10. <i>InShow</i>										
11. <i>In Room</i>										
12. Owen:										
13.			(sitting on end of couch watching show with hands in lap)							

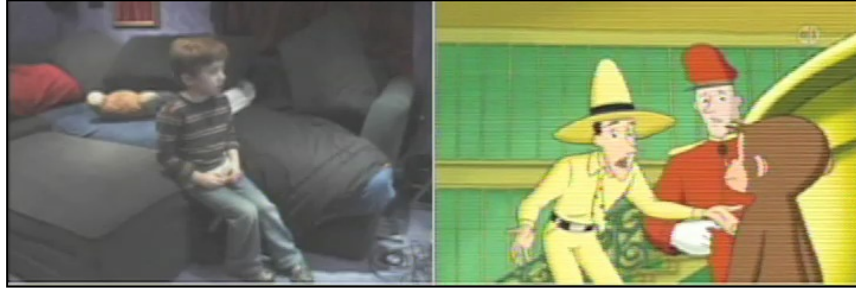


Figure 4.1. Transcript of Owen watching *Curious George* (Seconds 1-10)

Name	11 <sup>th</sup> sec	12	13	14	15	16	17	18	19	20 sec.
14. Narrator:				George didn't want to get in trouble					but he	
15. George:		(looks up)		(stands with hands clutched)						
16. MWYH:		just tell the truth						no one will be upset		
17. Dog:				(looks displeased and frowns)						
18.										
19. <i>InShow</i>										
20. <i>In Room</i>										
21. Owen:				tiss huhh	I can just see it I can't do this		ok	I'll look again		
22.				(covers eyes with hands)						
23.					(kicks up leg and lunges towards couch)					
24.								(sighs and covering eyes)		



Figure 4.2. Transcript of Owen watching *Curious George* (Seconds 11-20)

Upon hearing and seeing this segment, Owen immediately covers his eyes (Figure 4.2, line 22). He then says that he “can just see it I can’t do this” (Figure 4.2, line 21). He struggles to view the content, covers his eyes and wiggles his body uncomfortably. It is not until the Man in

the Yellow Hat says “no one will be upset” (Figure 4.2, line 16, second 18) that Owen tells himself it is going to be “ok” and he will “look again” (Figure 4.2, line 21, seconds 18-20). The narrator on the show then says that George “had no choice” but to tell the truth about Hundley messing up the room, especially if no one would be “upset” as the Man in the Yellow Hat indicated (Figure 4.3, line 26). However, George seems very torn about what to do but eventually confesses and implicates Hundley as the one who messed up the room (Figure 4.3, line 28). This confession surprises both The Man in the Yellow Hat and Hundley.

While watching this, Owen is still struggling to view this part of the show. He peeks through his fingers and continues to talk himself through trying to view again (Figure 4.3, lines 35-36). After implicating Hundley, George looks sad and Hundley looks at The Man in the Yellow Hat as if to say he did not do it. While The Man in the Yellow Hat seems skeptical of what George has said, Owen as the viewer knows George is telling the truth (Figure 4.4, lines 43-44). However, he still feels uncomfortable and again covers his eyes and says “oh my ga ga gee gee gada ...yabbie dabbie daa” before looking away from the show completely. Then he waits several moments, sighs loudly after hearing The Man in the Yellow Hat, and finally removes his hands away from his face and returns to viewing (Figure 4.4, lines 47-49).


Name	21 <sup>st</sup>	22	23	24	25	26	27	28	29	30 sec.	
25. Narrator:	had no choice well if no one would be upset										
26. George:						gawkee					
27.						(points at dog and turns head away)					
28. MWYH:	by the truth								Hunley did it?		
29.	(kneels down towards George)										
30. Dog:	growls										
31.						(looks surprised jaw drops)					
											
32.	<i>In Show</i>										
33.	<i>In Room</i>										
34. Owen:	not this			that eh eh that							
35.	(kneels down)							(peaks out of his fingers at screen)			
36.											
37.											

Figure 4.3. Transcript of Owen watching *Curious George* (Seconds 21-30)


Name	31 <sup>st</sup>	32	33	34	35	36	37	38	39	40 sec.
38. Narrator:										
39. George:	yeahhh									
40.	(looks sad)					(shrugs shoulders)				
41.						(looks sad)				
42. MWYH:	George do you think can you really picture Hunley jumping up and making this mess?									
43. Dog:	(looks at Man with Yellow Hat)									
										
44.	<i>In Show</i>									
45.	<i>In Room</i>									
46. Owen:	oh my ga ga gee gee gada			yabbie dabbie daa			sighs			
47.	(wiggles towards couch)			(covering ears and looking away from show)						
48.				(removes hands from face and puts on sides of head)						

Figure 4.4. Transcript of Owen watching *Curious George* (Seconds 31-40)

*Vignette analysis.* Owen mainly watched television alone in his basement away from anyone else in his family; as a result, he had learned how to talk himself through disturbing show content. In essence, he served as his own co-viewer, and was able to get through the unsettling situation of George being falsely accused by telling himself (out loud) that he could not look, but then decided to make himself start viewing again to see whether George would be exonerated. This behavior matches his mother's observation that Owen disliked scary and misleading situations (LTV04, June 2009; Dugan et al., 2010).

Numerous scholars have tried to understand why children become scared when they view disturbing show content, and why they also sometimes become scared when they view things that do not seem scary to an adult. However, the phenomenon of self-mediated viewing described in this vignette is understudied in the literature on children and digital media. Valkenburg (2004) provides the most detailed description of the role of audiovisual media in the development of children's fears, and examines which particular media content tends to evoke fearful reactions and why. However, this research does little to explain Owen's self-mediated viewing behavior.

Since Owen watches several hours of television each day hidden away by himself in his basement, which is physically cut off from the rest of his home (you have to go outside to go upstairs where the rest of his family mainly reside when he is watching), he has learned to be alone. In that time, he has taught himself what to do when he becomes scared. Proponents of motivational learning concur that children with strong intrinsic motivation do not need an adult constantly watching and helping with activities (cf., Carlton, 2003), and Owen is certainly intrinsically motivated to avoid being scared while watching television. Perhaps this is what Owen is doing when he relies on his own ingenuity for coping with the emotionally challenging

content of the show, and why he only continued watching the show again after George had been cleared of wrongdoing. This was not a one-off example either: This phenomenon was observed on at least ten different occasions when Owen was watching shows like *Curious George*, *Dragon Tails*, and *Word Girl*. Therefore, over time Owen learned and persisted in his effort to comfort himself when faced with something he did not like, to make himself watch it, and tell himself it would be ok (as an adult would do) but since an adult was absent he had to do it for himself.

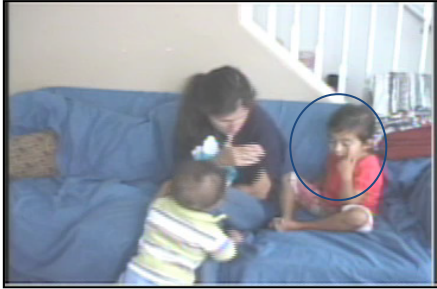
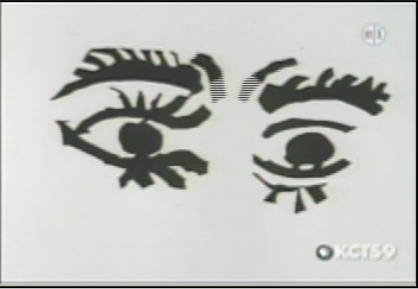
Furthermore, it must be noted that the current definition of joint media engagement does not include viewing and learning by one's self as a formal area in which JME can occur. However, when analyzing examples such as the one presented here and considering Owen's ability to create a coping mechanism to aid in his viewing of content he finds objectionable, perhaps the definition of JME should be. Clearly, more research must be done to better understand this phenomenon and see whether and how other children are also using themselves as co-viewers when watching objectionable content alone.

***Vignette #2: Isabelle learns how to keep watching Sesame Street in a chaotic space, practices her learned facts, and assess herself later.*** In this vignette from July, 17, 2008, Isabelle (age 3) is watching *Sesame Street* with her mom and her brother Roman in their home. Isabelle and her mom are sitting on the couch that is located in the living room of their home, and Roman is standing on the floor in front of his mom. The television is located directly in front of them across the room.

The vignette occurs approximately 54 minutes into the episode. Right before this vignette begins, the children had viewed a segment hosted by Harvey Fierstein and a bunch of Muppets called "Everything is Coming up Noses" in which he sings along to the theme of "Everything is Coming up Roses" and puts noses on the Muppet characters. This segment was not interactive

and the characters did not point to their noses, although Harvey did put noses on them as he sang the song.

During this vignette a narrator is saying the names of the various parts of the human face as they are being drawn on the screen. Once all the parts of the face are drawn in black and white, color is added to certain sections and a cubist Picasso-like drawing is created.

Name	1 <sup>st</sup>	2	3	4	5	6	7	8	9	10 sec.	
1.	Face:	eye				nose			mouth		
2.		(cartoon shows a drawing of an eye)				(cartoon shows a drawing of nose)			(cartoon shows a drawing of mouth)		
											
3.											
4.	InShow										
5.	In Room										
6.	Isabelle:			(points to her eyes)					(points to her nose)		
7.											
8.	Mom:		What is it Roman?		Do you want to turn it off?						
9.					(Looking at Isabelle)						
10.	Roman:										
11.											

**Figure 4.5. Transcript of Isabelle watching *Sesame Street***

For example, the narrator says “eye” and an eye is drawn (Figure 4.5, line 1, seconds 1-4). In line 6, second 4, Isabelle points to her own eye. Then the show says “nose” and draws a nose (Figure 4.5, line 1, second 6); Isabelle points to her own nose in line 6, second 9. The show continues to say facial body parts as Isabelle struggles to see the screen as her brother blocks her view. However, she does not ask Roman to move or even utter a word. She interacts only with herself by pointing to the appropriate parts of her body to demonstrate to herself that she knows the parts of her face. She does not seek attention from her mother or brother as she performs this activity as she rarely ever interacted with anything going on screen when prompted by the

television or even her mother. When she did respond to any prompts from onscreens calls for action she usually made sure her mother or father was watching and listening to her.

***Vignette analysis.*** It seems that Isabelle is viewing this show while teaching and quizzing herself on her knowledge of her facial parts. Even though her mother and brother are with her in the room, she is focused on watching what is being presented on the television screen. She tunes out her brother entirely, even when he obstructs her view of the screen and begins to talk, by ignoring his comments and moving to continue viewing the show. This behavior demonstrates that, even when children seem passive and unresponsive when viewing show content, they are still able to learn from what they see.

Furthermore, children with siblings must get creative about how to maintain their attention levels while viewing digital media. Isabelle taught herself to move her body in order to keep contact with the television show she was watching. While she never utters a word during the hour-long viewing event, she uses self-mediated viewing to assess her knowledge of her body parts (for which she had been practicing according to her mother) and maneuver around her brother. She makes use of this strategy while watching a show with her family, but without interacting directly with anyone else regarding the content of the show. In fact, she watches the show *in spite of* other family members' presence in the room.

Situated learning (Lave and Wenger, 1991) is learning that takes place in the same context in which it is applied and Isabelle is learning and assessing her body parts by interacting with a show in the same space in which she learned and is continuing to learn them. However, she is also learning that it is not always so easy to practice what she wants to practice whenever she wants so she must tune out what is going on around her in order to tune into what she wants to focus on.

***Vignette #3: Harrison learns facts from DK Eyewitness: Amphibians and shares his knowledge with others.*** As this vignette illustrates, when watching alone Harrison imitated actions on screen and stored away information he learned while viewing show content so that he could talk about it with others later. In this example from October 30, 2008, Harrison responds to the nature show *DK Eyewitness: Amphibians* both verbally and physically by simulating the movements, actions, and sounds of a frog on the screen.

The clip begins with Harrison sitting on a rocking chair and leaning on the armrest while watching *DK Eyewitness: Amphibians*, a 35-minute show on DVD that teaches viewers about frogs, toads, and salamanders. Harrison indicated that this show is one of his favorites (May 2009); he had seen it several times before this example. Prior to this clip, there was a short sequence discussing tadpoles. Harrison begins this vignette by talking about what he has just heard about tadpoles and how they lose their tails as they grow. Although looking quite passive, Harrison is paying close attention to the frog on the screen.

First, he imitates the mouth movements of a male frog shown on television (which stores its young in its mouth until they jump out fully formed). Then, several moments later, he explains the frog gestation information he just learned to his mother while continuing to watch the show.

Name	1 <sup>st</sup>	2	3	4	5	6	7	8	9	10 sec.
------	-----------------	---	---	---	---	---	---	---	---	---------

1. Narrator: An unusual adaptation is that of the male Darling frog He takes the eggs into his mouth as soon as they show  
 2. Screen: (frog side view) (frog's mouth close up)



3.  
 4. *InShow*  
 5. *In Room*  
 6. Harrison:  
 7. (laying on rocking chair leaning on arm rest gaze towards show)  
 8. Mom:

**Figure 4.6. Transcript of Harrison watching *Eyewitness Amphibians* (Seconds 1-10)**

Character	11th	12	13	14	15	16	17	18	19	20 sec.
-----------	------	----	----	----	----	----	----	----	----	---------

9. Narrator: signs of life  
 10. Screen: (frog's mouth close up)  
 11. And inside his mouth they continue to grow (front view of frog's mouth) Until the tiny froglets (tiny frog jumps out of bigger frog's mouth)



12.  
 13. *InShow*  
 14. *In Room*  
 15. Harrison:  
 16. (laying on rocking chair leaning on arm rest gaze towards show)  
 17. Mom:

**Figure 4.7. Transcript of Harrison watching *Eyewitness Amphibians* (Seconds 11-20)**

Character	21st sec	22	23	24	25	26	27	28	29	30 sec.
18. Narrator:	are ready to jump out									
19. Screen:	(tiny frog jumps out of bigger frog's mouth)									
20.			(frog baby lands on the ground)							
21.							(slow motion shot of baby frog jumping out of larger frogs mouth)			
22.										
23. InShow										
24. In Room										
25. Harrison:										
26.		(laying on rocking chair learning on arm rest gaze towards show)						(opens mouth slightly like frog)		
27. Mom:										
28.										



**Figure 4.8. Transcript of Harrison watching *Eyewitness Amphibians* (Seconds 21-30)**

The narrator on the show explains the “unusual adaptation of the male Darling frog” who “takes the eggs...” of the female frog “into his mouth as soon as they show signs of life” (Figure 4.6, line 1). Then narrator goes on to say that the frogs “continue to grow” (Figure 4.7, line 9) inside the male frogs mouth until fully formed when they “jump out” (Figure 4.8, line 18). Upon hearing this Harrison opens his mouth and imitates the mouth movements of the frog releasing its babies (Figure 4.8, line 26).

Several moments later, Harrison’s mother enters the room and Harrison begins to tell her what he just learned about the frogs, including how they store them in their mouths and showing her how the mouth movements worked (Figure 4.10, lines 43-48).

Name	31th	32	33	34	35	36	37	38	39	40 sec.
------	------	----	----	----	----	----	----	----	----	---------

29. Narrator:  
 30. Screen: (slow motion shot of baby frog jumping out of larger frogs mouth) (baby frog) (show segment ends)



31.  
 32. InShow  
 33. In Room  
 34. Harrison: these frogs so  
 35. (opens mouth like frog) (sits up)  
 36. Mom:

**Figure 4.9. Transcript of Harrison watching *Eyewitness Amphibians* (Seconds 31-40)**

Name	41th	42	43	44	45	46	47	48	49	50 sec.
------	------	----	----	----	----	----	----	----	----	---------

37. Narrator: After twelve weeks the frog leaves the pond one small hop for the frog one giant leap for evolution  
 38. Screen: (frog leaves pond and hops onto land) (frog jumps)



39.  
 40.  
 41. InShow  
 42. In Room  
 43. Harrison: they they grow in its mouth he opens it and then he closes and the frog when its ready jumps out  
 44. (sits up and looks into camera)  
 45. (looks back at show imitates the frog by opening and shutting his mouth)  
 46. (moves arm to show motion of froglets coming out of mouth)  
 47.  
 48. (sits back in chair)  
 49. Mom: wow

**Figure 4.10. Transcript of Harrison watching *Eyewitness Amphibians* (Seconds 41-50)**

*Vignette analysis.* This vignette illustrates two important points about children’s interactions with digital media. First, Harrison only *appears* to be a passive viewer as he slouches in the rocking chair. By moving his mouth to imitate the activities described in the show, Harrison proves that in fact he is paying quite close attention even imitating what he is

seeing. The show does not encourage this interaction through its narration; Harrison's behavior indicates that he is interacting with the content of the show without any external prompting from the show or from other co-viewers in the room with him.

Second, Harrison demonstrates that he is excited about what he has just learned about frogs and wants to share that information with someone else. He repeats the information about amphibious gestation to his mother when she enters the room, indicating that he has been paying attention and finds that information interesting enough to relate to his mother.

It is exciting to consider the mechanisms through which increased viewing may facilitate preschool children's learning. Harrison has seen this program several times before although his mother did not recollect if she had seen him imitate the frogs before but she said on numerous occasions he would watch something by himself and coming running into wherever she was within the house to tell her all about it (LTV02 informal interview, Nov 2008). According to Richert et al. (2011), it is possible that "increased viewing likely increases children's comprehension of the message (Crawley et al., 1999) and children's more sophisticated search for information within a program (Calvert, 1999)" (p. 92). It is noteworthy that Harrison may be conducting this sort of search both on his own, and in the company of other viewers.

**Case study II: socially-mediated viewing.** When children watch digital media with parents, siblings, or friends, they sometimes try to teach them something, or warn them about upcoming content, or otherwise interact with others in the room. This socially mediated viewing provides a rich segment of data regarding how children learn from digital media and through joint media engagement. Children who engage with others while viewing vocalize concerns, facts, and other information in the form of declarative or imperative statements, as with children

stating facts learned from a show, discussing content they did not understand, and helping siblings learn how to respond appropriately to show prompts.

The difference between what a learner can do with and without help is the core of Vygotsky's (1977) concept of zone of proximal development. This concept is key when trying to teach or learn while interacting with others socially within a viewing space. Furthermore, Collins, Brown, and Newman (1987) developed six teaching methods that are based on the fundamentals of cognitive apprenticeship that include: modeling, coaching, scaffolding, articulation, reflection, and exploration. These six methods are designed to help people learn from others, ask questions about what they are learning, and ultimately learn on their own. This framework can be applied to most any situation where one is learning something new and provide a relevant platform for how children create strategies to learn socially as they view digital media.


For this case study, I will examine four vignettes to illustrate how children are learning from their socially-mediated viewing. The first vignette will follow a child talking with a friend about the scientific truthfulness of some content they viewed during a segment break in a PBS television show. The second vignette will follow a child "helping" a new viewer to understand what he is viewing during an episode of *Henry's Amazing Animals*. The third vignette will examine how something as seemingly mundane as a *Bugs Bunny* cartoon can spark interesting conversations about scientific truths. Finally, the fourth vignette will follow a family of siblings where the older siblings effectively "teach" the younger sibling how and when to respond to interactive prompts during an episode of *Little Einsteins*.

***Vignette #1: Owen explores truthfulness through science with a friend after viewing a PBS segment break.*** When watching television with others, Owen liked to make sure the other

people in the room were not only learning from the show content, but learning the correct information. In this vignette from July 8, 2008, Owen discusses the information that he heard while watching an advertisement for PBS Kids programming.

The vignette begins with both boys sitting by each other on the couch in Owen’s basement. They had just turned on the television and were waiting for *Arthur* to begin. During the commercial break an advertisement for PBS Kids was played. A narrator explained that “the largest land animal alive today is the elephant” and it “weighs as much as five cars” and “that’s why zoo pals support PBS Kids” (Figure 4.11, lines 1-3). As the narrator talked, pictures of an elephant, a hippo, an elephant trunk, an elephant being weighed, and a woman holding an elephant are displayed on the screen.

The narrator goes on to say “where tons of knowledge is packed into curious minds, zoo pals plates and cups help, brining fun and learning to the table” (Figure 4.12, lines 14-16). After hearing this Owen says to his friend, “I don’t get that I don’t get any...of that” (Figure 4.12, line 26).

Name	1 <sup>st</sup>	2	3	4	5	6	7	8	9	10 sec.										
1.	Narrator: PBS kids where a kid can be a kid																			
2.	The largest land animal alive today is the elephant																			
3.	weighing as much as five cars That's why zoo pals support pbs kids																			
4.	Screen: (PBS Kids commercial)																			
5.	(elephant, hippo, and other animals standing)																			
6.	(hand grabs elephants trunk)																			
7.	(weighs elephant)																			
8.	(woman holds elephant)																			
9.																				
10.											<i>In Show</i>									
11.											<i>In Room</i>									
12.	Owen: (sitting on couch with key chain in mouth)																			
13.	Friend: (sitting on another part of couch with fingers in mouth)																			

**Figure 4.11. Transcript of Owen watching a PBS Kids Advertisement (Seconds 1-10)**

Name	11th	12	13	14	15	16	17	18	19	20 sec.
------	------	----	----	----	----	----	----	----	----	---------

14. Narrator: where tons of knowledge is packed into curious minds  
 15. zoo pals plates and cups  
 16. help bring fun and learning to the table and by a Screen:  
 (women carries elephant to a table)  
 17. (elephant sits with child and they laugh)  
 18. (zoo pals logo page with elephant)  
 19. (elephant blows website name out of trunk)  
 20. (fades to black)  
 21. (PBS Kids Ready to Learn logo)  
 22.



23.  
 24. InShow  
 25. In Room  
 26. Owen:  
 27.  
 28.  
 29. Friend:

i don't get that I don't get any  
 (turns toward friend and back  
 to screen)

#### Figure 4.12. Transcript of Owen watching a PBS Kids Advertisement (Seconds 11-20)

Owen's friend does not say anything in response. Owen then looks at his friend and then back at the screen and then back at his friend and says "do you know how much an elephant weighs?" (Figure 4.13, line 36). His friend does not reply, and Owen says "ahh as much as FIVE cars..." (Figure 4.14, line 46). His friend then replies "yeah" (Figure 4.14, line 49). Owen then says "pretty heavy" (Figure 4.14, line 46) to which his friend replies "I already knew that" (Figure 4.14, line 49) as he looks at Owen. Owen then asks "then did you see that ad?" (Figure 4.14, line 46) to which his friend replies "yeah" (Figure 4.14, line 49).

Name	21st	22	22	24	25	26	27	28	29	30 sec.
------	------	----	----	----	----	----	----	----	----	---------

30. Narrator: Ready to Learn television cooperative agreement from viewers and the Department of Education  
 31. Screen: (Department of Education logo) (PBS Kids Go logo)  
 32.



33. InShow  
 34. In Room

36. Owen: of that do you know how much an elephant weighs? Ahh as much  
 37. (points up a tv) (brings hands together holding a key chain)

38. Friend:

**Figure 4.13. Transcript of Owen watching a PBS Kids Advertisement (Seconds 21-30)**

Name	31nd	32	33	34	35	36	37	38	39	40 sec.
------	------	----	----	----	----	----	----	----	----	---------

39. Narrator: Everyday when you're walking down the street Has an original point of view  
 40. everybody that you meet  
 41. Screen: (Arthur running with dog down street) (pan up to Arthurs face as he runs) (cut to Arthur running in a book)  
 42. (book opens)



43. InShow  
 44. In Room

46. Owen: as FIVE cars pretty heavy then did you see that ad?  
 47. (looks back at screen and puts key chain in mouth)

49. Friend: yeah I already knew that yeah  
 50. (toy in mouth) (looks at Owen)

**Figure 4.14. Transcript of Owen watching a PBS Kids Advertisement (Seconds 31-40)**

*Vignette analysis.* In her study of children’s why questioning, Callahan (2000) and her colleagues discovered that children will ask “why” when faced with situations that puzzle them (p. 1). “Children’s questions reveal a great deal about their understanding or misunderstanding of complex topics” (Callahan, 2000, p. 1). In this case, Owen demonstrates his attentiveness to the content he views on television by engaging his friend in a discussion about the truthfulness of a


representation reflected in the PBS Kids commercial. Owen is aware that something does not seem right and as he must come to terms with his confusion over seeing a woman holding an elephant, which should be physically impossible based on the narrator's description of an elephant's weight. As Owen tries to make sense out of what he is seeing and hearing, he seems confused and annoyed that the messages of the narration and animation are mismatched, and attempts to engage his friend by repeating the fact about the elephant's weight. This engagement does not appear to have the desired result of encouraging his friend to join in his distaste for the commercial.

It is clear that Owen wants to engage his friend through active sense making to interpret what he just saw. However, it is unclear whether Owen is trying to make sure his friend is not deceived by the commercial, or whether he wants his friend to acknowledge and reciprocate his frustration at the commercial's confusing message. In either case, Owen has discovered something in the ad that is potentially telling viewers information that is not correct, accurate, or factual and he believes this is wrong. On several occasions, Owen stressed to me that he likes nature videos because "*they are real*," and he and his mother both stated that he does not like things that are not real or misleading. Owen's mother said he prides himself on being able to know what is real and not real and has never liked to pretend (LTV04 field notes, 2008, 2009).

Trying to interpret what is real from what is not real is a classic problem children face when they watch television and interact with other forms of digital media (cf., Richert et al., 2011, p. 89). In this vignette, when a seemingly truthful program suddenly presents information that does not seem right, Owen notices and calls it out. Therefore, Owen seems to be trying to confirm through his interaction with his friend that his interpretation of the commercial is correct, and that a woman could not actually hold an elephant aloft.


**Vignette #2: Harrison helps another viewer understand what's going on in Henry's *Amazing Animals*.** As the following vignette from August 6, 2008 demonstrates, Harrison likes to teach others what he is learning and help viewers along while he watches and interacts with television shows. When an episode of *Henry's Amazing Underwater Animals* comes on, Harrison demonstrates his knowledge of a nature show by informing a “new” viewer about show facts before they are viewed. Harrison co-views this episode with his sister Le Anne, his mother, and myself.

The vignette begins 1 minute into a 30-minute program as the narrator states that the animals on the screen are rays (Figure 4.15, line 1). As soon as he hears this Harrison says to the researcher, “those are rays...those are rays and they are related to sharks not rays” (Figure 4.15, line 7).

Character	1 <sup>st</sup>	2	3	4	5	6	7	8	9	10 sec.
1. Narrator:	Now those are rays Henry there not from outer space but like most underwater animals they seem alien to us									
2. Screen:	(rays swimming) (underwater plant opens up)									
3. Henry:	flying salamanders with rain clouds even worse									
4.										
										
5.										
6. InShow										
7. In Room										
8. Harrison:	those are rays those are rays and they are related to sharks not rays									
9.	(sitting next to Le Anne on couch leaning forward									
10.	over his cross-legged legs looking in the direction									
11.	of the researcher smiling and laughing)									
12.	(laying over his crossed legs and leaning									
13.	on his elbow He sits back and in the									
14.	process grabs his foot)									
15.										
16. Le Anne:	(shakes head)									
17.	(sitting on couch next to Harrisons picking at her knee and scratching it)									
18.	(glances at the researcher and then sits up and crosses her legs further down by her ankle)									
19.	(grabs her hand with her other hand and holds it in her lap)									
20. Researcher:										

**Figure 4.15. Transcript of Harrison watching *Henry's Amazing Animals* (Seconds 1-10)**

Harrison then says “they do have real wings and they flap them and they help them go through the water” (Figure 4.16, line 28). Upon hearing this I replied, “oh, ok” (Figure 4.16, line 32), not really knowing what to make of this statement. However, 10 minutes later the narrator brings up rays again when talking about sharks, and explains how rays are related to sharks and use their “wings” to maneuver through the water.

Character	11th	12	13	14	15	16	17	18	19	20 sec.
21. Narrator:	because they are so different									
22. Screen:										
23.	(rays swimming)									
24. Henry:										
										
25.										
26. InShow										
27. In Room										
28. Harrison:	they do have real wings and they flap them and they help them go through the water									
29.	(looks at camera and then back at researcher)									
30. Le Anne:										
31.	(looks at screen)									
32. Researcher:	Oh, ok									

**Figure 4.16. Transcript of Harrison watching *Henry’s Amazing Animals* (Seconds 11-20)**

*Vignette analysis.* Harrison anticipates what is coming up in the program and demonstrates that he remembers the content and wants to share his experience and knowledge he learned with other “new” people who have not seen the program before. He uses his past viewings of this episode to prepare the researcher, the person who is new to the show, for what is coming next. Harrison says he sometimes “enjoys” telling people what to expect so they “won’t be scared” or so they might “learn something new” (LTV02 field notes, October 20, 2008). Because this is a nature show, there are no suspenseful plot twists to reveal; therefore, Harrison serves as the teacher and places the researcher in the student role, relating factual information about rays.

However, Harrison also told me in a later informal interview that sometimes he is quiet “on purpose” when new people enter the room because they may not have seen the show before and he does not want “to spoil” it for them. He changes the way he interacts with others depending on the content of the show and the people viewing it with him. In essence, this refined social practice that he has developed for himself establishes him as a social learner who then teaches or “helps” others to know what is going to happen. He enjoys leading discussions and showing competency around shows that he has viewed repeatedly.


This phenomenon is rooted in positionality theory (Harré & van Langenhove, 1999), where people form a social position within their lives as opposed to a traditional role. This position is socially constructed and dynamic: It can change over time as the community or the person grows. The position of social teacher is what Harrison has created for himself within his family; his diachronic learning pattern was repeated and changed numerous times over the duration of the study and will be explored further in subsequent chapters.

***Vignette #3: Hannah explores science and truth through a question and answer session with her dad while viewing a Bugs Bunny cartoon.*** In this vignette from April 23, 2008, Hannah is watching cartoons with her father in her living room. She is watching an episode of *Bugs Bunny* called “Haredevil Hare.” In this cartoon, the audience follows Bugs Bunny as he flies into space on a rocket and meets a space alien on the Moon.

The vignette begins with Bugs Bunny talking to himself while walking on the moon (Figure 4.17, line 1). He is not wearing a spacesuit. Upon seeing the lack of any space gear, Hannah continues watching the cartoon as she asks her father, “can you walk on the moon?” (Figure 4.17, line 6) to which her father replies, “well first you need a suit” (Figure 4.17, line 8). After pausing for a moment, Hannah turns towards her father and asks, “because it’s cold,

right?” (Figure 4.17, line 6). Her father looks up from his laptop and replies while counting on his fingers, “well cold and you need oxygen and well um... I think you also need it because the gravity would begin to pull all the air out of you” (Figure 4.17, line 8; Figure 4.18, line 18).

Hannah then looks back at the screen and nods.

Character	1 <sup>st</sup>	2	3	4	5	6	7	8	9	10 sec.	
1.	Bugs Bunny:	(walking on Moon and talking) (walking)									
2.	Screen:	(Kilroy was here is written on a rock) (giant rocket blows up)				(rocket)					
											
3.	<i>InShow</i>										
4.	<i>In Room</i>										
6.	Hannah:	can you walk on the moon?			because its cold right?						
7.	(turns to look at Dad)										
8.	Dad:	well first you need a suit				wa ell cold and you					
9.	(counts on fingers)										

**Figure 4.17. Transcript of Hannah watching Bugs Bunny’s *Haredevil Hare* (Seconds 1-10)**

Character	11th	12	13	14	15	16	17	18	19	20 sec.
10.	Bugs Bunny:									
11.	Screen:	(V-16 rocket comes from Mars to Moon exploratory force rocket)								
12.	(space man shows up)									
13.	(space man looks in a telescope)									
										
14.	<i>InShow</i>									
16.	<i>In Room</i>									
17.	Hannah:	(nods) (turns back towards the screen and continues to watch)								
18.	Dad:	need oxygen and well um		I think you also need it because the gravity would begin to pull all the air out of you						
19.	(counts on fingers as he list reasons)									

**Figure 4.18. Transcript of Hannah watching Bugs Bunny’s *Haredevil Hare* (Seconds 11-20)**

*Vignette analysis.* It is important to point out that “A growing body of research suggests that children’s conversations with parents may support the early development of scientific

learning” (Tenenbaum & Callanan, 2008, p. 1). Hannah seems to know right off the bat that something doesn’t seem quite right with what she is seeing on screen and faces two problems. One, she wants to know if her hunch is correct, and two, she wants her Dad’s attention when asking the question. “Everyday conversations that arise during mundane activities may offer some guidance to children as they develop and revise intuitive theories about the world around them” (Callanan & Jipson, 2001 as cited in Tenenbaum & Callanan, 2008, p. 1). Children, such as Hannah, must navigate through situations such as this in order to find out the truth.


Therefore, Hannah relies on her father as a co-viewer who can clarify confusing or potentially inaccurate aspects of the information she sees on television. When she sees Bugs Bunny walking on the moon without the aid of a spacesuit, she wants to resolve the confusion she feels about Bugs’ actions. So she decides to ask a question and follow it up with her own possible answer. This strategy works for Hannah: Her initial question elicits only a very brief reply from her father. However, when she offers a possible reason why a spacesuit would be necessary to walk on the moon he stops working at his laptop to interact with her more thoroughly and talk through her hypothesis in more detail. In this way, Hannah acts as a relatively advanced student by proposing a possible answer along with her question.

Cartoons are sometimes hard for younger children to understand because they are often fantasies that occasionally present factual information. As with other types of programming, cartoons can be challenging for children to interpret what is “real,” what is “pretend” within a real context, and what is simply fantasy (Richert et al., 2011). It is up to young viewers to decide for themselves, using whatever resources they have available to them, what is real and what is made up for entertainment purposes.

***Vignette #4: Harrison and his sister work together to teach younger brother Max how to respond to interactive prompts in Little Einsteins.*** In this vignette from November 25, 2008, I analyze a 72-second sequence of video in which 17-month-old Max participates in the *Little Einsteins* “Blast-Off” sequence with his sister Le Anne and brother Harrison, and with their mom, Mrs. Chambers. Most observations from this home included Harrison and Le Anne watching shows together or occasionally Harrison watching alone. Although Max watched shows like *Baby Einsteins*, as mentioned earlier, it was rare for him to view a show for more than a few moments. He typically ran off or began playing with a toy instead of watching the show. However, on this particular day he watched the entire 30-minute program.

This vignette occurred 38 minutes into the visit for the day and 8 minutes into the *Little Einsteins* program. Prior to this show Harrison had watched a nature program about fish for 30 minutes while Max had watched a little bit of the fish program and had eaten a snack in his highchair and Le Anne had read a book about sharks. Their mother had just finished feeding Max and is sitting behind Max checking her email on the computer. Le Anne is sitting on a bean bag chair on the floor, Harrison is sitting in a small child-sized chair (in the middle of Le Anne and Max), and Max is sitting on a rocking chair wrapped in a blanket. The children are almost sitting in a row as they look at the television from across a small living room. The television is located in the corner of the room.

The vignette begins with Leo from the show asks the viewers if they can help the rocket gain more power so Rocket can rev his engines and blast off, and so Leo, June, Quincy, and Annie can complete their mission.

Character	1 <sup>st</sup>	2	3	4	5	6	7	8	9	10 sec.
1. <b>Leo:</b>	Prepare for blast off I're going to need a lot of power to blastoff pat, pat, pat, pat, pat June is patting									
2.	(begins patting his lap)				(continues to pat lap)					
3. <b>Rocket:</b>	(Rocket wiggles)									
4. <b>June:</b>	(blinks, smiles and pats lap)									
5. <b>Quincy:</b>										
6. <b>Annie:</b>										
										
7.										
8. <i>In Show</i>										
9. <i>In Room</i>										
10.										
11. <b>Le Anne:</b>	Max remember? pat, pat, pat, pat, pat, pat, pat				Max likes it					
12.	(leans forward and stretches out arm and sits up on knees and begins patting her lap)									
13. <b>Harrison:</b>	pat, pat, pat		hee hee hee							
14.	(camera pans to Harrison who is patting)									
15.										
16. <b>Max:</b>	pa									
17.	(camera pans to Max patting lap)									
18.										

**Figure 4.19. Transcript of the Chambers Children Doing the “Blast-Off” Sequence from *Little Einsteins* (Seconds 1-10)**

All *Little Einsteins* shows contain a version of this “Blast-Off” sequence at least once per episode. As children watch this show over and over again they become quite familiar with the narrative arc and general conventions of the show. *Little Einsteins*:

was designed to teach the target demographic art and music appreciation by integrating famous or culturally significant artworks (usually, but not exclusively, paintings) and classical music (most typically from the Baroque, Classical, and Romantic periods) into the scenery, plot, and soundtrack of each episode. The show is also designed to encourage viewer interaction (such as patting their legs, gesturing, or singing along to help the characters succeed on their ‘mission’). (Wikipedia, 2009)

Le Anne has watched this show since she was 3 years old so she has watched a lot of episodes by herself and with her brother Harrison over the years. I would consider them both expert viewers of this show since they have both watched numerous episodes over time.

During this clip, I observed that Le Anne recognized and anticipated the arrival of the “Blast-Off” sequence in the moments before this transcribed sequence begins. As soon as Le Anne sees Leo begin to get ready for the “Blast-Off” sequence, she asks her brother Max if he remembers how to do the sequence (Figure 4.19, line 11). Le Anne and Harrison both told me prior to this episode that Max had recently begun to participate with them when they did the “Blast-Off” sequence, and that they had “taught” him how to do it and were excited that he was beginning to be able to “hang out” with them more often. Their mother also seemed to be quite pleased that Max was able to follow the sequence and interact more with his siblings (LTV02 field notes, November 25, 2008).

As the clip proceeds, Le Anne, watching the screen, begins to do the patting gestures by moving her hands up and down and patting her lap, elicited by Leo in the show. Harrison joins in with Le Anne, and then Max joins in too. When Le Anne notices that Max is now participating she calls out to her mother that Max likes doing the “Blast-Off” sequence (Figure 4.19, line 11, second 9). It seems that Max is participating and imitating the motions from the characters on screen and his siblings in the room, and is becoming increasingly more excited.

Next, Max and Harrison focus on the show as Max continues to participate in the “Blast-Off” sequence. Max raises his hands over his head and yells “blast off” even though the characters on the show have not asked the viewers to do this yet (Figure 4.20, line 33, second 29). However, he anticipates this direction and looks very happy when he joins in. In the few seconds before this sequence, Leo introduced all the characters and told the viewers that they are patting too.

Then, right before Max raises his arm, Leo asked the viewers to “pat, pat, pat...put your hands on your lap and pat with us... faster, pat, pat, pat...” (Figure 4.20, line 19) because Rocket

needs the viewers to pat faster to produce more power for them to blast off. Harrison is still patting his lap and participating in time with the show (Figure 4.20, line 31).

Character	21 <sup>st</sup>	22	23	24	25	26	27	28	29	30 sec.
19. Lex:	pat, pat, pat, pat									
20.										
21. Rocket:										
22. June:										
23. Quincy:										
24. Annie:										
										
25.										
26. In Show:										
27. In Room:										
28.										
29. Le Anne:										
30.										
31. Harrison:										
32.										
33. Max:										
34.										
35.										
36.										
37. Mom:										

**Figure 4.20. Transcript of the Chambers Children Doing the “Blast-Off” Sequence from *Little Einsteins* (Seconds 21-30)**

Right after the sequence above (at seconds 33 and 36), Le Anne again tells her mother to “look” and that Max “raises his hands,” indicating that he is participating. After being asked to look, Mrs. Chambers turns her attention to Max and the other children watching the show. However, it is not for another 10 seconds that the characters in the show say “blast off” and Rocket begins to take off. During that moment (second 40) Mom is now looking towards Max, Le Anne says “blast off” with the characters from the show, Harrison raises his hands up over his head and creates the blast off gesture making sure to look at Max, and Max has turned away from the show and is looking back at Harrison. At around 46 seconds Max says “blast off” again, smiles, and holds his hands up over his head, now looking towards Le Anne and Harrison. Max also says “blast off” again at 50 seconds and 58 seconds.



clip. Finally, at second 62, Max says “blast off” again and raises his arms over his head; Mrs. Chambers replies, laughing “blast off... yeah I think you’re really cute.”

*Vignette analysis.* This vignette illustrates how the older children work together to “teach” their younger brother *how* to interact correctly with a interactive show that prompts them to complete an action. Furthermore, the interactions among the children and their mother provide a great example of co-viewing, but not in the traditional sense of the phrase. In this case, the older siblings are co-viewing with their younger brother and their mother, Mrs. Chambers, has been brought into the moment just as the older siblings are teaching their younger brother how to effectively watch and interact with this show. By imitating his older brother and sister and the show, Max successfully completes the “Blast-Off” sequence, although a bit prematurely. His anticipation to complete and say “blast off” reflects his enjoyment with his family around the interaction. He also seems to want positive attention, which works in his favor when Mrs. Chambers is brought into the interaction and gives him verbal and physical praise for his successful participation.

Gregory (2004) has shown that “in some family cultures, whole family teaching is seen as the norm and siblings play a crucial role in scaffolding the literacy development of younger siblings” (p. 4). Taken together, her results and the present findings suggest that parents may profit from an increased awareness of the benefits of sibling-based literacy interactions. Furthermore, Fisch (2004) asserts that:

“although non television research has shown that children can learn from older siblings (Gauvain, 2001), Haeffner and Wartella (1987) found that older siblings did not help younger siblings to learn from what they were watching because they were watching to be entertained not to teach.” (p. 124)

This last vignette is a unique example of the contrary situation: older siblings teaching a younger sibling to learn how to view the show and seeming to enjoy the experience. *Little Einsteins* asks viewers to physically and verbally use their own personal energy to help power the rocket. The older siblings are responding exactly as the show designers hoped when they created this content: They watch and follow along with the show, answering the questions and acting out the physical activities to help the rocket take off, ultimately allowing the characters to continue on their journey. It is unclear whether any of the children actually believe their actions are really making the rocket power up.

While Piaget (1920, 1930, 1974) might claim some of these young children truly believe they are powering the rocket and helping the characters (Huitt & Hummel, 2003), from my observations I believe that Le Anne and Harrison know this is only a show and it is not really occurring. We had numerous conversations about real and imaginary content over the course of the study (LTV02 field notes). However, it is unclear whether Max believes he and his brother and sister are actually helping Rocket take off, or whether he is simply playing along in order to enjoy the positive interaction with his family. It seems clear that Max realizes he gets a lot of positive attention from his older siblings and his mother when he says “blast off” and participates in the media response of his siblings; he seems to be enjoying himself as the media has offered him and his siblings something to do together.

**Case study III: socio-artifactual viewing.** Many children from the study enjoyed watching shows while holding or interacting with toys, dolls, or familiar objects related to the content of the show. These children extended their social interactions to inanimate objects and learned how to make connections between those objects and the content of the digital media they watched. While some previous studies found that children liked to play with toys while watching

television content (Weber, 2006) and children certainly have many connections to transmedia franchise materials (Dyson, 1997) there is very little literature exploring why children might be playing with corresponding toys as they view.

Therefore, in this case, I will examine three distinctive vignettes that explore how children enhance their social viewing experiences by bringing a related toy, prop, or doll related to the show into the viewing space with them. The three examples will explore: a very active child who exercises with his Elmo doll, a very young child who gathers all his dinosaurs together to watch other dinosaurs on screen, and a child who critically examines his toys along with a *YouTube* video of a person who reviews toys.

***Vignette #1: Andre exercises with his Elmo doll while watching an Elmo Elmocize exercise video.*** In this vignette from October 17, 2009, Andre prefers interacting with Elmo while watching an episode of *Elmocize*. Andre is standing in the middle of the room watching, singing, and dancing along to the show as he holds onto two of his own Elmo dolls. His father is seated on the couch parallel to him. The television is located directly in front of Andre across the room.

The vignette begins with the show characters, Elmo and Mr. Monty, talking to each other and introducing the show (Figure 4.22, lines 1-4). During this time Andre settles into his father's lap to begin watching the program.

Name	1 <sup>st</sup>	2	3	4	5	6	7	8	9	10 sec.
1. Mr.Monty:							hee hee hee			
2.						(turns to look at camera)		(waves)		
3. Elmo:			Oh, hello Mr. Monty					Hello		
4.			(Elmo talks to Mr. Monty in a park setting)							
5. Screen:										
6.										
7. InShow										
8. In Room										
9. Andre:										
10.			(sitting in Dad's lap on floor sucking on hand looking at screen)							
11. Dad:										
12.			(Andre sitting in lap on floor looking at screen)							

**Figure 4.22. Transcript of Andre Watching *Elmocize* (Seconds 1-10)**

When Elmo welcomes the viewers to the program (Figure 4.23, line 15), Andre runs over to his toy box, removes his own Elmo doll, returns to his father's lap, and then shifts his gaze back toward the screen (Figure 4.23, lines 23-27).

Name	11 <sup>th</sup>	12	13	14	15	16	17	18	19	20 sec.
13. Mr.Monty:										Looking around I see that everyone seems to be very happy
14.										(looks at Elmo and nods) (looks away then back again)
15. Elmo:										everybody welcome to Elmo's exercise tape yeah uh yeah
16.										Elmo is excited to see you
17. Screen:										(wider shot of children playing around where Elmo and Mr. Monty are talking)
18.										
19.										
20. InShow										
21. In Room										
22. Andre:										
23.										(turns gaze towards the floor)
24.										(moves body forward and stands up)
25.										(stands up and steps forward)
26.										(Leans down and picks up his own Elmo toy)
27.										(steps back and looks back up at screen)
28.										(looks at camera and steps back into Dad's lap)
29.										
30. Dad:										(sitting on the floor)



**Figure 4.23. Transcript of Andre Watching *Elmocize* (Seconds 11-20)**

As the program continues, with more dialog between Elmo and Mr. Monty, Andre continues to sit on his father's lap, shifting his attention from the screen to his Elmo doll and back to the screen again (Figure 4.24, lines 41-43). Mr. Monty asks Elmo how one gets “*really good at exercising,*” to which Elmo replies “*practice*” (Figure 4.25, lines 47-50). As Elmo is speaking on screen, Andre confers and agrees with his own Elmo doll. Andre continues looking at his own Elmo doll, eventually shifting his gaze back to the screen, then back to his own Elmo doll, and then smiling at his Elmo doll (Figure 4.25, lines 56-57).

Name	21 <sup>th</sup>	22	23	24	25	26	27	28	29	30 sec.
------	------------------	----	----	----	----	----	----	----	----	---------

- 31. **Mr.Monty:** Why is that Coach Elmo?
- 32. (shakes head and looks at Elmo)
- 33. **Elmo:** well Mr. Monty it's because exercise is fun and it makes you feel good and it makes you strong
- 34. (looks at Mr. Monty)
- 35. **Screen:**
- 36.



- 37.
- 38. *InShow*
- 39. *In Room*
- 40. **Andre:**
- 41. (sits back down in Dad's lap with Elmo doll) (returns gaze towards the show)
- 42. (looks down at Elmo doll)
- 43. (looks back at screen)
- 44.
- 45. **Dad:**
- 46. (sitting on floor with Andre in lap)

**Figure 4.24. Transcript of Andre Watching *Elmocize* (Seconds 21-30)**

Name	31 <sup>th</sup>	32	33	34	35	36	37	38	39	40 sec.
------	------------------	----	----	----	----	----	----	----	----	---------

- 47. **Mr.Monty:** well, let me argue, how does one get really good at exercising?
- 48. (raises hand) (looks at screen)
- 49. **Elmo:** practice
- 50.
- 51. **Screen:**



- 52.
- 53. *InShow*
- 54. *In Room*
- 55. **Andre:**
- 56. (looks back at Elmo doll, nods)
- 57. (looks back at screen) (smiles)
- 58. **Dad:**
- 59. (sitting on floor with Andre in lap)

**Figure 4.25. Transcript of Andre Watching *Elmocize* (Seconds 31-40)**

**Vignette analysis.** Andre's need to view programming with an object that related to the show demonstrates his consideration of his Elmo doll as a co-viewer. Upon seeing Elmo on screen, Andre immediately goes and gets his own Elmo doll so they can watch the show together. In addition to interacting with his father, Andre interacts socially with his Elmo doll as if Elmo were also a member of the family, or at least a "social partner" (Richert et al., 2011, p. 91) who is in the room with him as he watches a show that features Elmo.

It appears that Andre considers this toy as another viewer within the room to interact with and bring into the viewing space to enjoy the program. In his post-study interview, Andre's father told me that Andre follows this behavioral pattern nearly every time he watches a show for which he has a corresponding toy (LTV01 post study interview, June 2009). Andre's father also pointed out that Andre really likes to bring his toys into the viewing space and ensure they have the same viewing experience as him. He has conversations with his toys during the shows, tells them facts about the shows, and (along with the dolls) performs actions that show characters ask him to do. In short, he interacts with his dolls in the same way as he interacts with human co-viewers, although he must invent possible responses for his dolls to provide.

**Vignette #2: Max gathers his dinosaur toys to view with him during an episode of Go Diego Go featuring dinosaurs.** In this vignette from October 20, 2008, Harrison and Max are watching an episode of *Go Diego Go* called "*The Great Dinosaur Rescue*." This episode involves Diego going back in time to help a baby dinosaur find her lost family. When this episode begins, Max's mother asks him, "where are the dinosaurs?" Max responds by jumping out of his chair and pointing at a dinosaur on the screen.



**Figure 4.26. Picture of Max pointing out the dinosaurs in *Go Diego Go***

Max then runs over to a pile of toys on the floor and picks up a toy dinosaur; he keeps this toy dinosaur with him for the remainder of the show. Max seems very proud of the dinosaur and even shows it to the camera even though no one was behind the camera at the time.

Soon after Max shows his dinosaur to the camera, his mother comes and sits down with him, points at the screen, and says “is that a dinosaur?” Max nods yes, looks at the screen, looks back at the toy dinosaurs in his hand (he has since picked up a second toy dinosaur), and shows his mother the dinosaurs he is holding.



**Figure 4.27. Pictures of Mrs. Chambers asking Max where the dinosaurs are and Max showing her a dinosaur toy while watching a *Go Diego Go* episode about dinosaurs**

***Vignette analysis.*** Max knows what dinosaurs are and he knows that he is watching a show about dinosaurs and he demonstrated that knowledge to his mother. He selects the appropriate toys from a larger pile of toys (not all of which are dinosaurs) and continues viewing a show about dinosaurs while holding at least one toy dinosaur. Although this vignette was prompted by Max's mother when she asked Max where the dinosaurs were, Max responded by pointing out the dinosaurs in the show and showing her the dinosaurs in the room. He is keen to demonstrate that he knows what a dinosaur is, showing his toy dinosaur to the camera as well as his mother. As Max is relatively young in this vignette (16 months), he exhibits a relatively limited amount of social-artifactual interaction; still, he understands the connection between dinosaurs on television and dinosaur toys in his room, and he continues holding his toy dinosaurs while watching the show.

This phenomenon has been observed by other scholars and researchers as well and seems to be a fairly common practice children Max's age engage in age they view television. Weber (2004) explores this further in her study of children 6-24 months and their preference to play with objects while they watch television and movies. In her study she notes how she observed a situation similar to that of Max: "The combination of product-based television and thematically related toys is potentially stimulating to imitative imagination -- play representations where the children use the toy or animated figure in a similar manner as shown in the television program" (p. 18). This observation corresponds with the behavior Max exhibited when he ran to gather his own dinosaurs to view the dinosaurs he saw in the episode of *Go Diego Go*.

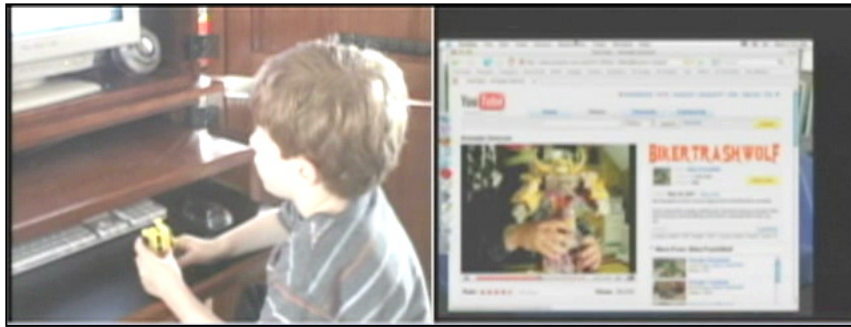
***Vignette #3: Owen critically reviews his own toy while viewing an online toy review.***

Owen was an avid *Transformers*, *Hot Wheels*, and *Lego Bionicles* collector. When he was not watching television shows in his basement, he was watching *YouTube* videos about toys on his

home computer in his living room. Owen viewed numerous toy reviews on *YouTube* to inform his decision-making processes when deciding which new toys to purchase for his collections. Whenever he watched toy review videos, he always had a similar toy with him that he could look at and hold as he watched each review on the screen. “Owen said he always tried to have a toy or object similar to the one being reviewed so he could more carefully inspect his own toys and see how they compared to those being reviewed” (LTV04 post study interview, May 2009).

In this vignette from July 23, 2008, Owen is sitting in his living room watching a *YouTube* toy review about a *Transformers* toy. The review was produced and narrated by a *YouTube* user known as liquidkool440 (aka Biker Trash Wolf).

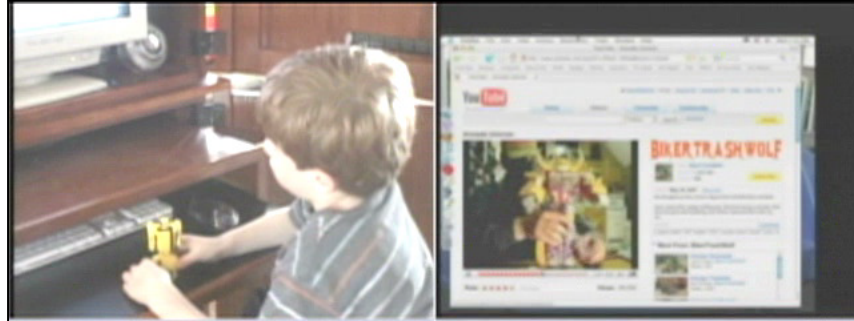
Name	1 <sup>st</sup>	2	3	4	5	6	7	8	9	10 sec.
1.	Biker T:	And that's him								
2.		(touches head of toy)								
3.			Rotate the other part of this plan it have right here?							
4.				Turn them around to expose the orange						
5.				(adjusts plate on transformer leg) (adjusts plate on other leg)						
6.								cuz I like the orange better than the purple		
7.								(moves toy forward)		
8.										
9.										
10.	InShow									
11.	In Room									
12.	Owen:	(holding transformer and watching video)							(moves transformer back to face video)	
13.			(turns his transformer to the right)							
14.										



**Figure 4.28. Transcript of Owen Watching a Biker Trash Transformers Toy Review on YouTube (Seconds 1-10)**

Name	11 <sup>st</sup>	12	13	14	15	16	17	18	19	20 sec.
------	------------------	----	----	----	----	----	----	----	----	---------

15. **Biker T:** Uh gimmicks on each of his lower legs he has a rocket  
 16. (lowers transformer arms to sides)(turns transformer to side and points at leg)  
 17.  
 18.



19. *InShow*  
 20. *In Room*  
 21. **Owen:** (touches upper part of transformer with thumb)

**Figure 4.29. Transcript of Owen Watching a Biker Trash Transformers Toy Review on YouTube (Seconds 1-10)**

As he watches the toy review, Owen has a much smaller but similar toy in his hand. When the reviewer manipulates the *Transformers* toy in a certain way, Owen imitates the gesture with his own version of the same toy. The reviewer never tells his viewers to follow along with their own toys, yet Owen does so anyway.

**Vignette analysis.** Owen’s interaction with his *Transformers* toy helps him connect with the content of the toy review in a direct way. By having a similar toy in his hands while watching the review, he is able to follow the content of the review in a much richer way than if he had watched the review without holding the toy. In this way, Owen demonstrates his development of “media literacy” (Muto, 2005), which is an important skill because “it helps children become critical viewers of advertising and programming on their own” (p. 37). Children’s interactions with and through media allow them to become more informed and positive consumers as they navigate through the content they view and develop their own media literacies.

Owen and his mother both talked about how much Owen enjoyed watching toy reviews. He considered such reviews useful because “you know what to expect” before buying something

(LTV04 post study interview, May 2009). Owen wanted to be a more informed consumer about toys he might like to buy in the future, and he used the review videos as instructional supports to make informed purchase decisions. Owen had gone so far as to make his own toy review video and publish it on *YouTube*. In his review, Owen imitated the style of the reviews he had seen: He shows others how to manipulate toys in specific ways so his viewers can decide whether they might want to buy the same toy. I discuss this example in detail in Chapter 5.

### **Summary and Discussion**

It is clear from the three cases and the subsequent vignettes presented in this chapter that children are learning and interacting in very interesting and unique ways around digital media within their homes, specifically when that viewing is self-mediated in a social space, or socially mediated with someone else or with an object. In this final section I summarize and discuss the case studies presented here in the context of my research question: *How do children learn from digital media through their interactions with the media and themselves, other people, and objects in order to make their viewing experiences social?*

**Case study I: self-mediated viewing in a social space.** The vignettes for this case illustrate that there are numerous ways to interpret what self-mediated viewing consists of. While Owen watched completely alone he created a social space in a sense by talking himself through content he found hard to watch and giving himself the encouragement he needed to watch it. He learned to do this after numerous hours watching by himself and not liking what he was watching (LTV03 parent interview, May 2009).

While Isabelle was not watching completely alone she taught herself another skill that many people, especially children, need to learn when trying to watch something in a crowded, noisy space, such as a family room with other people present. She stayed connected with what she was trying to watch by ignoring what was going on within the room and focusing on the

program. She contorted her body in order to not lose her connection and imitated the actions on screen to assess what she was learning. She also interacted with the program, something she rarely if ever did. So, in order for her to do this, the content must have been important enough to her, as her mother said she was practicing her skills naming her body parts for her to continue (LTV04 informal interview, July 2008).

Finally, Harrison was watching the nature program by himself as well but his mother was never very far away. He begins by looking very passive but after a few moments he is seen imitating the actions of the frog and a few moments later almost embodying the movements of the frog. He is listening to the program very carefully and following what the narrator is talking about. Then when his mother is back within earshot he breaks his connection with the screen for a moment to tell her about the frog's gestational process. In other words, he learns a new fact and then shares it with his mother to make sure "she learns it too," something he did on many occasions according to his mother (LTV01 interview, February 2009).

Therefore, even when some children are watching television by themselves they are still connecting socially with the content of the screen or other within the room. To do this they develop a variety of coping mechanisms and strategies to accomplish what they want to do. While some children want to help themselves, other just want to learn, while others wanted to share what they learned with others. Proponents of joint media engagement explain it as a concept of spontaneous experiences of people using media together and I believe these three examples, while unique, all illustrate how children can do this even when initially they are alone when they are watching but acting as their own co-viewer, trying to ignore others in the room with them but staying connected with the content on the screen, or articulating something they enjoy to share with someone in their life at a later time so they will know it too.

**Case study II: socially-mediated viewing.** The second case presented four vignettes describing how children who view and interact around media with others try to teach them something, or warn them about upcoming content, or otherwise interact with others in the room. The four vignettes follow four different situations where young people were gathered in a group around the media in their home. In two vignettes children had questions regarding the truthfulness of the content they were viewing and wanted clarification if it was valid from others. In the other two vignettes, a child is “helping” his other family members learn something new.

Owen views a short cartoon segment of a women holding an elephant and discusses the rather oddness of this with his friend. Owen is physically annoyed that PBS would show something like this to him as he is certain something is not correct about it and a women could not really carry an elephant. He discusses this seemingly impossible feat with his friend and tries to reconcile why the program is relaying misleading information to its viewers.

Furthermore, Hannah watches a segment of a *Bugs Bunny* cartoon and notices that Bugs is walking around on the moon without any sort of breathing apparatus. She seems quite certain that Bugs (or anyone for that matter) could not really walk around on the moon unsupported as they would not be able to breathe and it would be very cold. She questions her father who is looking at his laptop and is not initially paying attention to her. She asks a question and then answers her own questions, prompting her father to engage her more and allowing them to have an exchange about what one would need in order to walk around on the moon and why.

Both of these examples were sparked by short moments from television shows that were relaying information to children who believed the information to be inaccurate. In both cases the children noticed that something seemed not quite right, so they engaged the people around them to clarify whether they were actually correct.

The final two vignettes follow Harrison and his sister Le Anne as they are teaching and sharing with others something they learned. In vignette #3, Harrison views a video with his sister about underwater sea life. They have both seen the video several times and take the opportunity to engage the researcher who is observing them in the room to “help” her along through the program and prepare her for what’s to come. In vignette #4, Harrison and Le Anne encourage and then teach their younger brother how and when to respond appropriately to show prompts in an episode of *Little Einsteins*. As soon as the “Blast-Off” sequence begins they are both prompting their brother to interact with them and follow the prompts of the show characters within the program. The older children model how to do the sequence and Max imitates them and then does it again on his own.

**Case study III: socio-artifactual viewing.** The third case presented three vignettes of children’s interactions with toys and dolls as they viewed. Many children from the study enjoyed watching shows while holding or interacting with toys or familiar objects related to the content of the show. These children extended their social interactions to inanimate objects and learned how to make connections between those objects and the content of the digital media they watched. In essence, they helped make their viewing more social by including the toy or doll in the viewing space.

In the first vignette, Andre (who had just recently turned 2 years old) watches an exercise video about Elmo. Before he could exercise, he had to go and get both of his Elmo dolls to exercise with him. Andre’s father believed that Andre really thought Elmo was his friend and so when Andre wanted to do something fun he wanted to include his Elmo doll (LTV01 parent interview, May 2009). He interacted with it as if it were a real person exercising along with him and the Elmo on the TV in his living room. Similarly, the second vignette shows Max (who was

16 month old) as he gathered dinosaurs from his toy box to watch a *Go Diego Go* episode about dinosaurs with him.

The third vignette is a bit different in that Owen (age 5) views a video of a person talking about a *Transformers* toy while Owen is manipulating and inspecting his own, much smaller *Transformers* toy. What is unique about this example is that Owen not only runs and grabs his own *Transformers* toy to view a toy review on *YouTube* about toys, but he does it because he wants to make sure his toy is a “good” toy and a valid purchase. He critically scrutinizes his toy and the information provided by the toy reviewer and, ultimately, decides to make his own toy review to better connect with other children and help them make informed decisions about their toy purchases. Therefore, it seems that age plays a significant role in how children interact with toys and dolls when they watch programming.

In the next chapter, I examine how the in-room activities described in this chapter materialize in other areas of these children’s lives. Specifically, Chapter 5 will illuminate how children are learning from their interactions with television and other forms of digital media by tracking how they apply their interactions from one context to another.

## **Chapter 5: In World - Understanding What Children Learn from Interactions with Digital Media in Their Everyday Lives**

In this chapter I describe how children's digital media viewing activities are extensions of their broader behavioral patterns, particularly in terms of how they socialize and learn with others and connect with popular culture through pretend play or command and share information they have learned to create new knowledge for others as parts of their daily patterns of life. I conduct this discussion in the context of the following research question: *How do children's experiences with digital media lead them to extend that learning from digital media to other contexts of their everyday lives?*

I explore this question using two case studies of the social outcomes that can occur when children engage with digital media. The first case study describes how some children manifest the results of their engagement through their imaginative or critical interactions with and around show characters; the second case study describes how some children express their engagement in socially meaningful ways that reflect their desire to engage other people with the same types of media content they view.

I begin the chapter by providing an overview of literature relevant to my research question. I then briefly situate the reader in the daily lives and television-related beliefs of five families from the study. These families were specifically selected because they best illustrate the bridge from in-room learning interactions into in-world learning experiences. I continue with the case studies and associated vignettes before ending with a summary of the cases as they are relevant to the research question.

### **Discussion of Relevant Literature**

Children regard interacting with digital media as just another social activity, much as they regard playing with friends or speaking with their parents (Nespor, 1997; Stevens et al., 2007). They do not distinguish between watching television and talking with friends in the same way

that adults and much older children do. Many researchers believe that, as a child grows and continues to be a member of “kid” popular culture (and eventually adult culture), that child’s interactions with television and digital media influence his or her beliefs and attitudes about the world. Numerous researchers conclude that children’s attitudes and beliefs about television are related to the content of the shows they watch, and that as children grow up they learn to distinguish between what is real and what is imagined in the reality of the show (Fisch, 2004; Hawkins, 1977; Hodge & Tripp, 1986; Huston, Bickman, Lee, & Wright, 2006; Moeller, 1996; Richert, Robb, & Smith, 2011; Weber, 2004).

In her long-term ethnographic study of children’s narrative construction, Dyson (1997) explores how different media and media-related objects and characters are used in young people’s lives, and how they can take on or employ some of the characters’ identities when needed from the toys, shows, video games, and other media children interact with in their lives and “kid culture.” She specifically looks at how children spend “much intellectual and social energy trying to figure out how to position themselves among others in the world” (p. 12), and how many of the sources of this influence and position come from the media.

These thoughts are shaped by Bakhtin (1986) and his “dialogic perspectives on languages as a means by which individuals appropriate available societal signs, like spoken words, to situate themselves in their social worlds” (Dyson, 1996, p. 474). Dyson’s view is also shaped by the perspective of Vygotsky (1978), who believed that in order to learn and create in a social world one must first learn the meaning of these social signs from interactions with others to eventually “grow into the intellectual life of those around them” (Vygotsky, 1978, p. 88 as cited in Dyson, 1997, p. 17).

Therefore, children can learn from digital media viewing just as they can learn from playing with friends, speaking with adults, sitting in a classroom, etc. (Steven et al., 2007). Examples from this study confirm that children sometimes consider TV characters to be “real,” as with Isabelle’s utter dismay when her mother informs her that *Dora* is only a cartoon character and not a real person, or with Andre’s continued conversations with his *Elmo* doll while he was not watching *Elmo* on TV. These positions and beliefs seems to fall in line with the work of other findings (cf., Richert, Robb, & Smith, 2011).

Children develop their understanding of media and connections to specific show characters through their own individual media-related literacies at different stages in their development. Studies of infants show “children’s imitation of screen models reveal the extent to which children treat people on screen as social partners” (Richert et al., 2011, p. 85). However, as children get to pre-school age they must defuse for themselves what is real and what to believe from the characters they encounter (Harris, 2007). Viewed from this perspective, the “‘learning’ that takes place via television makes it one of the major players in the socialization process alongside more traditional socializing agents such as the family, school and peer groups” (Signorielli & Morgan 2001, p. 333 as cited in Kondo & Steemers, 2011). Additionally, preschool children’s learning from screen media is likely “influenced by their parasocial relationships with on-screen characters” (Richert et al., 2011).

Dyson (1997) also discusses how the “transmedia” franchise phenomenon influences young children’s lives. Transmedia storytelling is the practice of storytelling across multiple platforms of media in an attempt to create “‘entrypoints’ through which consumers can become immersed in a story franchise’s world” (Wikipedia, 2011). By establishing multiple points of entry through which children can become familiar with a particular storytelling franchise, the

creators of these media establish a level of familiarity with the franchise for their young audience members that resembles a form of literacy (Buckingham & Sefton-Green, 2004; Jenkins, 2006; Ito, 2005, 2010).

There are also positive outcomes associated with children's meshing of digital media and reality in their social worlds. For example, certain children in the study take on the position of a teacher within their homes as they seek to share their knowledge gained from digital media with other people, whether through personal interaction (as Harrison does by teaching his brother how to interact appropriately with *Little Einsteins*) or by broadcasting their own message using digital media (as Owen does with his *YouTube* critique of the *Transformers* toy video). These roles of teacher and producer reflect the children's desires to extend their interactions with the characters they see on screen to other areas of their lives.

With ever-increasing frequency, as children are exposed to digital media in nearly all aspects of their lives, they are also creating their own media content (cf., Ito, 2010; Schomburg et al., 2011). Other scholars have characterized this phenomenon in different ways, introducing concepts such as participatory cultures (cf., Jenkins et al., 2011, p. 7) and affinity spaces (Gee, 2004 as cited in Jenkins et al., p. 9) as ways to understand how children create "social connection[s] with one another" (Jenkins et al., 2011, p. 3). It is worth noting that at least one study subject attempted to build such connections with others who operate within a specific community of digital media users; I will discuss this example in more detail in the second case study.

### **The Impact of Digital Media on Children's Lives Away from Television**

In the following section I present 2 case studies through a series of vignette examples from 5 focal children within 5 families from the study. The analysis builds from a variety of data sources: field notes, informal and formal interviews, parent diaries, the video data corpus (59

specific viewing events and approximately 46 hours of video), and questionnaires. Within each vignette, I follow an activity and interactive moment that occurred during an in-room viewing experience. I then show how that moment manifests itself in other contexts of the children's lives, and consider what this manifestation might mean in terms of children's learning from digital media.

Finally, I conclude my analysis by discussing how youth and family engagement with and around digital media *does promote learning* in many forms, and by illustrating the connection between a moment from the room showing up in another context of a child's life. In so doing, I give evidence to support the proposition that subsequent transfer of learning from one context to another is possible. These results are of particular interest to people who develop educational television content and who are seeking research that addresses whether television is a harmful influence on children. This research also benefits educational psychologists, learning scientists, and parents who want to better understand how children learn in one context and use that knowledge in another, as well as how children build their social identity through their interactions with media and popular culture within their families as they grow and change over time.

**Case study I: pretend play, imagination, and shared viewing with show characters leads to sharing with, transforming oneself, and inquiring about one's position within the world.** In this case study I will explore how children learned and developed their own sense of television literacy and learning over time. I will conduct this exploration by examining the interactive moments of three children from the study and how their experiences with pretend play, imaginative play, and critical thinking around interactions with show characters and their families led them to extend their learning into other contexts of their lives.

**Vignette #1: Andre Jackson – a sharing adventurer.** Andre (age 2) enjoys viewing television shows while holding dolls or other representations of the show characters. Andre does this often enough that he named his pet fish after Dorothy from *Elmo's World* and uses maps from the local zoo to aid Dora when he is watching *Dora the Explorer*. Clearly Andre is combining his show viewing experiences with other aspects of his life and enjoys having certain show characters interact with him when he is at and away from the screen.

In this example from October 17, 2008, Andre is watching *Elmocize* with his father in their living room at their home. As line 11 second 2 illustrates in Figure 5.1, as soon as Andre's father asks Andre if he remembers "*this part,*" Andre's focus (line 8, second 2) shifts first to his father and then to the song and action on the screen (lines 9-10, second 7) as he gets off the floor and begins to move his body and dance to the beat of the music. As the song progresses during lines 13-20 seconds 11-20, Andre continues to move his body and dance with his Elmo dolls to the music from the show. By line 25 second 18, Andre's father has begun to sing along with the show as The Jackson Five's "Rockin' Robin" is played.

Next, as seconds 20-21 indicate, Andre dances and bounces with his Elmo dolls all around the room in front of the television to "Rockin' Robin" as his father continues to sing along with the song. As soon as the song ends, Andre stops moving and exits the viewing area and his father stops singing.

Name	1 <sup>st</sup>	2	3	4	5	6	7	8	9	10 sec.
------	-----------------	---	---	---	---	---	---	---	---	---------

1. Mr. Monty: come on over and exercise and meet some of the recent graduates of camp Elmo
2. Song: He rocks in the tree tops all day  
long hoppin  
(girl swinging on gymnastics bar)  
(girl releases bar and is caught by women)
- 3.
- 4.



- 5.
6. InShow
7. In Room
8. Andre: (holding Elmo dolls while sitting on the floor looking at view finder turns towards Dad and screen)
9. (stands up and begins to dance and hop around the room)
- 10.
11. Dad: hey Dre remember this part? Hee hee

**Figure 5.1: Andre, Elmo, and Dad Watch *Elmocize***

Name	11 <sup>nd</sup>	12	13	14	15	16	17	18	19	20 sec
------	------------------	----	----	----	----	----	----	----	----	--------

12. Mr. Monty:
13. Song: and a-boppin' and singing his song  
(girl on balance beam)
- 14.
15. All the little birdies on Jaybird Street
16. (boy crawls through tunnel toy)
17. Love to hear the robin go tweet tweet tweet
18. (baby crawls into toy) (boy touches toes on gymnastics bar)
- 19.
20. Rockin' robin, tweet tweet tweet
21. (babies play)
- 22.



- 23.
24. InShow
25. In Room
26. Andre: (continues to dance and bounce around room to music) (continues to dance and bounce around room to music)
27. Dad: Rocking Robin

**Figure 5.2: Andre, Elmo, and Dad Watch *Elmocize***

Name	21 <sup>nd</sup>	22	23	24	25	26	27	28	29	30 sec.
------	------------------	----	----	----	----	----	----	----	----	---------

28. Mr. Monty:

29. Song: Rockin' robin' tweet tweetly-tweet Blow rockin' robin

30. (babies and girl play with adults)

31. 'Cause I'm really gonna rock tonight

32. (girls hopping on balance beam)

33. Yeah yeah

34. (girl clapping hands)



35.

36. InShow

37. In Room

38. Andre: (continues to dance and bounce around room to music)(continues to dance and bounce around) (walks off camera)

39. Dad: oh Rocking Robin cause I'm really gonna rock it tonight

### Figure 5.3: Andre, Elmo, and Dad Watch *Elmocize*

While in the room, Andre uses his Elmo dolls to interact socially with the media he is watching. Andre first retrieves a small Elmo doll to play with while watching Elmo on TV; soon after, he gets a larger Elmo doll and continues dancing with his toy and moving his body to the music of the show and his father's singing.

When asked about this phenomenon of viewing shows while interacting with the appropriate objects, such as show character dolls like Elmo, Andre's father states that Andre's behavior extends to objects directly connected with the shows that he watches and he favors a connection to show characters even when he is not watching, as if extending his social relationships beyond that of just a viewer:

[00:00:48]: Researcher: So, I noticed on one of our visits that when [Andre] saw Elmo on the screen and then he picked up his own Elmo.

[00:01:06]: Mr. Jackson: Yeah, he, he does it for, for shows that he has the, the toy for.

So, you know, when, when you came over, he had the little Elmo doll and he actually has like a larger Elmo costume that he can't wear anymore but he still keeps it around. That

one he doesn't bring out so much because it's kind of buried underneath a lot of other stuffed animals but um, on the show with Elmo, Elmo has a little goldfish and so [Andre] has this kind of rubber goldfish that he's kinda started calling Dorothy, who's the name of the character on Elmo's show.... Often times, [Andre] does like to have characters present when he watches his favorite shows. He likes watching the shows *Go Diego Go!* and *Dora the Explorer*, and he has characters from these shows, including Diego, Baby Jaguar (not an officially licensed version, but a stuffed big cat that we call Baby Jaguar), Dora, and Boots. Diego also has *Sesame Street* characters Cookie Monster and Ernie, and he'll occasionally pick these up and place them into view when the characters appear on screen. [Andre] also has a lot of *Thomas the Tank Engine* figures, and he'll occasionally play with them as he watches episodes of that show. And we go to the zoo, maybe quite a bit is overstating it but every now and again and you know, we get the little zoo map and [Andre] is familiar with maps from the Dora show and so when we go to the zoo, I'll have him point out things that he wants to see on the map and then we'll take the map home and kinda use it during the show when they're talking about maps and I'll say, "Oh, Andre...go get your map from the zoo." That's kinda like the map that they use on Dora. (LTV01 Post Study Parent Interview, June 2009)

As Mr. Jackson explains, even at a young age Andre is mixing his real-world experiences with his in-room viewing experiences and vice versa. Through multiple points of entry from his learning ecology (Barron, 2006), he is learning how to extend his experiences with television show characters into other areas of his life, such as when he pretends his own fish is Dorothy from *Elmo's World* or when he uses the maps that he got at the zoo to aid Dora when he watches *Dora the Explorer*. As Mr. Jackson says:

I think Andre is just a really caring kid and I think he just enjoys seeing people that he cares about and I think, in terms of himself, uh, I think it's just fascinating for him to be able to somehow revisit things that he's done before. (LTV01 Post Study Parent Interview, June 2009)

Andre's experiences with digital media led him to desire more interaction with the characters he saw in the shows he watched. His use of toys from his favorite shows demonstrates this desire, but I find his willingness to take real-world objects and use them to help characters within television shows much more interesting in the context of my research question.

As I will discuss later in the context of the other children, Andre is eager to extend his learning from one context to another, and he does not differentiate between the real context of the zoo and the digitally mediated context of *Dora the Explorer*. In essence he makes no distinction between real people and characters on the show (e.g., Elmo) when he wants to help out. While Richert, Shawber, Hoffman, & Taylor (2009) contend that “fantasy characters might not be an effective strategy for teaching children information that is meant to be applied to the real world” (p. 41) in pre-school aged children, it seems that younger children like Andre (who went from 18 months to 24 months old over the course of the study) regard show characters as additional social partners in their lives whom they want to help and engage with just as they would their real-life friends and family members.

***Vignette #2: Isabelle Vazquez – a transmedia actress.*** Isabelle learned a variety of things from her interactions with the shows she watched throughout the study. She taught herself not to be scared of certain show content, she learned how to say some words in Spanish and use them correctly later on in another context, she developed a keen eye and recognized products she saw on television while she was out shopping, and she learned the theme song from her favorite show

and sung it to others. But most of all she learned how to embody the identity and outgoing traits from a show character to help her own shy personality blossom more socially.


This vignette is from February 19, 2009, and is approximately ten minutes into the taping for the day. Isabelle and her father are sitting on the couch in their living room watching an episode of *Hannah Montana*. Prior to this segment Isabelle's mother had just left to go to work and Isabelle had been upset because she did not want her mother to leave. To calm her down, Mr. Vasquez allowed her to watch *Hannah Montana* even though her mother did not like her watching the show because she felt Isabelle was getting a bit obsessed with *Hannah Montana*.

*Hannah Montana* is a children's program that follows the double life of a normal teen who attends school and hangs out with her friends, but who is also an international pop star. When Hannah is being a normal teen she is known as Miley and has brown, curly hair. However, when she is *Hannah Montana*, she changes her hair by wearing a blonde wig. Within the show, only her close friends and family know about her double life and her true identity (Wikipedia, 2010).

This vignette begins as Isabelle and her father watch the show. Isabelle is watching intently when she suddenly points at the screen and exclaims "*Look!*" when the *Hannah Montana* character appears on screen (line 9). Her father looks at Isabelle and asks "*who is that?*" (line 12), to which Isabelle replies "*Hannah Montana*" (line 9). Her father replies "*oh*" (line 12). Isabelle goes on to say that "*she always colors her hair*" (line 9) and her father asks her "*yeah, why?*" (line 12). Isabelle then points at the screen again and explains "*I don't know, I just know that Miley is Hannah Montana and Hannah Montana is Hannah Montana*" (lines 9-10, 20). Isabelle continues to point at the screen and laughs (lines 20-21). Her father then looks at her and smiles (line 23).

Name	1 <sup>st</sup>	2	3	4	5	6	7	8	9	10 sec.
1. Lilley:	I mean I love my hair	It's the best one I've ever	my lips are numb	I can't feel them						
2.	(putting on lip gloss)	(puts lip gloss back into purse)						(looks at bag)		
3. Miley:	free lip glosser?							I can feel your spit		
4.								(hold her jaw)		
										
5.										
6.										
7. InShow	_____									
8. In Room	_____									
9. Isabelle: Look	Hannah Montana		she always colors her hair		I don't know	I just know that Miley is				
10.						Hannah				
11.	(pointing at screen)					(pointing at screen)				
12. Dad:	who is that?	oh		yeah why						

**Figure 5.4: Isabelle and Mr. Vasquez watch *Hannah Montana***

Name	11th	12	13	14	15	16	17	18	19	20 sec.
13. Lilley:	umm my pillow					oh yeah				
14.	(takes a pillow out of her bag)									
15. Miley:			no you save that for the trip							
16.			(takes pillow)							
										
17.										
18. InShow	_____									
19. In Room	_____									
20. Isabelle: Montana and Hannah Montana is Hannah Montana					hee hee					
21.	(pointing at screen laughing)				(giggling looks at Dad)					
22. Dad:										
23.						(looks back at Isabelle smiles)				

**Figure 5.5: Isabelle and Mr. Vasquez Talk About *Hannah Montana***

This vignette is interesting for multiple reasons. First, Isabelle rarely initiates conversations while watching television. In this vignette, Isabelle proclaimed her excitement to her father when Hannah Montana appeared, initiating a conversation with her father who had never seen the show before. Next, Isabelle explained to her father her understanding about the

connection between Miley and Hannah Montana, and how Miley can change from one character into another. In this way, Isabelle is able to teach her father something about a show that she enjoyed watching.

As stated earlier, however, Isabelle's parents were concerned that she was a little too excited about the show. Isabelle was rarely allowed to watch this show; both of her parents said she had only seen a few episodes prior to this viewing event. However, Isabelle was well versed with the show's plot and characters. In a post-study interview, Isabelle stated that her favorite toy was Hannah Montana.

[0:01:33]: Researcher: So what's your favorite toy?

[0:01:36]: Isabelle: This Hannah Montana doll.

[0:01:38]: Researcher: Uh-huh, why do you like her so much?

[0:01:41]: Isabelle: 'Cause she can sing. And has some clothes and pretty. She is my favorite. This is what my favorite – that's my favorite piece of pants (points to Hannah's clothes). (LTV04 Child Interview, March 2009)

Moreover, her mother stated that Isabelle's viewing of *Hannah Montana* helped her recognize the Jonas Brothers' book on a trip to the store.

[0:04:27]: Researcher: Does Isabelle ever watch something and talk about it in another place? Or like you said, she sometimes uses Spanish words or something?

[0:04:34]: Mrs. Vasquez: Sometimes she does. Yeah, sometimes she'll tell me about a show, especially if she thinks it's funny or something. Then she tries to retell. But normally, she doesn't – sometimes once in a while she'll say something or we're somewhere else and she recognizes it, like we're at the store and she sees a book – like one day she saw Jonas Brothers. I had no idea who Jonas Brothers was.

And apparently it's some – a young boy group that sings, and I think she got introduced through them somehow through the *Hannah Montana* show. And when I've watched the *Hannah Montana* show with her I've never seen the Jonas Brothers. So when she recognized the book, I was surprised. (LTV04 Post-Study Parent Interview, March 2009)

Therefore, while Isabelle is rarely allowed to watch *Hannah Montana*, yet she has learned how to incorporate the character into her life and how to find related merchandise in other contexts. Furthermore, Isabelle rarely speaks or interacts with other people while she watches television; however, when *Hannah Montana* is on, she becomes much more engaged with the other people in the room and tries to teach them about the show.

Mrs. Vasquez states in a March, 2009 diary entry that, after watching *Hannah Montana* earlier in the afternoon, Isabelle sang the theme song in the family's living room (LTV04 Parent Journal, March 2009). Rather than simply singing the song, however, she turned their living room couch into a stage, brought in a fake microphone she created out of a paper towel roll, and tied a blanket around her neck and head to change her hair color so she could "look more like Hannah" and "change from Miley." She then jumped up on the "stage" (couch) and sang the entire theme song to her mother and several other children who were playing outside the window who heard her as the door was open.

Mrs. Vasquez was quite surprised by this performance for two reasons. First, she was impressed that Isabelle could remember all the words to the song, particularly because she had only watched *Hannah Montana* a few times. Second, Isabelle was usually quite shy and would not speak often in front of other people. The transition of the Miley character into Hannah Montana seemed to give her the courage to make a similar transformation in her living room and perform for an audience (LTV04 Parent Journal, March 2009). Mrs. Vasquez was surprised that

Isabelle had learned how to express a more social side of her personality through the theme music to *Hannah Montana*, be a more social person, and transform her usual shy self into a performer after her interactions with *Hannah Montana*.

In this case, Isabelle's experience with this television show led her to act differently away from the television. After seeing how the Hannah Montana character could serve as an outlet for such feelings and activities, Isabelle felt empowered to give "public" performance a try, surprising her mother in the process given her seemingly introverted personality. She also attempted the same activity with me as I was unpacking the study equipment on a separate visit to her house: She sang the entire *Hannah Montana* theme song to me while jumping on the couch (field notes March, 31, 2009).

The lesson that Isabelle drew from her viewing of the Hannah Montana character was that she could "perform" in her own life as a character and avoid criticism or embarrassment. This situation reflects the conclusions of Dyson (1997), as Isabelle mirrored the duality of Hannah Montana's personality and performed the theme song from *Hannah Montana* in front of others. This activity demonstrated Isabelle's interest in testing her limits in a way that she deemed safe: By pretending to dress up and act like Hannah Montana, Isabelle insulated herself from feeling self-conscious. She learned from her experience with the *Hannah Montana* television show that she could explore her personality in front of her family in a way that she had not previously done.

**Vignette #3: Hannah Dawson - a curious inquirer.** Hannah viewed many shows with her father throughout the study; most of these shows were cartoons such as *Bugs Bunny* or *Looney Tunes*. These types of cartoons feature zany antics that are entertaining for children, but that also have a lot of embedded cultural references that a five-year-old might not understand.

Yet, despite the seemingly light content of such shows, Hannah used her viewing time with her father, Mr. Dawson, to ask complex questions about life, his beliefs about religion, and the concept of God. In essence, their joint viewing of the content of this cartoon provided an entry point through which Hannah could ask critical questions and ultimately learn about her family's beliefs.

As the following excerpt from Mr. Dawson's home field notes and parent journal indicates, when Hannah watches an episode of *Looney Tunes* from Warner Brothers called "Don't Give Up the Sheep," she initiates a conversation about God and religion with her father. This episode follows Ralph Wolf (who resembles Wiley Coyote) and Sam the Sheepdog as they "punch the time clock and begin their workday, with Sam foiling Ralph's attempts to steal a flock of sheep. Among Ralph's stratagems: advancing the time clock to confuse Sam, and posing as Pan, the forest god" (Don't Give Up the Sheep, imdb, 2010).

Mr. Dawson reported that this discussion occurred as he was setting up the video equipment to film Hannah for the study; Hannah was sitting down to watch some cartoons and had just come inside after a "very active" play date with one of her friends. Unfortunately, this conversation was not recorded on film but Mr. Dawson thought it was important and wrote the following excerpt,

[We] were watching Warner Bros. cartoons...During the cartoon in which Wiley Coyote dresses up as Pan in order to purloin sheep, [Hannah] asked me who Pan was. I explained that he was a god in Greek mythology. She then asked what a god was. I cannot recall having ever talked to her directly about a God concept. I told her that the Greeks believed that certain creatures controlled the weather, and the ocean, etc.: They were like people, only much more magical. She responded that she did not believe in gods, because she had

never seen them before. I told her I agreed, and that she would make a good scientist. I also told her that there were still many people who believed in them. (LTV06 field notes/parent journal April 2008)

This viewing of a *Looney Tunes* cartoon sparked a much broader and richer conversation between Hannah and her father about God, religion, and their belief systems. One result of Hannah's inquiry was her father's decision to tell her, based on her lack of belief in the concept of God, that she would make a good scientist. Her father, a scientist, disclosed his (atheistic) beliefs to Hannah for the first time because of this conversation. It is unclear whether Hannah confirmed that she shared his belief because the context of the conversation revolved mainly around the pantheistic nature of Greek society rather than a more contemporary monotheistic attitude. However, Hannah agreed with her father that she "did not believe in gods because she had never seen them before."

Hannah's experience with this cartoon led her to ask deeper questions about the meaning of life and share a bonding moment with her father, even if she was unaware of the meaning of her question from his perspective. He intended his "good scientist" comment as a compliment, although it is unclear whether Hannah understood his comment as such. Regardless, her question about a cartoon led to a moment between her and her father in which Hannah discovered: a) a specific cultural understanding of the concept of a "god," b) her father has specific beliefs about a higher power, c) her father's beliefs are partly informed by his job as a scientist, and d) and her father is pleased that Hannah wants to make informed decisions about her own beliefs based on facts and not on faith.

**Case study II: social and critical viewing lead to collaborative teaching and knowledge producing.** In this case study I will explore the interactive moments of two children

from the study and how their experiences with learning, helping, and teaching, as well as being critical viewers, led them to extend their learning to their siblings or to others online in socially meaningful ways.

***Vignette #1: Harrison Chambers – a collaborative teacher.*** Harrison likes to use the media he interacts with as a tool to help others learn in his home. Harrison’s mother stated that television viewing helped him make learning connections away from the television set. In her journal and in an interview, Harrison’s mother stated that “about twice a month [Harrison] will randomly say something that he ‘learned’ from TV.” For example, “if we go to the zoo, he will say facts about the animals” (Dugan et al., 2010). Furthermore, in her parent journal she wrote that Harrison asked to watch shows such as *Reading Rainbow* because “they helped him learn to read” (Dugan et al., 2010). Finally, she said in a post-study interview that “we did get some Diego phonics readers...because he asked for them” (Dugan et al., 2010). She believed that when Harrison asked for a *Diego* book for Christmas, he thought it would help him learn to read. Therefore, digital media was an important part of Harrison’s life and he knew he was learning from it. He also used this knowledge that he learned from watching and interacting with these shows by sharing what he learned with others in his family as the next example emphasizes.

Rogoff (1990, p. 7) uses the idea of “apprenticeship” to illustrate how children learn: She suggests that children are apprentices in thinking: ‘...active in their efforts to learn from observing and participating with peers and more skilled members of their society, developing skills to handle culturally defined problems with available tools, and building from these givens to construct new solutions within the context of sociocultural activity.’ (Rogoff, 1990 as cited in Cairney, 1995, p. 34)

The next example illustrates the concept of apprenticeship in the context of Harrison watching *Little Einsteins* with his younger sister and brother.

Harrison and his sister Le Anne are quite familiar with the conventions of certain shows, the result of “years of viewing” according to their mother (March, 2009). For example, all *Little Einsteins* episodes contain at least one instance of the “Blast Off” sequence, during which viewers are encouraged to physically “assist” the show characters to launch a rocket (refer to Chapter 4 for a detailed transcript). As the children in the study watched this show over and over again, they became quite familiar with the narrative arc and general conventions of the show. Le Anne has watched this show since she was 3 years old so she has watched a lot of episodes by herself and with her brother Harrison over the years. I would consider them expert viewers of this show since they have both watched numerous episodes.

Given this familiarity, they were able to coach their younger brother Max (17 months) to share in the experience of responding to prompts from this television show. Harrison and Le Anne demonstrate their coaching skills by performing the “Blast Off” sequence from *Little Einsteins* for Max, who learns to participate appropriately as a result of their tutelage. After a few viewings of the show, Max was able to perform the sequence on his own. Their mother stated that Harrison and Leanne “*encourage [Max] to do actions or sing along*” to shows that elicit viewer responses and in other contexts. They also like to support Max “*and teach him new words. He’s their little prodigy. I think they are excited at the prospect of being able to share their knowledge with him*” (Dugan et al., 2010).

Just as Harrison taught his brother how to view television shows, he also took some of the knowledge he learned from his viewing of shows such as *Dora the Explorer*, *Little Einsteins*, and *Go Diego Go* and applied that knowledge to another context. For example, when Harrison’s

family went on a trip to Arizona to visit his grandparents, they all viewed the BBC's *Planet Earth* as a family. As they watched the show together, Harrison's mother said she was stunned when Harrison named the locations of certain waterfalls presented in that show and demonstrated knowledge about many of the caves, animals, and rock formations. She stated that Harrison said they "learned" about them from *Dora the Explorer*, *Go Diego Go*, and *Little Einsteins*: "This instance was unusual because it crossed the bridge between cartoons and non-fiction videos" (March 2009). She thought it was interesting that Harrison was discussing information he learned from an animated, fictional show while watching a documentary about nature (Dugan et al., 2010). This seems at odds with the summation of Richert et al. (2011) that "preschool children tend to assume that the information on television is not real... and do not apply information from fantasy stories to real-world stories" (p. 90). Harrison has shown he could separate the real information being presented in the show (e.g., animals, places) from the fantastical and imaginary playful entertainment (e.g., a flying rocket powered by children patting their laps) and apply the correct information and share it with others as appropriate.

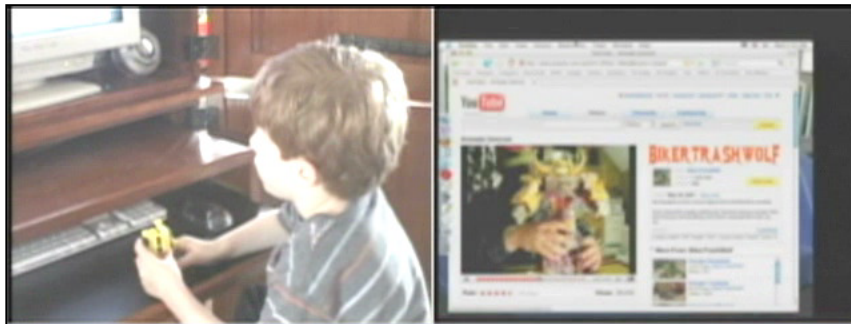
Harrison clearly enjoyed teaching others about the facts that he learned from the television shows that he watched, inculcating the same viewing behaviors in his younger brother, and surprising his mother and grandparents with the depth of his knowledge about the natural world. Much of this enjoyment was encouraged by the interactive shows that he watched on television and their style of involving viewers in specific activities. Harrison's experience with digital media, then, led him to apply the things he had learned from one television show to another, as well as from television shows to real-life situations (such as zoo visits). His experience also gave him the confidence to request specific tools for learning because he felt they would help him succeed at his goal of learning to read. In this way, Harrison found a way to

derive benefit from the transmedia franchising that occurs around shows such as *Go Diego Go*, which is encouraging given the potential for such franchising to make children a little too obsessed with specific show characters, as will be made clear in the next section.

**Vignette #2: Owen Barkley - a knowledge producer.** Owen progressed from a viewer to a producer of toy reviews after his interactions with toy reviews on YouTube. He said he found these review videos interesting because he wanted to learn about specific toys and their differences to aid his decision-making process for purchasing new toys. However, he stated on several occasions after viewing certain reviews that he did not think they were very good.

In this vignette from July 23, 2008, Owen is sitting at his computer in his living room watching another user's YouTube toy review about a *Transformers* toy (see Figure 5.5 below). During the study, Owen often used this computer to watch YouTube toy reviews about *Transformers* toys.

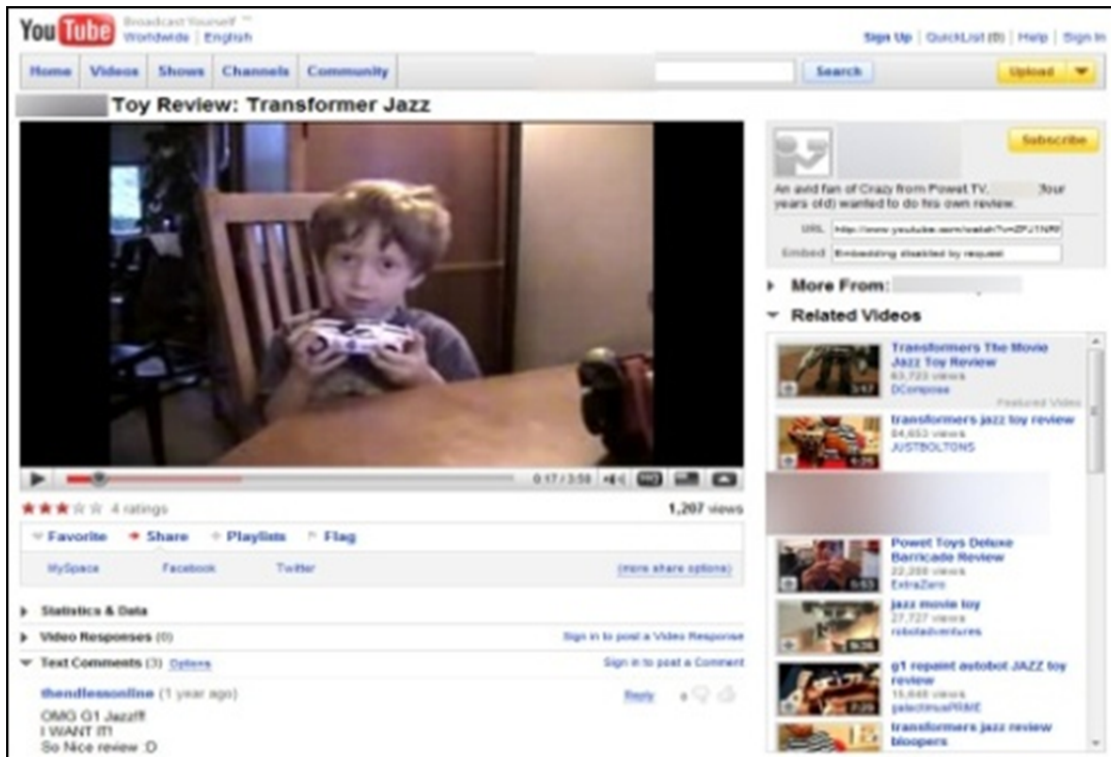
Name	1 <sup>st</sup>	2	3	4	5	6	7	8	9	10 sec
22.	Biker T:	And that's him								
23.		(touches head of toy)								
24.			Rotate the other part of this plan it have right here?							
25.				Turn them around to expose the orange						
26.				(adjusts plate on transformer leg)	(adjusts plate on other leg)					
27.					cuz I like the orange better than the purple					
28.					(moves toy forward)					
29.										
30.										
31.	InShow									
32.	In Room									
33.	Owen:	(holding transformer and watching video)						(moves transformer back to face video)		
34.			(turns his transformer to the right)							
35.										



**Figure 5.6: Owen Watches a YouTube Video with His *Transformers* Toy**

As the video narrator discussed the toy he was reviewing, Owen (line 8) manipulated his own similar but smaller toy along with the narrator's description. He said he considered these reviews useful because "you know what to expect" before buying something (May 2009), which could indicate that Owen was making a judgment about whether a given toy was different enough from his current toys to warrant a purchase (Dugan et al., 2010).

This vignette reflects the typical behavior that Owen exhibited while watching toy reviews, as well as the content of the videos that his preferred reviewer would create. However, as Owen watched more toy reviews, he grew dissatisfied with their quality and (according to his mother) wanted to help other kids avoid making poor purchase decisions. Therefore, Owen "stated that he wanted to create a review that would give viewers a more honest assessment of the product they were researching compared to some of the other reviews" (Dugan et al., 2010). So, Owen produced his own toy review of Jazz, a specific *Transformers* toy; a screenshot of this video is included below as Figure 5.6.



**Figure 5.7: Owen's Review of the Jazz Transformers Toy on YouTube**

Owen's toy review video is interesting because it reflects his desire to share his knowledge not just with a friend or a family member, but with an entire community of people, especially other children, all of whom enjoy *Transformers* toys. By making and publishing this video, Owen indicated his desire to engage with this broader community and add superior content to help others make informed purchase decisions. The three comments left for this video reflect the community's acceptance of Owen's review, and encouraged him to continue making videos.

Owen's experiences with digital media taught him that not all toy review videos serve the purpose for which they were intended. After watching adults create their own toy reviews, he taught himself to use the same medium so he could extend his own learning about a specific toy to others who might want to buy that toy. There is an interesting feedback loop at play here, whereby the digital media sparks creativity in Owen's mind, and he then uses the same medium

to improve on the content of others. The comments left for his video and the fact that the video received over 1,000 views should (hopefully) reinforce his desire to educate others about the toys he likes.

According to the Pew Internet & American Life project (Lenhardt & Madden, 2005 as cited in Jenkins et al., 2011, p. 3) “more than one-half of all teens have created media content, and roughly one third of teens who use the Internet have shared content they produced,” an idea Jenkins et al. (2011) describe as “participatory cultures.” A participatory culture is:

a culture with relatively low barriers to artistic expression and civic engagement, strong support for creating and sharing one’s creations, and some type of informal mentorship whereby what is known by the most experienced is passed along to novices. A participatory culture is also one in which members believe their contributions matter, and feel some degree of social connection with one another (at the least they care what other people think about what they have created).

Jenkins and his colleagues (2011) believe children can do this through their affiliations with media, expressions of their own creativity by making something new, collaborative problem solving by working with others, and circulations or sharing their creative ideas with others. This seems to be exactly what Owen is trying to do. What is impactful is that Owen is only 5 years old and not a teenager.

### **Discussion and Conclusion**

It is evident through the two case studies presented here that children are indeed learning from their interactions with digital media and are able to transfer that learning into other contexts of their everyday lives. In this chapter I discussed how digital media influenced how children perceive their reality and develop their social identity. I explored this point using two different case studies of the social outcomes that can occur when children engage with digital media in

hopes of shedding more light on how and what children are learning through their interaction with and around the media and how this learning manifests itself from one context to another within their everyday lives and activities.

The first case study described children's learning from pretend play, imaginative play, and critical thinking from their interactions with television show characters. Three vignettes illustrated three very different ways that children extend learning with and around television show characters and their families into other aspects of their everyday lives. Andre believed show characters were no different from his own family members and friends and treated them as such, trying to help them through their adventures on screen as they helped and accompanied him throughout his day. Isabelle took on the character traits of Miley Cyrus' alter-ego Hannah Montana and made a similar transformation by acting out her own alter-ego version of herself. Hannah took the opportunity to question something she saw in a cartoon and ended up having a profound conversation with her father that led to him explaining his beliefs to her and her discussing what she wanted to believe for herself. In these examples the children's interactions with television served as a powerful force that not only allowed them to broaden their social identity but learn from their experiences, develop their own forms of media literacy, and apply the knowledge they gained from watching and learning from show characters in other contexts of their lives.

The second case study followed two children's interactions with digital media as they extended the knowledge they learned from the shows and video they viewed to others in a socially meaningful way. The first vignette detailed Harrison's various engagements with his family around and as a result of the media he viewed. Over time Harrison had absorbed a lot of knowledge presented by the shows he watched, as well as how to view interactive shows such as

*Little Einsteins*. He shared this knowledge with his mother and grandparents after watching a nature documentary, as well as with his younger brother when he taught him how to interact appropriately with *Little Einsteins*. He seemed to enjoy positioning himself as a teacher within his family and he was praised for it by his parents and grandparents.

The second vignette described Owen's response to the *Transformers* toy reviews he watched on YouTube. He became skeptical of many of the toy review videos because adults had created them. Owen felt that children were the primary audience for the toys and should be represented in the toy review videos. Therefore, he took it upon himself to create his own toy review for other kids to watch so they could make more informed decisions about their toy purchases. In essence, Owen extended his experiences as a critical viewer with toy reviews into a new role as a producer of knowledge that he could share with others by creating his own toy review video.

This chapter describes the value that the children drew from their digital media interactions. Their experiences with digital media led them to extend their learning from one television show to another, or from specific shows to real-world situations, or from real-world dilemmas to the production of their own videos. These children became experienced viewers of television shows and, in certain cases, helped others become experienced viewers as well. They educated adults about the natural world and broke out of their introverted personalities, if only briefly. They even requested specific learning tools based on their positive interactions with specific shows. Thus, their interactions with and around the media changed how they were developing their own personalities, identities, and beliefs.

In many cases, even when the parents were engaged in their children's lives, they expressed surprise at the depth of their children's demonstrated knowledge or the willingness of

their children to experiment with different roles as performers or reviewers of toys. Only Andre's father seemed entirely aware of his son's interactions with digital media and the resulting affect on Andre's behavior away from such media. These observed behaviors are at odds with the conclusions that television viewing hinders the development of children's language learning skills, personalities, and the like. While it is doubtful that all children would ask questions about God after watching a *Looney Tunes* cartoon, my intent in this chapter is to problematize the belief that children are not learning from digital media. I believe these examples make it clear that the children in this study are learning from digital media, and are also extending that learning into other situations in their lives.

## **Chapter 6: Discussion and Conclusion**

In concluding this dissertation I begin by enumerating the limitations of the study and the results reported herein. Given those caveats about the research, I then reflect on what and how children learn from digital media in the words of the parents in the study. Next, I summarize the analysis and findings presented in chapters 3, 4, and 5 in terms of the research questions. I conclude with a discussion and set of recommendations that includes ideas for future research into children's learning from interactions with and around digital media and for the design of future interactive television shows and technology for children.

### **Limitations of the Study and Reported Results**

While this project was quite successful in illustrating learning through children's interactions with digital media, there are some notable limitations that must be addressed. Interestingly, however, many of the limitations to this project also serve to strengthen my findings and conclusions. While the use of a qualitative, naturalistic study could be considered limiting in that I could not control what the children watched in their own homes, I believe that conducting this sort of observational work lends my findings more legitimacy because they are based on actual children doing what they do in the wild and are not based on activities constructed and controlled within a laboratory. My viewing categorization would have been challenging to develop, for example, had Andre been watching television in a research lab without his Elmo dolls close at hand.

Because this was a qualitative study, a small, nonrandom sample of people was used. Therefore, I am unable to draw quantifiable results regarding children in general. However, while the children in this study were selected because their parents agreed to allow researchers to come into their homes several days a week for almost a year, the participants are remarkably diverse. In total, there were 16 children (8 boys and 8 girls) in this study from 9 families; the

children's ages range from 12 months to 6 years old and the families themselves represent a variety of racial, ethnic, and socioeconomic backgrounds. I feel that this diversity helped enrich my findings and conclusions more so than would have occurred had the study included only suburban, middle-class, Caucasian children, for example. However, future studies should focus on finding a larger population of families from different cultures and educational backgrounds, as all of the family members were born in the United States, had at least some college education, and were comprised of two-parent, male-female family units.

Another limitation involves the times at which data were collected: Data collection was initially limited to those times when parents allowed researchers to enter their homes. While we tried to observe the children at times when they would most likely have been watching television or interacting with digital media, no data were collected in the early mornings or late in the evenings when many families said they watched television together. We resolved this concern later in the life of the study, when the children's parents were given video recording equipment or a computer program called *Screenium* and could turn it on at will. But the data collected at the beginning of the study is limited. However, the parents were given diaries to record and comment on what happened during their child's viewing experiences with digital media when no researchers were present. These modifications led to richer results, particularly in terms of understanding the parents' attitudes about their children's exposure to digital media, as described earlier in this chapter.

Finally, as stated in Chapter 3, the prompt analysis data were not obtained using quantitative methods and cannot be used to draw conclusions about children's exposure to prompts or the successful design of television shows. Instead, I presented the results of this analysis as a way to provide suggestions and recommendations to interested parties who can then

run their own studies and develop more rigorous findings. With these limitations in mind, I now turn to a discussion of how the parents in the study felt about their children's engagement with digital media.

### **Parents' Beliefs about Digital Media**

In this section I describe, in their own words as much as possible, the beliefs of the parents from the present study about digital media and its influence on their children.

**The Jackson family.** The father in the Jackson family has very specific beliefs about his son Andre's interactions with digital media. Mr. Jackson believes that there is a lot of misleading information about whether children who are Andre's age (18 to 24 months old during the study) should watch television or use digital media in their homes:

I'm familiar with some studies that talk about the amount of television watching and the impact on vocabulary and things of that nature and then just going through this whole grad school thing, it's made me be more of a questioner about those studies and the methods and so, you know, just being part of the [research center] and you know, doing the work with [my advisor], you know, there is a difference between studies that are done in the lab and then actually, you know, getting out and seeing what people actually do and I just have a lot of questions about, you know, what sort of shows that they have on and so I guess I just – in some ways, I take those studies with a grain of salt because I – I guess I just don't – I would know myself just having a lot of questions about the methods that they went through and the conclusions that they're trying to draw. And I also wonder if you know, what sort of beliefs that they're going into the study with and you know, what sort of things that – what sort of preconceived notions that they have about television not being good. And there's a wide variety of television programming, too. I don't know. I'm just – I'm skeptical but I'll also take a look at it. So I – I'm not one of

these folks that says, ‘Oh, research says that television is bad.’ I just have a lot of questions about that research. And it just makes me wonder, well, you know, what kind of shows were they using in the study. You know, were they at the children’s home or did they bring the children in to do this? And just having a child, I know there’s a lot of factors that can play into you know, how responsive they are, you know, were the studies being conducted at a time that was close to naptime? Were they hungry and – I just think there’s a lot of confounding, potentially confounding factors that just makes me wonder if those are really seriously considered. (LTV01 post study interview, 2009)

Mr. Jackson bases his thinking on this topic on his education and experience as a researcher who also does work with children. He does not believe that all the warnings about children watching television must be followed; moreover, he believes those reports must be taken with a “grain of salt” and he does what he thinks is best for his son.

Mr. Jackson says that, when Andre is watching television, he tries to be present and watch as often as possible; however, he sometimes uses the television as a babysitter so he can “get things done around the house” (LTV01 post study interview, 2009). Additionally, he does not have any specific rules as to what Andre can or cannot watch, but tries to make informed decisions and stick to educational shows designed for preschool-aged children (LTV01 post study interview, 2009).

Mr. Jackson encourages his son to interact with all kinds of digital media. He lets his son play with applications on his iPhone and on his wife’s iPhone, he connects with his grandparents on the east coast via Skype on their home computer, and he allows Andre to make and record videos on his iPhone and watch them via his own YouTube page whenever he wants. He feels it is very important that Andre learn how to use these other sources of digital media and technology

at an early age so he will know how to use them as he grows up, and so he will be better prepared for new technologies as they come about in the future (LTV01 post study interview, 2009).

Finally, Mr. Jackson says that Andre “loves” to bring his toys with him when they leave the house, and that he constantly asks for toys and products he sees in television shows and commercials. While Mr. Jackson tries his best to limit Andre’s exposure to marketing campaigns, he knows it is inevitable that he will see them. Ultimately, Mr. Jackson is glad that Andre seems to lean more toward an interest in educational toys and products related to the shows he enjoys, and that Andre can connect with the characters and toys that he loves even when he is away from the screen (LTV01 post study interview, 2009).

**The Chambers family.** Mrs. Chambers has a very specific plan for her children, Harrison (age 3-4 years), Le Anne (age 5-6 years), and Max (age 12-18 months) and their ability to interact with media. While she says she mainly uses the television “as a babysitter,” she also says that she really enjoys the times when she can “sit down and watch with my kids” because she feels this time is “much more rewarding for them” (LTV02 post study questionnaire, 2009). She feels that when her children watch television alone:

[that is a] pretty wasteful way to spend time – it’s not very productive or healthy. But it is a nice tool when a parent needs to get something done or needs some down time. And I think some shows (like nature shows) can be educational. (LTV02 post study questionnaire, 2009)

She strongly believes media reports from the American Pediatrics Association about the dangers that television can have on children. She said she had heard about reports that stated “children who watch more than two hours of TV per day can be more violent and have trouble

concentrating” and that it “makes sense to me.” The combination of this belief, the information she gathered from her friends and family, her religious beliefs, and the online reports she read, she created very strict rules for her children’s viewing habits. She says she deliberately keeps Max away from the television so he is not watching more than two hours a day, and that all the children:

cannot watch shows with inappropriate humor, bad language, or where characters do or say things that I wouldn’t want my children to do or say. The TV stars have to be role models for my kids or they can’t watch it. I don’t have a set way of setting limits. If they ask, it’s completely up to me whether or not they get to watch a show and I have no problem telling them no. (LTV02 post study questionnaire, 2009)

When asked how often the children talk about or act out things they have seen on TV or in movies when they are not watching, Mrs. Chambers said:

About twice a month [Harrison] will randomly say something that he learned from TV. But we are watching less TV now that I’m not working, so this doesn’t happen as often anymore. If we go to the zoo, he will say facts about the animals. [Max] will see a picture of Thomas or a Thomas toy when we are at the store and he will immediately connect it to the show by exclaiming ‘Thomas.’ Furthermore, the boys also ask about products or toys related to TV or movies when they are out. Mrs. Chambers says fruit snacks are the first thing that come to mind. And Macaroni noodles. And Campbell’s soup. Anything that has a character is more appealing to them. After all, food and TV is a fun combination when you are a kid!” (LTV02 post study questionnaire, 2009)

Therefore, while Mrs. Chambers does see potential benefits stemming from her children’s viewing of television and DVDs (e.g., they are learning, she can get things done around the

house), she believes the widely-reported research reports that watching too much television might be detrimental to her children. She exerts her authority as a parent by restricting her children to limited television viewing, and by letting them watch only what she deems appropriate for them to view. She also specifically limited their interactions with other forms of digital media (e.g., 15-minute segments of time playing video games on their computer). She did not report any use of smart phones or digital toys among her children.

**The Barkley family.** Mrs. Barley also has a specific plan for the television content that Owen (age 5-6 years) and his younger sister Mia (age 1-2 years) are allowed to view. She relies on PBS programming to make sure Owen is watching programs she wants him to watch:

[Owen] only watches PBS when he is alone, so I don't worry about the content. I do keep an eye on him when he watches YouTube because anything can happen. My husband watches with him when he watches The Discovery Channel. I wouldn't want to let my kids watch anything they want on TV. I'll have to think of a new plan when [Owen] learns to change the channel! (LTV03 parent questionnaire, 2009)

Furthermore, Mrs. Barkley has a specific process for deciding what shows Owen is allowed to watch because she has had some problems in the past.

I don't like commercials, any show that is overly violent or 'mean' (ex: Simpsons, Sponge Bob), or shows that have a huge product lines to buy. That said, I do let him occasionally watch toy commercials on YouTube and Bionicle movies where the characters fight each other. I took him completely off that about a year ago (for about 6 months) when I felt like he was being too aggressive in pre-school, but he seems to be over that phase now. (LTV03 parent questionnaire, 2009)

Mrs. Barkley says that she lets Owen and Mia watch “about 1.5 hours a day, before and after school.” Additionally, every few nights Owen is allowed to watch “another hour with his Dad before bed. I think this is good for me (I can do grown-up stuff while they watch TV), and they both enjoy it. I think it helps [Owen] relax after a busy day” (LTV03 parent questionnaire, 2009). When prompted to discuss what she has read or heard about television, Mrs. Barkley said:

I’ve read about the studies linking ADD and violence with TV watching. I’ve also heard it’s not good for their imagination or their health to watch too much TV. I don’t think the ADD link is very conclusive (cause and effect?), but the rest I worry about, that is why I limit the amount and choose the shows that my kids watch, and why I removed some programs [Owen] was watching when I felt it may be a contributing factor to some aggressive behavior. But I also don’t want to stress too much about letting them watch TV because it’s fun for them and it gives me a break (LTV03 parent questionnaire, 2009).

Finally, Mrs. Barkley said that Owen was, and still is, extremely influenced by commercials and products he sees on television and in *YouTube* videos. In the past he was quite obsessed with viewing or seeing something in a commercial and then immediately wanting it. He would ask for the product and complain or get upset if he did not receive it. Therefore, over time, Mrs. Barkley has tried to limit Owen’s exposure to media that has a lot of commercial advertising, although he still watches some of this content from time to time. She says, “when I let him watch *YouTube* he will sometimes ask for Bionicles or if he watches commercials he may ask to buy an item, but I’ve mostly cut him off from that” (LTV03 parent questionnaire, 2009).

Therefore, while Mrs. Barkley believed that Owen should have limited exposure to television, she came to this conclusion because she felt some of the shows Owen was watching

were disrupting his behavior. She also informed herself by reading certain studies about children's television viewing, and ultimately came to a decision about Owen's media watching based on these multiple sources of input.

**The Vasquez family.** Mrs. Vasquez had some very specific opinions about television and what her children Isabelle (age 3-4 years) and Roman (age 1-2 years) should or should not watch. When asked what she thought about television, she said she had read:

there's a big thing about kids not watching TV before age two. And it's been a while since I read it. It was when she was younger. I can't really remember why. I'm assuming it has something to do with their brains, where they're at in development. But I don't think that I'm harming my son with the exposure he has now, which he's been watching for – it's been a few months now that he's been interested in watching with [Isabelle]. (LTV04 post study interview, 2009)

Furthermore, she specifically tried to limit Isabelle's viewing of Disney movies. She says:

We stayed away from them because uh, at one point, when she was three, you know, she's got cousins that watch a lot of Disney movies. They know all the characters, you know, all, they've been to Disneyland every year, you know. And she hasn't so we kinda thought, 'Oh, maybe we should put a Disney movie on for her,' and I'm trying to remember which one we put on for her and it was in – oh, it was The Lion King and she started crying and so we turned it off and then she still wanted to watch it so then we, we just forwarded on the scary parts for her and then eventually she got to the point where she wanted to see everything. So we let her see everything and she got through it.

(LTV04 post study interview, 2009)

Her daughter had trouble viewing initially because she has difficulty watching anything she thinks is scary and “there are some things that are scary, you know, with the dad dying and all that stuff, you know?” She goes on to say that:

I never think about that there are those drama things in there. As an adult, I don't think much of it but when you're introducing these movies to a child at a young age, they – you realize how much more dramatic they are. And um, so, so I still kinda feel weary about showing her. She watched Pinocchio also very recently and she – that was very scary for her, too, so we don't show that movie anymore. I think she needs to be a few more years older to watch that. So you never know. (LTV04 post study interview, 2009)

I uh, kind of gear towards PBS shows...I just like their focus and their um, takes to children...I was staying away from Disney but I found that she was getting drawn to that direction and the only reason I guess I stayed away from Disney was to stay away from some of the shows that I don't like which are more cartoony, quick, fast moving, you know, SpongeBob and other ones that I can't even meant- I don't even know the names of them but I – when I see them, I don't like it, you know? (LTV04 post study interview, 2009)

However, Mrs. Vasquez says she cannot always limit what her daughter sees:

Sometimes, she gets introduced to [the shows I don't like] just because um, my nephew lives with us who's 14. He doesn't really have any TV privileges but when he does, just 'cause his grades are bad, but once in a while, if he is up earlier on a Saturday or Sunday morning and there's – he um, the TVs on, he sometimes switches the shows to something he wants, tries to get her to watch something he wants to watch but we usually, you know, which is usually SpongeBob or something like that. So, um, I've never really sat

down and watched SpongeBob, so I, I guess when I haven't watched a show, I don't feel comfortable having her watching it 'til I really know what it is. (LTV04 post study interview, 2009)

Therefore, Mrs. Vasquez intentionally limited what Isabelle and Roman could watch because she was worried some content might scare them, even though the shows were created for young children. She also limited their viewing to PBS programming because she felt Disney programming was too cartoonish.

Finally, Mrs. Vasquez says that while she tries hard to limit Isabelle's exposure to products and advertisements she cannot always shield her. Isabelle spends a lot of time with other family members and during this time she is exposed to numerous commercials, products, and toys that her cousins own. Mrs. Vasquez said that after a long visit with her cousin, Isabelle became completely transfixed with *Hannah Montana*. Her cousin gave her a Hannah Montana doll and Isabelle had since rarely let the doll out of her sight, proclaiming it her favorite toy. Mrs. Vasquez also said that on numerous occasions when they had been at stores such as Target or Wal-Mart, Isabelle had seen toys and products she wanted that related to shows she had seen on television (LTV04 post study interview, 2009).

**The Dawson family.** Mr. Dawson was a lot more relaxed about Hannah (age 5 years) watching television and interacting with digital media than most of the other parents in the study. He felt she was a pretty mature child for her age and was "good at self monitoring" her viewing. He went on to say "I don't worry about it." With Hannah, he watches anything from "PG movies I'm unfamiliar with" to movies Hannah asks to see on "Netflix," and if she does not like something she will just tell him to turn it off or she will do something else.

Mr. Dawson and his wife also do not have any strict rules that limit the content or duration of Hannah's media viewing. Instead, they take a more pragmatic approach: The family does not have cable television so Hannah is limited to mainly watching shows she enjoys on DVD or ordered from Netflix on the recommendations of her mother or friends.

Furthermore, Mr. Dawson says he has read a lot about:

studies that correlate watching TV with ADHD levels. My general sense was that the ranges of viewing was so broad (up to 10 hours a day?) as to be useless. The potential for bidirectional actions (are children with ADHD more likely to want to watch TV more?) Also, pediatricians recommend that children under 2 not watch TV at all. This strikes me as fairly solid advice, but perhaps unreasonable. I didn't have a lot of worries about her watching TV at those ages. (LTV06 parent questionnaire, 2009)

Finally, Mr. Dawson says that Hannah really enjoys "playacting" and imitating actions she sees in the shows she likes. Furthermore, while she does not get a lot of exposure to commercials, he doesn't like the *American Girl* movies as these movies have a lot of "products placements in the movies" that Hannah "talks a lot about." She frequently asks for the dolls and clothing associated with these movies (LTV06 parent questionnaire, 2009).

**Summary.** The parents of the children in this study had varying beliefs about how and what their children should and should not watch, and how they should interact with digital media in their homes. While some parents had much more conservative views about what was best for their children based on social and religious beliefs, as well as on media and research reports, others limited their children's viewing based on content they felt was appropriate or based on their own observations of their children's behavior as a result of watching certain shows.

All of the parents mentioned that they mainly used the time their children watched television as a digital “baby sitter,” but seemed embarrassed to admit it. Further, all of the parents believed that their children had learned from their interactions with the television shows they viewed or the digital media they interacted with, and they felt strongly that watching with their children allowed them to learn and grow, opening up new avenues to explore based on what they had seen and experienced together. All of the parents enjoyed this benefit of watching digital media with their children.

### **Discussion and Recommendations for Future Work**

My goal in this dissertation was to develop a richer understanding of what and how children are learning from digital media. The collective results of my analyses reflect the need for a more nuanced perspective on children’s consumption of digital media. As the previous chapters make clear, the children in this study are indeed learning from their interactions with digital media. In the next section I revisit my research questions and summarize my findings from each analysis chapter.

**On the Unique value and design of educational television shows.** Certain educational shows are designed to encourage “interactivity” by eliciting viewer responses in certain situations. The characters in television shows such as *Go Diego Go*, *Little Einsteins*, *Dora the Explorer*, and *Super Why* frequently prompt their young viewers to answer simple questions or perform actions to “assist” them as they complete a task, solve a puzzle, or resolve a dilemma. In Chapter 3 I analyzed how these shows use prompts to encourage interaction and how children respond to different types and combinations of prompts in order to find the prompt style the children responded to the most.

***How do educational television shows encourage active viewing behaviors?*** The people who design these interactive shows use several different types of prompts; I suggest the following categories of prompts as a way to codify their unique purposes:

- Short answer (SA)
- Imperative statement (IS)
- Imperative statement with associated action (ISA)
- Yes/no question (YN)
- Foreign language (FL)

The children in this study watched 32 episodes of 4 interactive shows, and they responded to at least 1 prompt per viewing event; in some cases, individual children responded to more than 40% of the prompts in a specific episode. As these results make clear, these interactive educational television shows are successfully encouraging **some** level of active viewing behavior. However, overall across the 32 viewing events children in the study only responded to 19% of all the given prompts.

***How do children respond to those forms of encouragement?*** While it is clear that interactive educational television shows such as *Go Diego Go*, *Little Einsteins*, *Dora the Explorer*, and *Super Why* use prompts to encourage active viewing behaviors, it is unclear which prompt types are most successful at eliciting such behavior. After analyzing the activities of the children in the study as they watched 32 episodes of these shows, I discovered that it was difficult to predict when and why the children would respond to certain prompts. On average, the ISA prompt was by far the least popular prompt type, while the other 4 prompt types all fell within 5% of each other with regard to how often they elicited responses from the children in the study. Overall, the FL prompts were responded to most often although they were the least presented.

Furthermore, many of these shows bombarded their viewers with what I deemed “prompt chains,” whereby three or more identical prompt types are presented in a row. The prompt chains attempt to establish a rapid, back-and-forth dialog between the show characters and the audience members. Some children in the study responded more strongly to these prompt chains, but generally speaking they did not generate more engagement with the shows. Instead, in many cases the prompt chains encouraged little to no response or activity from the children in the study, calling into question the usefulness of this technique for encouraging active viewing habits.

Finally, the children were more likely to respond to prompts when there were other people co-viewing with them in the room at the same time. They also displayed very active behavior when watching shows that had no prompts for interaction. Clearly, the use of these prompts is not the only factor that explains when and why children interact with the television shows they watch; the use of prompts must be interpreted in the context of what is happening in the room when the children are watching television.

***Recommendations for designers and producers of educational television shows.*** I found that the FL prompt had the best rate of success for encouraging the children in the study to respond. Therefore, I believe the producers of shows such as *Dora the Explorer* and *Go Diego Go* should explore the utility of adding additional FL prompts, or possibly using FL prompts at specific moments in each episode. This recommendation comes with a caveat, however: While the children in the study did like to respond to FL prompts, it is unclear whether those children understand what they are saying.

Furthermore, the designers of educational television shows should avoid overloading their episodes with prompt chains, and should instead design programs that encourage co-

viewing habits and that vary the prompt types to prevent losing their audience members' interest in the shows themselves. The ISA prompts are particularly ineffective at encouraging children to become active viewers of television. This prompt was used 48% of the time but elicited the lowest response rate by far, even in those cases when the number of prompt types was balanced within a given show.

Stated differently, the children in the study often seemed uninterested in the rapid-fire physical actions suggested by ISA prompts, particularly when the children simply wanted to relax and watch a show. While it is impossible to provide a conclusive statement about why this prompt performed so poorly, my observations support the idea that the children in the study seemed to tire of the repetition of these prompts. In particular, prompt chains comprised of ISA prompts typically resulted in little to no interactive behavior. I believe this finding is valuable to the designers and producers of educational television shows, who must compete with a host of other shows for their audience members' attention.

Finally, designers should consider how effective these prompts really are, particularly since television is a unidirectional digital medium. Once the children in the study figured out that they were not actually interacting with the in-show characters, they were less likely to participate at all. Many of the children aged 5 to 6 said these types of shows were for "babies" and were "boring," while the children aged 1 to 4 said these types of shows "were their favorites" (LTV02, LTV03, LTV04 post study interviews, 2009). If the producers of these shows want to keep older audience members interested, they should take advantage of the transmedia franchise potential of their content, which is quite powerful for interactive shows. The most successful shows take advantage of other media platforms and outlets for their characters to be a part of children's lives; in the future, designers of these shows should find ways to produce content for platforms

such as the Microsoft Xbox Kinect or the Apple iPad, both of which have the potential to make interaction with in-show characters far more realistic, and to extend those interactions across multiple forms of media.

**On the Importance and different types of co-viewing television shows.** In this dissertation I expand upon existing knowledge of the phenomenon of co-viewing. Recently, scholars from the Learning in Informal and Formal Environments (LIFE) Center, working together with researchers at the Joan Ganz Cooney Center (Lesk et al., 2010; Stevens & Penuel, 2010; Takeuchi et al., 2011; Takeuchi & Stevens, 2011), have developed a definition for a new form of co-viewing they refer to as joint media engagement (JME), or the “spontaneous and designed experiences of people using media together” (Takeuchi & Stevens, 2011, p.1). This form of co-viewing “can happen anywhere and at any time when there are multiple people interacting together with media” (p.1). As I discussed in Chapter 4, JME is a promising model for understanding how this sort of co-viewing can “support learning by providing resources for making sense and making meaning in a particular situation” (p.1).

However, while the current definition of JME encompasses experiences of people “using media together,” I believe it should also describe the strategies children use to structure how they view media, whether these strategies include viewing media alone, with others, or with objects within the room. The children in this study are interacting with and learning from digital media all the time and in numerous different ways, and it is clear that these children can become actively engaged with shows that are not designed to encourage active viewing behaviors. As a result, they can create positive learning experiences from their interactions with and around the media, an outcome that is encapsulated in the idea of JME.

The analysis presented in Chapter 4 provided a more nuanced perspective on JME, and on what it means when young children view television shows and other forms of digital media. I expanded the current understanding of JME by analyzing three types of interactions that occurred with and around digital media in this study:

- **Self-Mediated Viewing in a Social Space** – children’s interactions with themselves while watching digital media;
- **Socially-Mediated Viewing** – children’s interactions with other people in the viewing space;
- **Socio-Artifactual Viewing** – children’s interactions with objects in the viewing space.

This richer understanding of the phenomenon of co-viewing provides an understanding of how children learn from digital media, as well as the lens through which it is possible to analyze what the children were learning from the digital media they watched.

***How do children learn from digital media through their interactions with the media and themselves, other people, and objects in order to make their viewing experiences social?***

As the children in the study watch digital media, they not only learn information from the media content itself, they learn how to watch digital media and they teach others how to watch. These children repeatedly demonstrated that they are learning from their interactions and JME encounters by developing their own strategies for how they can deal with digital media. Whether they are watching alone, with other people, or with an object such as a doll or a toy, these children engage in JME activities that reflect their maturing ability to watch and interact with digital media.

Furthermore, even when some children were watching television by themselves they were still connecting socially with the content of the screen or other objects within the room. The children in this study developed a variety of coping mechanisms and strategies to accomplish what they wanted to do while watching television. While some children want to help themselves

watch certain types of content, others just want to learn facts to share at a later time. Proponents of JME explain it as a concept of spontaneous experiences of *people using media together*; I believe my analysis in Chapter 4 regarding the unique strategies that children create to view certain content expands on the current definition of JME.

For example, in the first case study I examined three unique vignettes that illustrated how children are learning to view content by themselves in a social space: the first vignette showed how a child used self-mediated viewing to talk himself through media content, much as an adult or older sibling would do with him. However, since he was viewing the questionable content alone, he had to act as his own social viewer. The second vignette explored how a very shy child learned to move her body such that she was able to stay connected with the on-screen content while viewing in a loud and chaotic room. Finally, the third vignette illustrated how a very social child discovered how to view content, imitate it, and learn it while viewing alone, and how to share and teach aspects of it to a family member later on.

The second case presented four vignettes describing how children who view and interact around media with others try to teach them something, or warn them about upcoming content, or generally interact with others in the room. The four vignettes follow four different situations where young people were gathered in a group around the media in their home. In two vignettes children had questions regarding the truthfulness of the content they were viewing and wanted others to clarify whether it was valid. In the other two vignettes, a child helps his other family members learn something new.

The third case presented three vignettes of children's interactions with toys and dolls as they viewed different types of media content (television shows and *YouTube* videos). Many children from the study enjoyed watching shows while holding or interacting with toys or

familiar objects related to the content of the show. These children extended their social interactions to inanimate objects and learned how to make connections between those objects and the digital media content they watched. In essence, they helped make their viewing more social by including the toy or doll in the viewing space.

Again, these results underline the fact that children *are* learning from television, just as they are learning *about* television shows and conventions, as well as *how to use* the information they get from the television shows they watch, all while making their interactions with the media social. Gathering around the television provides children with a powerful skill to gain and share information with others, a skill that improves over time.

***Recommendations for digital media and education researchers.*** It is clear that more ethnographic, longitudinal, naturalistic studies of children's digital media viewing habits are needed in order to expand our awareness and understanding of how and what children learn from interactions with and around digital media. The previous section was developed only as a result of conducting such a study and examining many hours of footage of children at home watching TV. This sort of qualitative research does not seek to apply its findings to all children everywhere; instead, qualitative research into children's uses of digital media enriches our understanding of what is happening when children watch television shows, use computers to view videos on *YouTube*, and so on.

Furthermore, the parental journal and interview data presented earlier in this chapter adds another layer of understanding, as the parents in this study typically guide their children's uses of digital media somewhat rigorously. Their ideas about digital media help shape their children's ideas, although in nearly every case the parents were surprised by their children's behavior after watching specific television shows, such as when Isabelle Vasquez performed the *Hannah*

*Montana* theme song for a small audience. This sort of surprising behavior is challenging to capture as a result of a purely quantitative study, or when the study is designed such that the participants are away from their normal viewing habitats.

Many of the parents in this study also expressed the tension between wanting to do what was best for their children according to experts such as pediatricians and educators, while also attempting to take a brief break from parenting and have some time to themselves. The parents in this study take experts' recommendations and research findings seriously, but they also balance their understandings of those findings with their own ideas about the possible effects of digital media on their children.

It seems clear that digital media researchers have an important mandate to take care when they draw absolute conclusions about the presence of digital media in children's lives, particularly when they advocate eliminating all television exposure for children under 2, for example. These sorts of rigid recommendations do not help parents; instead, they amplify the existing tension that parents feel about letting their young children watch television, use computers, and so on. I believe that by deepening our understanding of how and what children learn from digital media using ethnographic, longitudinal, naturalistic studies, we will help parents make better, more informed choices about how much digital media exposure their children should receive.

Finally, researchers from the LIFE Center have developed the concept of JME partly to suggest that co-viewing is more than just a mechanism that helps parents call attention to certain aspects of a show. JME describes all of the spontaneous experiences of *people using media together* that can eventually lead to learning from their interactions with and around the media

(Stevens & Penuel, 2010). JME is a valuable concept partly because it describes what can happen as children continue to immerse themselves in a digital media culture as they grow up.

However, I believe that the definition of JME should be expanded from two *people* who are co-located within a space (Takeuchi & Stevens, 2011) to include children's interactions with themselves as well as with objects within the viewing space. This subtle change is necessary because many children are teaching themselves to act as their own co-viewers, developing strategies to view socially even when alone by watching and interacting with objects in the room (e.g., toys and dolls), and using the skills they developed as solo viewers to create and share knowledge with others later on.

#### **On the Transfer of knowledge between digital media and into the real world.**

Children's digital media viewing activities are extensions of their broader behavioral patterns, particularly in terms of how they socialize or use other objects as part of their daily patterns of life. In Chapter 5 I explored this idea by analyzing two case studies of the social outcomes that can occur when children engage with digital media. The first case study described how some children manifested the results of their engagement through their imaginative or critical interactions with and around show characters; the second case study described how some children expressed their engagement in socially meaningful ways that reflected their desire to engage other people with the same types of media content they viewed.

Therefore, as children learn how to become more informed viewers of digital media such as television shows and online videos, they extend the knowledge they develop in one situation into other aspects of their lives. I have made the case in this dissertation that digital media *do promote learning*, and that transfer of learning from one context to another is possible. This

finding is important to those who develop educational television content and those who are seeking research that addresses whether television is a harmful influence on children.

***How do children’s experiences with digital media lead them to extend learning from digital media to other contexts of their everyday lives?*** Even before children have developed and mastered the ability to watch television with a critical eye, they are demonstrating their learning by implementing concepts and ideas drawn from their viewing of digital media in other contexts in their lives. For example, the youngest children in this study enjoyed carrying on conversations and interacting with toys that represented characters on the television shows they watched, either when they watched those shows or were away from the television set. Moreover, other children wanted to spend their viewing time helping others learn what they knew or even making new content to share their knowledge.

Specifically, five children from the study extended their activities with digital media into different settings and contexts beyond their living rooms at home.

- Andre watched *Elmocize* in his house with his Elmo toy and ultimately carried the content of the show into his own life by naming his fish Dorothy after Elmo’s fish, conversing with show characters at all times, and even using a real-world map from the zoo to assist Dora when she needed a map on her show.
- Isabelle learned to break out of her shell and take on a new identity by performing a song and dance routine from *Hannah Montana* for her family and neighbors despite her introverted personality.
- Hannah heard a comment in a cartoon and wound up having a complex conversation with her father about God, leading to her deciding what she wanted to believe.
- Harrison acted as an in-room teacher for his younger brother, showing and telling him how to interact appropriately with specific television show activities like the “Blast-Off” sequence from *Little Einsteins*, and also used the facts he learned from shows like *Dora the Explorer* and *Go Diego Go* to discuss and teach his mother and grandparents while watching entirely different, more mature content such as *Planet Earth*.
- Owen shifted from watching toy reviews on *YouTube* with a critical eye to creating and publishing his own toy reviews to help other children make good toy purchases.

These children learned how to weave the digital media content they saw and heard into the very fabric of their lives. Their experiences with digital media led them to extend their learning from

one television show to another, or from specific shows to real-world situations, or from real-world dilemmas to the production of their own videos. These children became experienced viewers of digital media and, in certain cases, helped others become experienced viewers as well. They educated adults about the natural world and broke out of their introverted personalities, if only briefly. They even requested specific learning tools based on their positive interactions with specific shows. Thus, their interactions with and around the media changed how they were developing their own personalities, identities, and beliefs.

*Recommendations for educators.* The question at hand is how to integrate digital media into school curricula such that children benefit from it. I do not pretend to have the answer to this question; instead, I suggest that the potential exists for digital media to exert a powerful positive influence in the classrooms now and in the future as children's lives become more immersed in digital culture.

As technology such as the Apple iPad becomes more accessible to children, there is a corresponding increase in the potential for children to learn from and with digital media. As more and more children use these media to view and connect with each other, educators increasingly need to decide how to integrate such media into their classrooms and curricula. Teachers must themselves be taught how to use digital media and corresponding technologies so they can understand how best to use digital media content and assess new technologies as they are popularized. As time goes on, the fine line between formal and informal learning environments will be thinned as children, parents, and teachers embrace new digital media technologies. Therefore, as with the other recommendations I make in this chapter, I believe further study is warranted to understand how digital media content and technologies can be usefully included in curricula.

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- Stevens, R., & Penuel, W.R. (2010, October). *Studying and fostering learning through joint media engagement*. Paper presented at the Principal Investigators Meeting of the National Science Foundation's Science of Learning Centers, Arlington, VA.
- Stevens, R., Satwicz, T., & McCarthy, L. (2007). In game, in room, in world: Reconnecting video game play to the rest of kids' lives. In Salen, K. (Ed.), *Ecology of games: MacArthur Foundation series on digital media and learning*. Cambridge, MA: The MIT Press.
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- Winn, M. (1985). *The Plug-In drug: television, children and the family*. New York, NY: Penguin Books.
- Zillman, D. (1982). Television viewing and arousal. In Bouthilet, P.D. & Lazar, J. (Eds.), *Television and behavior: ten years of scientific progress and implications for the eighties, vol. 2, technical reviews*. Washington, D.C.: U.S. Government Printing Office.
- Zimmerman, F.J., Christakis, D.A., & Meltzoff, A.N. (2007). Associations between media viewing and language development in children under age 2 years. *Journal of Pediatrics, 151*, 364-368.

## Curriculum Vitae

Thérèse E. Dugan

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### *Education*

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*Doctorate of Philosophy in Learning Sciences and Human Development (Ph.D.)*, Education Psychology Department, College of Education, University of Washington; Seattle, WA, 2005-2012. Advisor(s): Professor Reed Stevens and Professor Philip Bell.

Dissertation: *Early learning with digital media: A naturalistic, ethnographic investigation of children's engagement with and learning from television and digital technology in early childhood.*

*Documentary Film Program*, The Seattle Film Institute; Seattle, WA, 2004-2005.

*Bachelor of General Studies (BGS)*, Theatre and Film Program, College of Liberal Arts and Science, University of Kansas; Lawrence, KS, 1999-2001, Minor equivalents in Anthropology and Photography. Advisor: Professor Charles "Chuck" Berg.

Communication Art and Design (Photography and Film), Virginia Commonwealth University; Richmond, VA, 1997-1999 (Transferred to University of Kansas prior to degree completion).

Photography and Art History (dual majors), Tidewater Community College; Virginia Beach, VA 1996-1997 (Transferred to Virginia Commonwealth University prior to degree completion).

*High school Honors Diploma*, Maury High School; Norfolk, VA, 1996, Graduated with honors.

*Governor's School Arts Diploma*, Governor's School for the Arts; Norfolk, VA, 1996. Specialized in the visual arts, photography, art history, and graphic design.

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### *Employment History & Experience*

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[April 2012] *Post-doctoral Research Fellow*, Nokia Research Center's, Palo Alto, CA.

[2008-2011] *Graduate Research Assistant*, Learning in Informal and Formal Environments (LIFE) Center, University of Washington, College of Education, Seattle, Washington, Research Assistant for the LIFE Center under Professor Reed Stevens (University of Washington and Northwestern University) funded through a National Science Foundation (NSF) Science of Learning grant (NSF#0354453).

[2006-2008; 2009-2010] *Graduate Research Assistant/Teaching Assistant*, University of Washington, College of Education, Teacher Education Program, Seattle, Washington, Research and Teaching Assistant in the Teacher Education Department under Professor Cap Peck (Former Director of the Teacher Education Department (TEP)) and Professor Cathy Taylor,

and funded through the Teachers for a New Era Project and later under Mary Clevenger-Bright, PhD (Director of Induction) and Professor Steven Kerr funded under the College of Education.

[2005-Present] *Freelance Researcher/Cofounder/Partner*, PURE Research (Partners in Understanding Research and Evaluation), Seattle, Washington and Enschede, Netherlands.

[2005] *Assistant Montessori Teacher/After School Program Manager*, NW Montessori School, Seattle, Washington.

[2004-Present] *Filmmaker/Videographer*, Memory Video: Digital Scrapbooking, Smiley Girl Productions; Seattle, Washington.

[2002-2004] *Associate Producer/Production Assistant*, Oklahoma Educational Television Authority (OETA), a Public Broadcasting Service (PBS) affiliate and statewide station; Oklahoma City, Oklahoma.

[2002-2003] *Production Assistant*, K-FOR News Channel Four (NBC affiliate), Oklahoma City, Oklahoma.

[2002] *Manager/Studio Photographer*, J.P.H., Inc. dba Moto Photo, Bethany, Oklahoma.

[2001-2002] *Assistant Manager/Studio Photographer*, Lifetouch JC Penny Portrait Studio, Oklahoma City, Oklahoma.

[2000-2001] *Production Assistant*, Sunflower Broadband News Channel Six/Six News Productions, Lawrence, Kansas.

[2000-2001] *Undergraduate Research Assistant*, University of Kansas College of Liberal Arts and Science's Film Studies Department, Lawrence, Kansas.

[1998-1999] *Assistant Manager/Studio Photographer*, Lifetouch JC Penny Portrait Studio, Richmond, Virginia.

[1998] *Assistant Manager/Studio Photographer*, Lifetouch JC Penny Portrait Studio, Alexandria, Virginia.

[1997-1999] *Undergraduate Teaching Assistant/Tutor/Discussion Group Leader*, Virginia Commonwealth University, Fine Arts Foundation Program, Art History, Richmond, Virginia.

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### *Academic Publications*

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#### *JOURNAL ARTICLES*

Dugan, T.E. & Stevens, R. (under review). *Beyond stereotypes: An ethnographic study of young people's images of science and scientists*. Science Education.

Dugan, T.E., Tyson, K., Hintz, A., Harris, K., Von Beck, M., Clevenger-Bright, M.A., Li, M., & Taylor, C. (under review). *The Recharge and Reconnect Seminars (R&R): Early career problems of practice as induction supports and feedback for teacher educators and program renewal*. Teacher College Record.

Mehus, S., Stevens, R., & Dugan, T.E. (under review) *How do children watch "interactive" television? Insights from a Microethnographic study*. Human Communication Research.

*REFEREED PEER REVIEWED CONFERENCE PROCEEDINGS*

Dugan, T.E. (2012). *Should I follow you, Dora? Understanding the relative success of interactive educational television show prompts*. Proceedings to be presented in the 2012 American Education Research Association (AERA) National Conference, April 13-17, 2012, Vancouver, British Colombia.

Dugan, T.E., Stevens, R., & Mehus, S. (2010). From show, to room, to world: A cross-context investigation of how children learn from media programming. In K. Gomez, L. Lyons & J. Radinsky (Eds.), *Learning in the Disciplines: Proceedings of the 9th International Conference of the Learning Sciences Volume 1* (pp. 992-999). Chicago, IL: International Society of the Learning Sciences.

Dugan, T. E., Stevens, R., & Mehus, S. (2010, April-May). *Watch and learn: Tuning in to young children's social interactions with and around television* (poster). Proceedings in the 2009 American Education Research Association (AERA) National Conference, April 30 – May 4, 2010, Denver, CO.

Thayer, A. & Dugan, T.E. (2009, July). *Achieving design enlightenment: Defining a new user experience measurement framework*. Proceedings in the 2009 International Professional Communication Conference (IPCC), July 19-22, 2009, Honolulu, HI.

Mehus, S., Stevens, R., Levias, S., & Dugan, T.E. (2009, April). *Learning to be "ready to learn": A cross-context ethnographic study* (poster). Proceedings in the 2009 American Education Research Association (AERA) National Conference, April 13-17, 2009, San Diego, CA.

Dugan, T.E. (2008, June). *Students' images of science and scientists: A multi-method investigation of four cases* (poster). Proceedings in the 2008 International Conference of the Learning Science (ICLS), June 23-27, 2008, Utrecht, Netherlands.

Dugan, T.E., Harris, K., Hintz, A., Li, M., Luttrell-Montes, S., Peck, C., Taylor, C., Tyson, K., & Von Beck, M. (2008, March). *Practices organization design for program renewal: Early career problems of practice as feedback for teacher educators*. Proceedings in the 2008 American Education Research Association (AERA) National Conference, March 24-28, 2008, New York City, NY.

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### *Other Scholarly Activity*

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*CONFERENCE PRESENTATIONS*

- Dugan, T.E. (2012, May). *Describing a novel visualization of how young people learn from interactive television*. Educational Interfaces, Software, and Technology Workshop Paper to be presented at the ACM SIGCHI Conference on Human Factors in Computing Systems (CHI), May 5-10, 2012, Austin, TX.
- Dugan, T.E. (2012, April). *Early learning with digital media: A naturalistic, ethnographic investigation of children's engagement with and learning from television and digital technology in early childhood*. Paper to be presented at the 5th Annual Inter-Science of Learning Centers Student and Post-Doc Conference (iSLC), April 21- 23, 2012, San Diego, CA.
- Dugan, T.E. (2012, April). *Should I follow you, Dora? Understanding the relative success of interactive educational television show prompts*. Paper to be presented at the 2012 American Education Research Association (AERA) National Conference, April 13-17, 2012, Vancouver, British Columbia.
- Mehus, S., Stevens, R., & Dugan, T.E. (2010). *Talking back to Dora: Young children's responses to "interactive" television when watching alone and watching with others*. Poster presented at the National Science Foundation Science of Learning Centers annual meeting, Arlington, VA.
- Dugan, T. E., Stevens, R., & Mehus, S. (2010, June-July). *From show, to room, to world: A cross-context investigation of how children learn from media programming*. Paper presented at the 2010 International Conference of the Learning Sciences (ICLS), June 29 - July 2, 2010, Chicago, IL.
- Dugan, T. E., Stevens, R., & Mehus, S. (2010, April-May). *Watch and learn: Tuning in to young children's social interactions with and around television*. Poster presented at the 2009 American Education Research Association (AERA) National Conference, April 30 – May 4, 2010, Denver, CO.
- Dugan, T.E., Stevens, R., & Mehus, S. (2009, August). *Tuning in to the social aspects of learning from television in early childhood*. Poster presented at the 2010 iEdge 2010: Society + Controversy (iEdge) Conference, April 21, 2010, Seattle, WA.
- Dugan, T.E., Stevens, R., & Mehus, S. (2009, August). *Tuning in to the social aspects of learning from television in early childhood*. Invited poster presentation presented at the Centers for Ocean Sciences Education Excellence (COSEE), Ocean Learning Communities at the Seattle Aquarium, August 4, 2009, Seattle, WA.

Thayer, A. & Dugan, T.E. (2009, July). *Achieving design enlightenment: Defining a new user experience measurement framework*. Paper presented at the 2009 International Professional Communication Conference (IPCC), July 19-22, 2009, Honolulu, HI.

Mehus, S., Stevens, R., Levias, S., & Dugan, T.E. (2009, April). *Learning to be "ready to learn": A cross-context ethnographic study*. Poster presented at the 2009 American Education Research Association (AERA) National Conference, April 13-17, 2009, San Diego, CA.

Dugan, T.E. & Stevens, R. (2009, February). *Early learning from television*. Poster presented at the 2nd Annual Inter-Science of Learning Centers Student and Post-Doc Conference (iSLC), February 5-7, 2009, Seattle, WA.

Saxena, A., Mehus, S., Dugan, T.E., Scopelitis, S., & Scalone, G. (2009, February). *Video and interaction analysis workshop*. Workshop presented at the 2nd Annual Inter-Science of Learning Centers Student and Post-Doc Conference (iSLC), February 5-7, 2009, Seattle, WA.

Dugan, T.E. (2008, June). *Students' images of science and scientists: A multi-method investigation of four cases*. Poster presented at the 2008 International Conference of the Learning Science (ICLS), June 23-27, 2008, Utrecht, Netherlands.

Dugan, T.E., Harris, K., Hintz, A., Li, M., Luttrell-Montes, S., Peck, C., Taylor, C., Tyson, K., & Von Beck, M. (2008, March). *Practices in organizational design for program renewal: Early career problems of practice as feedback for teacher educators*. Paper presented at the 2008 American Education Research Association (AERA) National Conference, March 24-28, 2008, New York City, NY.

Taylor, C., Li, M., Harris, K., Von Beck, M., Dugan, T.E., Hintz, A., Luttrell-Montes, S., Peck, & C., Taylor, (2007, March). *Reconnect and Recharge: A model for supporting first year teachers... and learning from them*. Paper presented at the Northwest Association of Teacher Educators Annual Conference (NWATE), March 15-17, 2007, Seattle, WA.

Stevens, R., Saxena, A., Parham, J.N., Macklin, S., Scopelitis, S., Dugan, T.E., & Lewis, H. (2006, April). *Video Traces*. Poster presented at the University of Washington's 2006 Teaching and Learning Symposium, April 25, 2006, Seattle, WA.

#### WORKS IN PROGRESS

Stevens, R., Dugan, T.E., & Mehus, S. (work in progress). *Early learning from television*.

Dugan, T.E. & Jones, D.C. (work in progress). *Childhood development of career values and effects on future career choices*.

#### INVITED LECTURES AND WORKSHOPS

Saxena, A., Mehus, S., Dugan, T.E., Scopelitis, S., & Scalone, G. (2009, February). *Video and interaction analysis workshop*. Workshop presented at the 2nd Annual Inter-Science of

Learning Centers Student and Post-Doc Conference (iSLC), February 5-7, 2009, Seattle, WA.

Thayer, A. & Dugan, T.E., *Using photography at work and at play*. AdaQuest Inc.'s Brown Bag Speaker Series, March 11, 2010, Bellevue, WA

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*Selected Multimedia Publications*

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Dugan, T.E. (Producer, Director, Writer, Editor). (2004). *Searching for a Hot Rock* [Documentary Film]. Seattle, WA, USA: Seattle Film Institute.

Dugan, T.E. (Producer, Director, Writer, Editor). (2002-2004). *Oklahoma News Report* and *OKC Metro* Multiple two-minute musical montages and various political, arts, and culture stories [Television Broadcast]. Oklahoma City, OK: Oklahoma Educational Television Authority.

Dugan, T.E. (Photographer). (2002). *Photography* [Regional Photography Publication]. Oklahoma City, OK: J.P.H., Inc dba, Moto Photo.

Dugan, T.E. (Photographer). (2001). *Photography* [National Photography Publication]. Oklahoma City, OK: JC Penney Portrait Studio, Lifetouch.

Dugan, T.E. (Producer, Director, Writer, Editor). (2001). *Darwin in Kansas* [Television Broadcast; Public Service Announcement]. Lawrence, Kansas: Sunflower Cablevision Channel 6/University of Kansas.

Dugan, T.E. (Producer, Director, Writer, Editor). (2001). *Comments on the Mi'kmaq* [Documentary Film]. Lawrence, Kansas: The University of Kansas.

Dugan, T.E. (Producer, Director, Writer, Editor). (2000). *Womyn Unite* [Documentary Film]. Lawrence, Kansas: The University of Kansas.

Dugan, T.E. (Producer, Director, Writer, Editor). (2000). *Behind the Hair: The Sammy Kurr Story* [Dramatic Film Short]. Lawrence, Kansas: The University of Kansas.

Dugan, T.E. (Producer, Director, Writer, Editor). (2000). *Topeka Headed For The Future* [Documentary Short Technical Video]. Lawrence, Kansas: The University of Kansas.

Dugan, T.E. (Multimedia artist). (1999). [Drawing and Design for Art Foundations Show]. Richmond, Virginia: Virginia Commonwealth University.

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## *Research Activities*

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*Graduate Research Assistant* – Learning in Informal and Formal Environments Center (LIFE), University of Washington, College of Education, Seattle, WA

- Early learning from television
- Early learning across contexts (home and pre-school)

*Graduate Research Assistant* – Teacher Education Program, University of Washington, College of Education, Seattle, WA

- Teacher induction support & the Recharge and Reconnect Seminars
- Teacher education program renewal
- The Capstone projects

*Independent Study* – Science, Technology, Engineering, and Math (STEM)

- Young people’s images of science and scientists
- Women’s role in science and the sciences
- STEM stereotypes in math and science
- Childhood development of career values and effects on future career choices

*Independent Study* – The arts and studio pedagogy in teacher education

*Independent Study* – Cognition across contexts

*Independent Study* – Promoting argumentation in the teaching of history and science

*Independent Study* – Video Traces (collaborative educational media software)

### *RESEARCH INTERESTS*

- Socio-cultural perspectives on media, learning, technology, cognition, and interaction
- Children’s media & technology usage and perspectives
- Naturalistic studies of children in and across contexts
- Informal learning environments and their relation to formal learning environments
- Understanding young people’s images and understanding of STEM (science, technology, engineering, and math) professions
- Understanding gender roles in science, technology, engineering, and math (STEM) fields
- Teaching the arts and technology through teacher education
- Understanding how teacher education induction supports aid teachers and teacher education programs
- Qualitative and ethnographic research methodology

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## *Teaching Appointments and Experiences*

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*Graduate Teaching Assistant* – Teacher Education Program, University of Washington, College of Education, Seattle, WA

- EDTEP 600: Induction Support & the Recharge and Reconnect Seminars (3 credits)
- EDTEP 505: The Capstone Project (3 credits)

*Instructor/Guest Lecturer* - Education Psychology and Teacher Education Course, University of Washington

- EDPSY 582: Advanced Methods in Ethnography - Co-teacher/ Teaching Assistant (3 credits)
- EDTEP 543: Teaching and Learning in Social Studies - Guest Lecturer (3 credits)
- EDTEP 512: Arts in Teaching - Guest Lecturer (Credit/No Credit)

*Pre-School-Grade 12 Experience*

- Assistant Montessori Teacher – Northwest Montessori School: P-5 Seattle, WA

### *TEACHING INTERESTS*

- Educational technology, new and digital media
- Interactional, conversational, discourse, and video analysis
- Gender and education in science, technology, engineering, and math (STEM) fields
- Teaching the arts and technology through teacher education
- Teaching induction supports, inquiry, and critical friends groups
- Qualitative and ethnographic methods

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## *Dissertation*

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### *DISSERTATION TITLE*

*Early learning with digital media: A naturalistic, ethnographic investigation of children's engagement with and learning from television and digital technology in early childhood*

### *DISSERTATION COMMITTEE*

Committee Chair(s):

- Professor Reed Stevens, Learning Science, School of Education and Social Policy, Northwestern University
- Associate Professor Philip Bell, Learning Science and Human Development, Educational Psychology, College of Education, University of Washington

Committee Members:

- Professor Charles "Cap" Peck, Special Education/Former Director of Teacher Education, College of Education, University of Washington
- Professor Diane Carlson Jones, Educational Psychology, College of Education, University of Washington

Graduate School Representative:

- Professor Jan Spyridakis, Department Chair, Human Centered Design and Engineering, College of Engineering, University of Washington

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## *Service*

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### *Professional Membership*

- American Anthropological Association (AAA) (2009-present)
- American Educational Research Association (AERA) (2005-present)

- American Psychological Association (APA) (2005-present)
- ACM SIGCHI Human Factors in Computing Systems (ACM SIGCHI) (2011-present)
- Cherokee Nation Tribe (1978-present)
- International Society of the Learning Sciences (ISLS) (2007-present)
- Institute of Electrical and Electronics Engineers, IEEE: Professional Communication Society (IPCC) (2010-present)
- National Academy of Television Art and Sciences (NATAS) (2003-present)
- Northwest Association of Teacher Educators (NWATE) (2005-present)
- Society for Research in Child Development (SRCD) (2009-present)

#### *Departmental Service*

- *Graduate Research Assistant*, Learning in Formal and Informal Environments (LIFE) Center
- *Research Group Member*, Professor Reed Steven's Learning, Media, and Interaction (LMI) research group, College of Education, University of Washington

#### *University and College Service*

- *Leader*, LIFE Center Student Leadership Group for full LIFE Center (Stanford, UW, SRI)
- *Committee Member*, College of Education Teacher Education Program's Integrated Arts Initiative Committee
- *Committee Member, Research Group Member*, Recharge & Reconnect Induction Support for Teacher Education Program Committee & Research Group
- *Committee Member*, College of Education Teacher Education Program Renewal Committee

#### *Paper Reviewer*

- *Paper submission reviewer*, International Conference of the Learning Sciences Conference, ICLS 2012, Sydney, Australia
- *Paper submission reviewer*, ACM CHI Conference on Human Factors in Computing Systems, CHI 2012, Austin, TX
- *Paper submission reviewer*, American Educational Research Conference, AERA 2012, Vancouver, BC
- *Works-in-progress paper reviewer*, ACM CHI Conference on Human Factors in Computing Systems, CHI 2011, Vancouver, BC
- *Paper submission reviewer*, American Educational Research Conference, AERA 2011, New Orleans, LA
- *Paper submission reviewer*, International Conference of the Learning Sciences Conference, ICLS 2010, Chicago, IL
- *Paper submission reviewer*, International Professional Communication Conference, IPCC Conference, 2010, Enschede, Netherlands.
- *Paper submission reviewer*, American Educational Research Conference, AERA 2010, Denver, CO
- *Paper submission reviewer*, International Professional Communication Conference, IPCC 2009, Oahu, HI

- *Paper submission reviewer*, American Educational Research Conference, AERA 2009, San Diego, CA
- *Paper submission reviewer*, International Conference of the Learning Sciences Conference, ICLS 2008, Utrecht, Netherlands
- *Paper submission reviewer*, American Educational Research Conference, AERA 2008, New York, NY

#### *Community/Volunteer Service*

- *Volunteer, Judge*, The Washington State Holocaust Education Resource Center annual writing and art contest judge
- *Volunteer*, Food Not Bombs soup kitchen
- *Volunteer*, Toys for Tots Christmas toy drive

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### *Awards and Honors*

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- University of Washington College of Education \$500 Student Travel Grant Award (2012)
- University of Washington College of Education \$500 Student Travel Grant Award (2009)
- University of Washington College of Education \$350 Student Travel Grant Award (2008)
- University of Washington College of Education \$350 Student Travel Grant Award (2007)
- Fellow of the Institute on the Public Humanities for Doctoral Students Simpson Center for the Humanities at the University of Washington (2008)
- United Nations Humanitarian Award for Public Awareness (2004), “Oklahoma City Metro”, OETA-PBS, Oklahoma City, OK [Associate Producer credit]
- Emmy Award Nomination (2003), “Oklahoma City Metro,” OETA-PBS, Oklahoma City, OK [Associate Producer credit]
- Emmy Award Nomination (2002), “Oklahoma City Metro,” OETA-PBS, Oklahoma City, OK [Associate Producer credit]
- Emmy Award (2002), “Oklahoma State Capitol Dome Dedication,” OETA-PBS, Oklahoma City, OK [Production Assistant credit]
- Dean’s List (1999, 2000, 2001), University of Kansas, Lawrence, KS
- Presidential Scholarship (1997-1999), Virginia Commonwealth University, Richmond, VA
- Experimental Photography Scholarship (1996-1997), Tidewater Community College, Virginia Beach, VA
- Kansas Film Festival Documentary Film (2000), Womyn Unite Lawrence, KS
- Photography Exhibition (1996), Chrysler Museum, Norfolk, VA
- Best in Show for Photography and Computer Graphics (1995), The Hermitage Art Foundation, Norfolk, VA
- Best Youth Artist in Show for Photography (1995), Stockley Gardens Art Show, Norfolk, VA
- Photography exhibition (1995), Virginia Beach Center for the Arts, Virginia Beach, VA

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## *Other Multimedia Publications & Experience*

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Oklahoma Educational Television Authority – PBS, Public Broadcasting System (Oklahoma City, OK):

- *Lawrence Welk God Bless America Special* – National Broadcast Production Assistant, non-linear editing, script research, photo research and licensing, opening credit re-enactment; set design and construction, lighting, hair, make-up and wardrobe
- *OKC Metro* (weekly show) – Associate Producer, script writer, program developer, non-linear editing, Adobe Photoshop graphics, research, B-roll, audio, studio and remote camera, grip, teleprompter, set design, make up
- *The Movie Club* (weekly show) – Associate Producer, fan mail correspondence, video contests, audio, camera, Chyron, grip, teleprompter, Adobe Photoshop, editing, logging/timing tapes, set design
- *Oklahoma Forum* (weekly show) – Associate Producer, producer of statewide database and contact list, teleprompter, Chyron, camera, audio, grip, set design/construction
- *The Oklahoma News Report* (nightly show) – floor director, studio and remote camera, Chyron, audio, Adobe Photoshop, teleprompter, grip, make up
- *Legislative Week in Review* (weekly show) – audio, editor, logging and timing tapes
- *The People's Business* (weekly show) – studio camera, set design, audio set up, grip, make up
- *Metro Music* (weekly show) – studio camera, set design, booking, audio set up, grip, make up
- *Festival* (annual/pledge event) – set up, studio camera, audio, grip, set design and construction, lighting, makeup
- *August Fest* (annual/pledge event) – set up, studio camera, audio, grip, set design and construction, lighting, makeup
- *OKC Metro Arts Special* – associate producer, remote camera, b-roll, research, editor, teleprompter, set up, grip
- *OKC Metro Ask the Candidates Oklahoma City Mayoral Debate Special* – producer, research, organizer, researcher, script and question writer
- *OKC Metro Cowboy Hall and Western Heritage Museum Awards Special* (annually) – producer, script writer, photography, editing
- *Ask a Lawyer* (annually) – Chyron, set design, camera, remote set up, grip, set design and construction, lighting, make up
- *Cash For College* (annually) – studio camera, teleprompter, set design and construction, lighting, grip, make up
- *Oklahoma Hall of Fame* (annually) – remote truck set up, grip, set design and construction, camera
- *Oklahoma Foundation For Excellence* (annually) – remote truck set up, set design and construction, grip
- *OETA 50th Anniversary Celebration* – remote truck set up, set design and construction, grip
- *Oklahoma 2003 Governor's Inauguration* – remote camera, pool camera, remote truck set up, set construction, grip
- *Oklahoma State Capitol Dome Dedication* – graphics, camera, grip, remote truck set up

- *State of the State Address* – remote camera, remote truck set up, grip
- *Decision 2002, 2003, 2004 Election Results* – studio camera, set design and construction, lighting, grip
- *House and Senate Debates* (annually) – remote camera, remote truck set up, grip
- *Legislative Sessions* (daily during session) – camera, set up, grip, lighting
- *Oklahoma Governor's Debate* – studio camera, set design, grip
- *Oklahoma Lieutenant Governors' Debate* – studio camera, set design and construction, lighting, grip
- *Oklahomans Against Fraud* (quarterly) – set design and construction, lighting, grip, studio camera, teleprompter
- *VYEX Feeds to all major cable news networks* (daily) – camera, audio, set up, grip, make up
- *The Lawrence Ilk Show and Wrap-Arounds* (bi-annually) – camera, teleprompter, set design/construction, grip, log and time tapes, spreadsheets and labels, mail

K-FOR NBC – New York Times Company (Oklahoma City, OK):

- *News Channel Four Weekend: at 6:00 am, at 5:00pm, at 6:00pm, and at 10:00pm* – studio camera, set up, grip
- *News Channel Four Dayside and Night side: at 5:00am, 6:00am, 12:00pm, 4:30pm, at 5:00pm, at 5:30pm, at 6:00pm, at 6:30pm, and at 10:00pm* – studio camera, set up, grip
- *Severe Weather* – studio camera
- *Today Show Cut-ins* – studio camera

Sunflower Broadband Six News Productions/The World Company/Lawrence Journal World (Lawrence, Kansas):

- *Six New at Six* – studio and remote camera, floor director, teleprompter, audio, Chyron, videotape operator, graphics, grip
- *Six News Night side* – studio and remote camera, floor director, teleprompter, audio, Chyron, videotape operator, graphics, grip
- *Headline News Cut-ins* – studio camera, teleprompter, floor director, audio, Chyron, videotape operator, graphics, grip
- *Master Control Operations* – master control, time and log tapes, record
- *Guided By Flavor* – remote camera, non-linear editing, photography, grip
- *Fusion* – studio camera, remote camera, grip
- *University of Kansas Football, Basketball, and Baseball Home Games* – remote camera, parabolic mic, Chyron, remote truck set up, grip
- *High school Game of the Week* – remote camera, Chyron, pa, remote truck set up, grip
- *River City Weekly* – remote camera, grip
- *Jayne's Kitchen* – remote camera, grip
- *Papa Keno's Commercial* – concept idea, storyboards, script, editing, grip
- *Various Commercials* – remote camera, grip, research, writing, producing
- *Lawrence Town Hall Meeting and Public Forum 2001* – remote camera, grip, remote truck set up
- *Douglas County Commission Debate 2000* – remote camera, grip, remote truck set up
- *Weekly County Commission Meetings* – remote camera, audio, set up, grip

Smiley Girl Productions/Personal – produced, wrote, researched, shot, directed, edited the following (Norfolk, VA; Richmond, VA; Lawrence, KS; Oklahoma City, OK; Seattle, WA):

- *Various documentary shorts, Wedding photos, and digital scrapbooks for my business Memory Video Digital Scrapbooking*
- *Short Film – Searching for the Hot Rock* – A look at the reasons why men like to take up treasure hunting as a hobby.
- *Musical montages* – various two-minute musical montages for news credit roll on the Oklahoma News Report and OKC Metro including:
  - *Will Rogers' Park*
  - *OU Flowers*
  - *Crystal Bridge Orchids*
  - *Cole's Sculpture Garden*
  - *The Omniplex Annual Christmas Tree Festival*
  - *OKC Art Festival*
  - *Dream Weavers*
  - *The Holiday Season Around Town*
  - *Fun Days At The Fair*
  - *Be My Valentine*
  - *Elvis*
  - *The Best Photographs of 2003*
  - *The 2004 Inductees into the International Photography Hall of Fame*
  - *Chainsaw Kittens/Graffiti Art Show*
- *Public Service Announcement* – Sunflower Cablevision News Channel Six: *Darwin in Kansas* – a creative look at a world where no evolution education exists and thus no cultural evolution either. A contrast between a rich, culturally aware, and colorful society and a cold, generic, deprived world with no cultural identity.
- *Short Film – Behind the Hair the Sammy Kurr Story* – A five-minute mock documentary spoof of VH1's Behind the Music following the rise and fall of fictional music icon Sammy Kurr of the 1980s heavy metal band Lethal Injection.
- *Short Film – Form Follows Function* – A short narrative edited in camera of a love story between a man, a chair, and a table.
- *Documentary Short – Topeka Headed For the Future* – A short look into current and long-range planning issue, specifically neighborhood planning, facing the Topeka and Shawnee County Metropolitan Planning Department.
- *Documentary – Comments on the Mi'kmaq* – A half-hour ethnographic study of the Mi'kmaq Indians, a tribe located in present day Nova Scotia, including their old traditions, culture, and history and how they survive in today's mainstream world.
- *Documentary – Womyn Unite* – A twenty minute documentary detailing the opinions of Kansas University students on the idea of a pro-feminist march against domestic violence to be held down the main street of the town. No men are allowed in this event. Is this a good idea? Why or Why not? What is solidarity when some are excluded?