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Parenting of Preschool Children's Media Use in the Home

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Summary

A growing body of literature has established associations between preschool children's exposure to various forms of electronic media and developmental outcomes, exploring factors such as the timing and frequency of children's electronic media exposure, as well as the quality of the content to which they are exposed. More recently, researchers have begun documenting the role of parenting and socialization during children's home media use. However, many of these studies rely on parent report of children's media exposure, as well as parenting practices related to media use, a method prone to reporter bias. In the present chapter, we use enhanced audio recordings and coding of naturalistic observations to provide a comprehensive description of the home media environment of preschoolers. In addition to describing the quantity and quality of children's media exposure, we examine the nature of conversations between mothers and their preschool-aged children during media use, and explore sociodemographic differences.

Keywords (5-10): electronic media, television, maternal language, media parenting, child development

Importance of Parent-Child Interaction Around Electronic Media Use

Today, the lives of children are saturated with electronic media (e.g., television, computers, video games, etc.), as a growing industry markets products for ever younger demographics (Strasburger, Wilson, & Jordan, 2009). Due to the rising presence of media in young children's lives, interest has mounted on the impact of electronic media on children's development. To date, most studies have focused exclusively on television viewing, though more recently, research exploring the effects of other forms of electronic media on children's outcomes has begun to surface. Some studies indicate that electronic media can negatively impact child development, such as associations between higher frequency of media use and greater risk for obesity (Cox, Skouteris, Rutherford, & Fuller-Tyszkiewicz, 2012) and potentially more aggressive behavior (Zimmerman, Glew, Christakis, & Katon, 2005); while other research indicates that higher quality media content is associated with positive outcomes, such as greater school readiness skills (Gentile & Walsh, 2002) and self-regulation (Mistry, Minkovitz, Strobino, & Borzekowski, 2007). Since most of young children's electronic media use takes place within the home, it is also important to consider the role of the parenting and the contexts in which children are exposed to electronic media. Research regarding parents' role in children's electronic media exposure has gained increasing attention in recent years (Common Sense Media, 2013). Specifically, researchers have begun to investigate the association between parental language around children's electronic media use and children's development.

Much is known about the importance of early exposure to language for successful child development (Hart & Risley, 1995). Research on parent-child interactions during electronic media use suggests that parents who consistently talk with their children about media content can mitigate some harmful effects (i.e., aggressive behavior following exposure to violent television

and video games; Strasburger et al., 2009), as well as augment the stimulating effects of media (i.e., co-viewing educational programs and discussing content; Nathanson, 2001). The extent to which parents play a role in their children's media use varies by sociodemographic factors such as family income, parental education, employment status, and marital status (Duch, Fisher, Ensari, & Harrington, 2013). Unfortunately, little is known about the frequency with which parents interact with children during media exposure, and far less is known about parent-child conversations regarding media use and content and their impact on development (Christakis et al., 2009). Many studies to date that examine children's media use and parent-child interaction during children's media use rely on self-report from parents, a method that often leads to inaccurate estimations due to recall and social desirability biases (see Jordan, Hersey, McDivitt, & Heitzler, 2006). Thus, the present study uses enhanced audio recordings of mother-child interactions captured in the family's home to examine habits of media use and the conversations that occur while using electronic media over the span of three days.

I) Background

“New” Electronic Media

Until recently, most research examining the influence of electronic media on child development has focused exclusively on exposure to television. However, technological advancements have led to the ubiquity of personal computers, tablets and video games, among other electronic mediums. For example, Woodard and Gridina (2000) found that children between two- and five-years-old spend an average of 27-minutes each day using computers. Another recent survey established that on any given day, 14% of children between the ages of 6-months and 8-years-old use a computer, 9% play console-based video games, and 8% use handheld video games, cell phones, iPods or iPads (Common Sense Media, 2011). However, the

impact of these newer forms of electronic media on parent-child interactions and children's development still requires investigation.

Timing and Frequency of Exposure

Research has long demonstrated an association between frequent media exposure and a host of negative health, cognitive, and academic outcomes, particularly when this exposure occurs at certain developmental time periods. Children younger than 6 years old spend more time watching television and playing video games than they do outside (Vandewater et al., 2007) and children between the ages of 0 and 8 years old, on average, spend over two hours each day using electronic media (Common Sense Media, 2011). In fact, children 8- to 18-years old spend more time using media than they spend in school (Rideout, Foehr, & Roberts, 2010). The importance of these statistics is underscored by numerous studies linking the frequency of television viewing with a variety of detrimental outcomes, ranging from impairments in physical and mental health (Rutherford, Bittman, & Biron, 2010), social skills, and behavior (Connors-Burrow, McKelvey, & Fussell, 2011; Villani, 2001), to a number of stunted cognitive and academic outcomes (Nathanson, Aladé, Sharp, Rasmussen, & Christy, 2014; Nathanson, Sharp, Aladé, Rasmussen, & Christy, 2013; Hancox, Milne, & Poulton, 2005). These findings are especially pronounced in the preschool years, when children experience a spurt in social, emotional, and cognitive development (Acevedo-Polakovich, Lorch, Milich, & Ashby, 2006; Marinelli et al., 2014; Rutherford et al., 2010; Villani, 2001). Many speculate that increasing time spent with electronic media diminishes time spent partaking in social interaction, which may be the link between television exposure and subsequent negative behavior and psychological well-being (Hinkley et al., 2014). However, as mentioned previously, watching television or using other forms of electronic media do not always yield negative outcomes. Examining the *quality* of electronic

media and the context in which children are exposed to media has also been an important feature of recent research (e.g., Connell, Lauricella, & Wartella, 2015).

Content Exposure

When considering the association between electronic media and child development, it is also important to also consider the *quality* of the content, as *what* children are exposed to can be more impactful for child development. Studies have found associations between electronic media use and positive effects on health, behavior, and cognition. When exposed to prosocial media, children have the opportunity to learn and model prosocial behavior, such as empathy, tolerance, antiviolence attitudes and understanding of other races and cultures (Hogan & Strasburger, 2008; Strasburger et al., 2009). In addition, developmentally-appropriate electronic media may promote children's self-regulation, social skills, and even aid in the development of children's literacy and mathematical skills through educational programming (Nathanson et al., 2014; Strasburger, Jordan, & Donnerstein, 2010), especially for those who are at higher risk for maladaptive outcomes (Linebarger, Barr, Lapierre, & Piotrowski, 2014). However, certain forms of content—including general-audience and adult-oriented material, as well as child-oriented content that is simply entertainment-focused—have been associated negatively with these same skills (Barr, Lauricella, Zach, & Calvert, 2010; Christakis & Zimmerman, 2007, Pagani, Fitzpatrick, Barnett, & Dubow, 2010). Together, these findings help illuminate the ways in which choice of media content can contribute to the shaping of children's cognition and behavior. However, to better understand the influence of content on developmental outcomes, it is also important to consider the role of parents and the socialization that takes place around media.

Parent-Child Socialization Around Media

Most of children's electronic media use takes place within the context of the home environment (Common Sense Media, 2013). Therefore, when studying the influence of exposure to electronic media, it is important to consider the ways in which children and parents interact with media. Families that often monitor their children's media use are more consistent with making and upholding guidelines, are more knowledgeable about media and its effects, and have children that are more likely to use alternative forms of media, such as books or magazines (Gentile & Walsh, 2002). Many parents report that they actively supervise their children's frequency of exposure to electronic media, as well as the content they view; however, research suggests the opposite – that most parents do not frequently monitor their children's media engagement (Gentile & Walsh, 2002). When parents fail to monitor children's electronic media consumption, children are affected in a variety of ways. Gentile, Reimer, Nathanson, Walsh, and Eisenmann (2014), for example, found that low parental monitoring of children's amount of electronic media use was associated with children's lower academic performance, less prosocial behaviors, more aggressive behaviors, as well as fewer hours of sleep per week.

In addition to monitoring what and when their children use electronic media, it is also important for parents to actively participate in their children's media use. Researchers have established positive associations between parent-child verbal interactions during media exposure and child outcomes (Nathanson, 2001; Takeuchi & Stevens, 2011). However, one study found that when television content is adult-oriented, parent-child interaction diminishes (Courage & Howe, 2010). Consequently, when parent-child interaction around media exposure is diminished, children are at risk for a variety of maladaptive outcomes (Zimmerman et al., 2009). It is important for parents to actively engage with their children during media exposure beginning

when children are young, and there are various strategies that parents can employ (Gentile et al., 2014).

Research on various techniques used by parents to increase children's media literacy has focused on two important strategies that can be combined to foster a positive relationship between children and electronic media (Nathanson, 2001). First, co-viewing refers to parent(s) and children using electronic media together. Co-viewing between parents and children is shown to help facilitate children's learning from media content (Takeuchi & Stevens, 2011). Often, co-viewing of television occurs when parents do not believe the material contains harmful content, effectively granting their children a "stamp of approval." However, in cases where co-viewed content is antisocial, children are subject to any harmful effects that the content has to offer (Nathanson, 2001). Second, verbal communication between parent(s) and children about media content, such as sharing opinions about content or providing explanations, can also be an effective tool for parents to use (referred to in the literature as "active mediation"). Children with whom parents communicate with about electronic media content experience fewer harmful effects from media exposure, while restrictive monitoring can help set limits on children's screen time or protect them from aggressive or otherwise inappropriate programs (Nathanson, 2001). Together, these findings highlight the crucial role of parent-child interaction around exposure to electronic media.

Parent and Family Characteristics

It is also important to understand what parent and family characteristics are associated with the frequency and content of children's electronic media use, as well as parent-child interactions during electronic media use. Because young children spend much of their time in the home, examining parent and family characteristics may help explain some of the variance in

children's electronic media use. In a recent study, Cox et al. (2012) found a negative association between parents' educational attainment and children's exposure to electronic media, such that children of more highly educated parents had less exposure to electronic media. Additionally, parenting quality (Linebarger et al., 2014) and the amount of time parents spend watching television (Lauricella, Wartella, & Rideout, 2015) influence the relation between child electronic media use and their ability to regulate their behavior and emotions. Finally, child age and maternal education are also linked to frequency of children's exposure to television and other forms of electronic media, such that younger children and children of mothers with less education view television more frequently (Anand & Krosnick, 2005). Together, these studies indicate the importance of investigating parenting and children's electronic media use in conjunction with parent and family characteristics as important contextual factors.

Existing Methodological Approaches to Measuring Electronic Media Exposure

Capturing electronic media consumption within the context of the home is a difficult task, and each existing method of measurement has its strengths and limitations. In a recent review, Vandewater and Lee (2009) outlined the various research tools used to assess children's media exposure. To examine children's electronic media use, they noted that researchers most frequently use global time estimates, time-use diaries, and media diaries, which are all self-reported measures by parents that are intended to estimate the average amount of time (in hours and days) during which children use various forms of media. They are also easily administered and cost effective. However, in the case of global time estimates, recall of the intricacies of family media use are hard to capture sufficiently using a series of survey questions (Vandewater & Lee, 2009). Time-use diaries have their limitations as well. Time-use diaries require respondents to report their media-related activities, usually spanning the length of a day. In this

case, collecting data from a single day may fail to capture the nuances and exceptionalities of electronic media use that fluctuate from day to day (Christakis & Zimmerman, 2009). Finally, similar to time-use diaries, media diaries are designed to capture all media activity that occurs within a specific time frame. Although they are an efficient way of collecting data on media use, media diaries do not ask information regarding other activities occurring during media use, (e.g., the presence and nature of communication, whether or not the child was actively engaged with the form of media, etc.) and therefore, fail to capture the context in which media use occurs (Vandewater & Lee, 2009). In addition to their individual drawbacks, each of these methods also fail to capture the verbal interaction between parents and children around media use, an integral part of understanding how parents influence children's relationships with electronic media.

The "gold standard" for studying electronic media use within the home remains direct or video-recorded observations, a measurement technique that allows for the study of verbal interaction between parents and children (Vandewater & Lee, 2009). Researchers often use this method to examine parent-child interaction within the context of the home environment. However, there is the potential that simply being observed will influence one's behavior, especially if a researcher is present during observation. Additionally, this method of data collection can be very time consuming. To address these issues, technological advances now enable the use of audio and video recording equipment for observational purposes.

Only a handful of studies have used digital recording devices (i.e., audio recorders, video cameras) to examine children's exposure to electronic media (see Anderson, Field, Collins, Lorch, & Nathan, 1985; Barr, Zack, Garcia, & Muenteneer, 2008). In one such study, using the LENA digital language processor, Christakis and colleagues (2009) found that audible television was associated with children's decreased exposure to adult speech and, fittingly, decreased child

vocalizations. They found this to be the case even after accounting for individual- and family-level characteristics as they varied across low- and high- media exposure days. Although the researchers noted that the LENA software is not completely accurate in determining speech and other noises, there was no evidence of systematic biases, which validated its legitimacy as an effective technique for collecting audio data in the home environment (Christakis et al., 2009). Thus, in comparison to an observer in the home, the use of an enhanced audio recorder such as the LENA, allows for a less biased and more rigorous look into children's electronic media use and the socialization between families around electronic media use.

Using enhanced audio recordings and coding of naturalistic observations, the current study aims to (a) examine the extent to which parents' report and our coding of preschool children's amount of electronic media use are correlated; (b) explore the types of electronic media and content that children are exposed to within the home environment; (c) examine the nature of conversations between mothers and children surrounding electronic media use; (d) explore whether maternal interaction with children while using electronic media differs by parent and family characteristics; and finally, (e) study the associations between mother-child conversations around and during electronic media use and how these are related to various child outcomes one year later.

Method

Participants

Of the recruited families ($n=46$), 44 participated in the enhanced audio recording portion of this study. Two families were excluded from the analyses for this chapter because one family had no recordings and one family only had recordings of the father conversing with the child. Given the focus of the chapter on conversations between mothers and their children, this family

was excluded from our analyses. The results presented below are based on the 44 families with any amount of audio recordings of mother-child conversations. On average, families had 9.56 hours of recording per day ($SD = 5.10$). It is important to note that approximately one-third of the families had less than 4 hours of recording on the first and second days of recording.

Measures

Mother-reported electronic media exposure at wave 1. On the parenting questionnaires given in the first wave of data collection, mothers reported on their children's electronic media use through a series of questions for different types of media. The open-ended questions asked parents to indicate the following for (a) Monday through Friday, (b) Saturday, and (c) Sunday: "How many hours per day does your child watch TV or videos," "How many hours per day does your child play video or computer games," and "How many hours per day does your child use educational software on a computer." Responses to weekday consumption were added together and divided by 5 to calculate average weekday electronic media use. Saturday and Sunday estimates were added together and divided by two to calculate an average weekend day electronic media use. When mothers provided a range of hours in their open-ended responses (e.g., 1-2 hours), the midpoint of the range was entered (e.g., 1-2 hours was entered as 1.5 hours). See Table 1 for descriptive statistics on all electronic media variables of interest.

Enhanced Audio-recorded electronic media exposure. The enhanced audio recording device identifies acoustic segments consistent with television or radio signals and is reported to be 71% accurate when compared to manual transcriptions of audio data (Xu, Yapanel, & Gray, 2009). Duration of these segments in minutes is generated by the device software. To calculate average weekday electronic media exposure using the audio-recorded electronic media signal, we took the sum of the total hours of electronic media signal for weekdays and divided by the

total number of weekdays recorded for each child. The hours of electronic media signal on the weekend day that was recorded was used as an estimate of electronic media exposure on weekend days. These values are based on when the families kept the recording device on and so a limitation of this data is that we are unable to determine if electronic media exposure occurred when the device was turned off each day.

Coded electronic media use. Audio files with the media signal present were identified based on electronic media signal reports from the enhanced audio recording device software. Audio segments containing any amount of media signal as well as the five minute segments immediately preceding and following these segments were selected to be coded for electronic media exposure and socialization around media use.

For each hour of media exposure (excluding radio or music playing), coders documented: (a) the form(s) of media used (e.g., TV, computer, video game, etc.); (b) the duration of use by each type of media used in minutes; (c) whether the programming was child vs. adult-oriented; (d) content type (e.g., educational vs. general-audience programming); (e) whether there was any verbally stated rules about electronic media use or media management; and (f) whether there was any communication between the mother and preschooler about the media content. For families with more than three days of recordings, coders analyzed the first two weekdays and first one weekend day recorded.

When there was communication among family members about media content, coders also transcribed the mother-child dialogue for further analysis. An additional coder indicated the highest degree or level of media content communication present for each hour of media signal, based on literature concerning the effects of parent-child communication during media use on children's developmental outcomes (e.g., Nathanson, 2001). The three degrees of

communication about media content were as follows: *no communication* about media content, language reflecting *co-viewing* or short conversations that often included yes/no answers or short answers to clarification questions (e.g., mothers asking about what video game the child was playing, who a character was on a TV show, what the child would like to watch, etc.), and *parent-child communication* about media content that included more in-depth discussion (e.g., parents explained the rationale behind a TV commercial, parents explained the motivation behind characters or commented on the realism of the content displayed; known in the literature as “active mediation”). Given the relatively low occurrences of communication about media content, we chose to assign parent-child communication to each hour where *any* amount of communication about media content was present. It is important to note that a child may have had moments of silence or minimal interaction in these segments but if parent-child communication about content was present at all, this rating was given (i.e., the highest rating of parent-child interaction around media was assigned to each media segment hour).

A media segment was coded as having no communication when no child or adult vocalizations specific to media were audible at all during the entire hour or during times when child sought interaction around media content but no mother or other adult in the home responded. An example of this occurs when a child is watching an R-rated comedy horror film:

Child: "I wanna watch a different movie Mommy."

[no response from mother]

Child: "Watch it she bout to get killed by herself. Watch! Her by herself, all by herself."

[no response from mother]

Child: "Monsters aren't real! Monsters aren't real!"

[no response from mother]

Child: "Haha! That's what he get! He got killed."

[no response from mother]

The next type of parent-child interaction during media viewing was categorized as “co-viewing communication,” or communication that was quite minimal and passive. If the child had this type of interaction (and no instances of parent-child communication related to media content, see below), they received this coding for the media segment hour. To illustrate, here is an example of minimal interaction around the media content:

Child: "Diego is not a real person."

Mother: “That is correct.”

Child: “He never has and he never will.”

In this example, the mother is confirming the child's understanding of a character but does not elaborate further. Similarly, an example of co-viewing occurs here:

Child: "Sorry for liking commercials"

Mother: “It's alright.”

Again, the mother is responsive to the child's statement but misses an opportunity to use this moment to engage in discussion about the content of television commercials.

A media segment hour received a classification of parent-child communication if, at any point during the media segment hour, discussion about media content occurred. An example depicting parent-child communication is in the following conversation, where mother and child are watching a documentary about Martin Luther King Jr. and Rosa Parks:

Child: "Is that his wife?" [referring to Rosa Parks]

Mother: "No, that's the lady who wouldn't give up her seat on the bus and was arrested."

[Mother explains that people were against Rosa Parks' arrest and thought it was wrong]

Child: "What does jail mean?"

[Mother explains jail and also non-violent ways to fight back]

Child: "Mommy, if I were a White person, I would help them."

Mother: "You are White, you mean if you lived back then you would help them."

In this example, the mother actively explains the content and context of what the child is viewing on television. Further, the mother uses this information to socialize child around her beliefs about racism and non-violent actions to seek justice.

We assessed inter-rater reliability between coders on each category. Twenty percent of the participants were selected at random and were coded by each coder. Intra-class correlation coefficients (ICCs) ranged from .72 to .94, supporting reliability amongst coders, who then independently coded the remaining audio files (see Table 1).

[Insert Table 1 here]

After the codes were generated, we created summary variables to calculate total amount of types of electronic media used and proportion of types of communication surrounding media content. These variables consisted of: (1) proportion of educational programming (total educational program time divided by total coded electronic media use), (2) proportion of general-audience programming (total general-audience programming time divided by total coded electronic media use), (3) proportion of coded media segments with no instances of communication about media content (frequency of no communication segments divided by total media segments), (4) proportion of coded media segments with language reflecting co-viewing about media content (frequency of segments with any instance of co-viewing (and thus no parent-child communication) divided by total media segments), and (5) proportion of coded media segments that had any occurrence of parent-child communication about media content

(frequency of segments with any parent-child communication divided by total media segments). Refer to Table 1 for means, standard deviations, and ranges of these coded variables.

Demographic Characteristics. As described in Chapter 1, information on a variety of demographic factors was collected. There was a greater proportion of male children in our sample ($n=28$, 63.6%) than females ($n=16$, 36.4%). For the current study, we further categorized the income-to-needs ratio. The income-to-needs ratio was transformed into 2 categories: low-income (ratio of 2.0 or lower) and not low-income (ratio greater than 2.0). In the analyses comparing media use by mother's educational attainment level, we created the following three categories: high school degree or GED and some college courses ($n = 15$), which we named HS-Plus; 2- or 4- year college degree ($n = 14$); and graduate degree ($n = 15$).

Child outcome variables at wave 2

Child Math Achievement. The Applied Problems subtest of Woodcock-Johnson III Tests of Achievement (Woodcock, McGrew, and Mather, 2001) was administered to children. Applied Problems ($M = 442.62$, $SD = 19.47$, range: 409-490) assesses children's mathematical reasoning, knowledge, and problem solving. The standard scores of the child math achievement were used in the analyses.

Child externalizing symptoms. Mothers completed the Social Skills Rating System (SSRS; Gresham & Elliott, 1990), which consists of 49 items measuring problem behaviors (10 items) and social skills (39 items). We focused on the problem behavior subscale of externalizing problems (e.g., "Is aggressive toward people or objects"; 6 items, $\alpha = .70$; $M = 0.8$, $SD = 0.33$, range 1-9). On a three-point Likert scale (*never=0, sometimes=1, or very often=2*), mothers were asked how often their child did the behavior described. The mean of the subscale items was

calculated to derive the subscale score, with greater scores indicating greater externalizing problem behaviors.

Mother-reported child self-regulation. The first measure of children's self-regulation that we used in our study was drawn from the Children's Behavior Questionnaire, very short form (CBQ; Putnam & Rothbart, 2006). The CBQ very short form is a 36-item parent report form used to assess three broad dimensions of temperament, each consisting of 12 items: negative affectivity, surgency, and effortful control. We focused on the effortful control subscale, which we will refer to as mother reported child self-regulation. Mothers responded to statements reflecting these broad dimensions on a scale ranging from (1) "extremely untrue of my child" to (7) "extremely true of my child." Example items ($\alpha = .56$) include "Is good at following instructions" and "When drawing or coloring in book, shows strong concentration." A mean score of mother reported child self-regulation was calculated from the 12-items (scores ranged from 3.92 to 6.42, $M = 5.58$, $SD = 0.51$).

Observed child self-regulation. The Head, Toes, Knees, and Shoulders task (HTKS task; Ponitz et al., 2008) is a direct measure of children's behavioral regulation, and will be referred to as observed child self-regulation. Children were asked to touch their heads. Next, they were instructed to do the opposite and touch their toes when told to touch their heads. Children followed the same instructions to touch their knees and shoulders. After completing practice trials, children were told to do the opposite from the delivered instructions on 20 trials (i.e., touch your toes would be correctly completed if the child touched his/her head and vice versa; touch your knees would be correctly completed in the child touched his/her shoulders). Children received 2 points for correctly doing the opposite of the instructions delivered and 1 point if the

child self-corrected. Observed child self-regulation scores were calculated as the sum of the points received on the 20 tasks (scores ranged from 1 to 40, $M = 27.00$, $SD = 10.26$).

Results

Methodology: A Comparison of Maternal Report, Enhanced Audio Recording Signal, and Coded Electronic Media Use

One of the main goals of this chapter was to compare the different methodologies used to gather data on children's electronic media use. As presented in Table 1, mothers generally reported that their children's electronic media use was much higher than the number of hours captured by the enhanced audio recording device (i.e., 2.95 vs. 0.80 hours/day of media on a weekday and 2.88 vs. 1.10 hours/day of media on a weekend). Additionally, mothers' reports of children's media use were not significantly correlated with the enhanced recording's reports of children's media use (r ranged from 0.01 to 0.11), and the small size of the correlations suggests that maternal reports of children's media use are not related to children's actual electronic media use as measured by the enhanced audio recording device. However, because the enhanced audio recording device identifies television and radio signal with 71% accuracy (Xu et al., 2009), we also decided to manually code for the presence of electronic media to enhance the validity of our reports. Mothers reported their children spending more time using media than children's number of hours of media use coded by our study team (see Table 1). For example, mothers reported an average of 2.95 hours of electronic media use on a weekday whereas our coders calculated an average of 1.26 hours of electronic media use on a weekday. Despite this difference, there were significant correlations between mothers' reports and our coding of children's exposure to electronic media on a weekday ($r = .49$, $p < .001$; see Table 2) and a weekend day ($r = .37$, $p < .05$).

[Insert Table 2 Here]

Given that most of the research in children's exposure to media is based on parent reports, we explored whether the correlation between mothers' reports of their children's media use and observed screen media use varied by a key demographic variable related to children's home environment, mothers' education level.

[Insert Figure 1 Here]

Figure 1 indicates that there were significant differences by mother's education level in the amount of time that children spent with electronic media. Mother-reported weekday screen time was significantly greater for children of mothers with a high school diploma and/or some college courses (HS-Plus), compared to children of mothers with a 2- or 4- year college degree ($t = 3.43$, $p < .01$) and graduate degree ($t = 3.83$, $p < .01$). Similarly, mother-reported weekend screen time was significantly greater for children of mothers with a HS-Plus level of education compared to children of mothers with a 2- or 4- year college degree ($t = 3.09$, $p < .01$) and graduate degree ($t = 3.37$, $p < .01$).

[Insert Figure 2 Here]

In contrast, based on our coding of children's media use there were no significant differences between children of mothers with a college degree and graduate degree on the weekend or weekday (see Figure 2). Coded screen time, however was significantly greater for children of mothers with a HS-Plus level of education compared to children of mothers with a graduate degree for both the weekday ($t = 2.17$, $p < .05$) and weekend ($t = 2.04$, $p = .05$).

[Insert Table 3 Here]

Additionally, as demonstrated in Table 3, mothers' reports of their children's media use were significantly correlated with our coding of children's exposure to media for mothers with

higher levels of education and only during the weekday. This correlation ($r = .43, p < .05$) is moderate in size. There were no significant relations between mothers' reports and our coded observations of children's media exposure for mothers with lower levels of education. However, it is possible that there was a lack of power to detect a significant correlation due to the relatively small sample of mothers in this group. For example, the magnitude of the correlation between coded observations and mother report for weekday was .50 for mothers without a graduate degree. Still, mothers in our sample overestimated the actual amount of time their children spent with electronic media with the biggest discrepancies evident among mothers without a graduate degree. It is possible that electronic media exposure could have been present during the times of the day when there were no recordings (e.g., at or after bedtime, in the care of another family member). Nonetheless, due to the differences between mothers' reports and our coding of children's media use, we will describe children's electronic media use in the home using our coded observations in the following sections. Later, we will use both mother-report and our coded observations to investigate whether there are differential links with child outcomes by source of media use.

Type of Electronic Media Used by Preschool Children in the Home

To explore which forms of electronic media preschoolers used most frequently, we measured the proportion of time each device was used in relation to the amount of electronic media exposure each child was exposed to. On average, television was the most frequently used medium (80.4%), followed by video games (9.9%). A smaller proportion of electronic media used by preschoolers consisted of computers and tablets (2.8%), while the remaining electronic media time consisted of exposure to other forms of electronic media, such as phones, audio

books and educational products (7.0%). Next, we wanted to explore whether children's use of various forms of electronic media differed by mother's education level.

[Insert Figure 3 Here]

As depicted in Figure 3, children of mothers with a HS-Plus level of education were exposed to significantly more television in relation to other forms of electronic media than children of mothers with 2- or 4-year degrees or those with graduate degrees. Of their total electronic media exposure, children from these families spent approximately 90% their time viewing television. However, there were no significant differences between children of mothers with a 2- or 4- year degree and those who held a graduate degree, with these children spending 69% and 68% of their total exposure to electronic media, respectively, viewing television. While relationships between mother's education level and other forms of electronic media were not statistically significant, children of more highly educated mothers were more likely to play video games, use computers/tablets, and other various forms of electronic media, possibly due to additional resources being available within the home. It is noteworthy that, even with the advent of newer forms of electronic media, television is still the predominant medium to which preschool children are exposed.

Types of Media Content and Programming. In addition to the range in electronic media used by preschoolers in our study, we noticed that the type of media programming that the preschoolers were exposed to also varied. For example, 58.1% of children were exposed to adult television or movies (e.g., *Sex and the City*, *Grey's Anatomy*, and *Scary Movie*). Preschoolers who were exposed to adult programming had greater coded weekday electronic media exposure ($M = 1.95$ hours, $SD = 1.54$) compared to preschoolers who were not exposed to adult programming ($M = 0.92$ hour, $SD = 1.00$ hour; $t(40) = -2.43$, $p < .05$). Similarly, preschoolers

who were exposed to adult programming had greater coded weekend electronic media exposure ($M = 2.74$ hours, $SD = 1.74$) compared to children who were not exposed to adult programming ($M = 1.61$ hours, $SD = 1.08$; $t(34) = -2.23, p < .05$). Although more than half of the preschoolers in our sample were exposed to adult content, the majority of their time using electronic media was with child-oriented programming.

Some of the most popular types of television programs for preschool children in the United States are those that are educational, or whose content teaches children lessons or facts across a variety of topics (e.g., *Sesame Street*, *Mr. Rogers' Neighborhood*, *Dora the Explorer*, *Wild Kratts*; Anderson et al., 2001). These types of programs have been contrasted with programs intended for older audiences in terms of the positive and negative effects of such programming exposure. Research has suggested that educational programming can have positive effects on children (Hogan & Strasburger, 2008; Strasburger et al., 2009), whereas adult-oriented TV, particularly violent content, has been shown to negatively impact children (Barr et al., 2010; Christakis & Zimmerman, 2007). Thus, we sought to first describe how frequently children in our study watched educational versus general-audience programming and whether this differed by mothers' education level.

The majority of children in our sample (88.6%) viewed at least one type of educational program. However the proportion of electronic media exposure that was educational vs. general programming differed by mother's education level. As depicted in Figure 4, we found that children of mothers with a graduate degree were exposed to more educational content and less general content, compared to children of mothers with lower levels of education (i.e., a 2- or 4-college degree or less).

[Insert Figure 4 Here]

It is important to note that there were no differences in percentages of educational or general programming between mothers with a high school degree and/or some college courses and mothers with a 2- or 4-year degree. Children in these families had approximately 8% and 12% of their television time, respectively, spent watching educational programming. Contrast this to children of mothers with graduate degrees, who had approximately 39% of television time spent watching educational programming. It is possible that mothers with graduate degrees have more resources to ensure that their children are exposed to more educational content. For example, having multiple media formats to play re-run episodes of such television programs (e.g., mobile devices, DVDs, and tablets) may account for why children in these families had a greater percentage of educational programming. Alternatively, research suggests that highly educated parents exhibit greater concern about negative media effects on their children (Common Sense Media, 2013; Rideout et al., 2010). Therefore, it follows that the more educated mothers in our study could have been more aware or concerned about media effects and thus chose programming that was educational for their children.

Quality of Mother-Child Conversations during Use of Electronic Media

In addition to examining media content and programming differences, we also investigated whether there were differences by mothers' educational level in the quality of parent-child interactions around electronic media. Mother-child conversations occurred in a variety of ways during media viewing. All but three families (93.2%) had at least one conversation during media viewing pertaining to rules about electronic media exposure and/or the media content. Discussing media content was more common, with 88.6% of the families discussing the content of a television program or video game at least once.

[Insert Figure 5 Here]

Of the three categories of mother-child conversations about media content (i.e., no communication, co-viewing, and parent-child communication about media content), no communication was present for preschoolers of mothers with a 4-year college degree or less for the majority of the time that the child was exposed to electronic media (60.6% and 55.4% of the coded media segments, respectively; see Figure 5). Almost all of the coded media segments of children with mothers with less than a graduate degree had either no communication or co-viewing around media content (97.9% for children of mothers with a 2- or 4-year college degree and 94.1% for children of mothers with HS-Plus level of education, see Figure 5). In contrast, mothers with graduate degrees engaged in more elaborate discussion with their children about media content compared to mothers without a graduate degree (approximately 29% of the coded media segments compared to 5.9% and 2.1%, respectively). Even still, preschoolers of mothers with graduate degrees spent over 40% of their electronic media exposure with no parent-child conversations around the media content.

The proportion of media segments with parent-child communication is lower than what would be expected, based on the frequency of parental-child dialogue about media content reported in the literature. For example, Gentile, Nathanson, Rasmussen, Reimer, and Walsh (2012) found that 53% of parents in their study reported “often” or “always” talking to their children about the TV and movies they watch. In our sample, 58.1% of the families (n=25) had zero instances of parent-child communication about content and another 34.9% (n=15) engaged in dialogue about content in 1/3 or less of recorded media segments. Thus, only about 6.98% of the sample (n=3) communicated about media content for the majority of the recorded media segments.

There are a couple of potential reasons for the divergence in the findings. It is possible that parent reports of frequency of parent-child communication related to media content may be biased and could reflect social desirability bias. Indeed, when Gentile et al. (2012) asked children whether their parents talked to them about the TV and movies they watch, only 21.2% answered “yes.” It is also possible that parents may consider communication while “co-viewing” as actively mediating content. Thus, it is possible that parents inaccurately recall how they mediate television. Therefore, observational assessment of parent-child communication or asking children about their recollection of communication with parents during media exposure may be more valid than relying on parent report. Another possible reason for the difference in findings is the age difference of the children in these studies; children were an average of 9.21 years old in Gentile et al. (2012), whereas the children in our study were 4.47 years old, on average. However, we would expect with a sample of younger children that dialogue between parents and children regarding media content would be higher, given that parents of younger children endorse *greater* frequencies of communication about media content (Gentile et al., 2012; Warren, Gerke, & Kelly, 2002). Finally, another possible explanation for the divergence in findings is that parents may have engaged in conversations related to media content during times in which no media signal was present. Recall that only segments that were identified as having any media signal were coded. Thus, it is possible that mothers in our study elaborately discussed media content after children were no longer consuming media.

As depicted in Figure 5, mothers with graduate degrees engaged in communication with children about the content of media more often than mothers with fewer years of education. This finding is in alignment with previous research demonstrating that parents with higher educational levels reported greater instructive communication (e.g., explain something on TV to child, help

child understand motives of a character, and help child understand TV content) compared to parents with lower and middle education levels (Valkenburg, Krcmar, Peeters, & Marseille, 1999). It is possible that more educated mothers are more media literate or have had educational experiences that have taught them to analyze, critique, and explain or discuss the messages given in the media to young children in a developmentally appropriate manner.

Regressions of Electronic Media Predicting Child Outcomes

Next, we assessed the relations between various characteristics of children's media use (i.e., quantity and content) and children's outcomes one year later. Given the relatively small sample size, which limits the generalizability of the findings, these analyses are exploratory. To take this into account, we will focus on describing the magnitude of the effect sizes, which are relatively independent of sample size to show the meaningfulness of the associations we examine, in our discussion of the results. The effect size estimate used in our analyses is η^2 (small effect size: $\eta^2 = .02$; medium effect size: $\eta^2 = 0.13$; large effect size: $\eta^2 = 0.26$; MRC Cognition and Brain Sciences, 2009). In the following tables, we present unstandardized coefficients from regression models that included mothers' education (entered as a continuous variable) and children's sex as covariates.

Quantity of Media Use. In the first set of regression analyses, we focused on children's achievement and behavioral outcomes because these outcomes have been most salient in previous studies linking media with child outcomes. In general, prior studies find that higher *quantity* of media used by a child is associated with lower levels of achievement (Pagani et al., 2010; Zimmerman & Christakis, 2005) and more behavioral problems (Acevedo-Polakovich et al., 2006; Hinkley et al., 2014).

[Insert Table 4 Here]

We found that our coding and mothers' reports of children's electronic media use were not significant predictors of children's math achievement, which was based on a standardized assessment rather than mothers' reports, thus, avoiding potential same reporter bias. Moreover, the effect sizes are very small, which, taken together, suggest that the number of hours children spend using electronic media is unrelated to preschool-aged children's math achievement. On the other hand, it is also possible that other variables related to children's electronic media use, not assessed in the current study, could account for this previously supported association. Specifically, we did not observe how or if sleep disruptions due to electronic media consumption may have impacted these children. Research has found that electronic media exposure disrupts sleep (e.g., Foley et al., 2013), which is essential for cognitive functioning (e.g., working memory, Steenari et al., 2003) and thus, academic achievement. Additionally, it is possible that the association between children's electronic media use and achievement may not be evident until children are older. There is some evidence for this hypothesis. In a longitudinal study by Pagani and colleagues (2010), they found significant links between preschool-aged children's media use and achievement at age 10. Therefore, the null findings regarding the association between electronic media exposure and media content and achievement in this study may be due to the fact that the negative effects of electronic media exposure on achievement found in prior research do not appear until children are older and/or that we did not assess other media variables that could be underlying the previously supported associations.

In contrast, we found support for mothers' report of electronic media exposure predicting externalizing symptoms one year later, as we would expect based on prior literature (Dietz & Strasburger, 1991; Rutherford et al., 2010; Villani, 2001). It is important to note that our coding of electronic media exposure did not predict these outcomes. It is possible that aspects of media

use not captured by our coding (e.g., electronic media use when the recording was not on) could explain these null findings.

In addition to achievement and behavioral outcomes, we also examined the relation between children's electronic media exposure and later self-regulation skills, an important correlate of children's achievement and behavioral outcomes (McClelland et al., 2007). The results indicate small (η^2 ranged from 0.01 to .10) and insignificant effects ($p > .05$) of weekend electronic media exposure on mother-reported self-regulation and observed self-regulation, giving little support to previous findings which link increased early exposure to electronic media and poor performance on self-regulation tasks (Nathanson et al., 2014; Schmidt, Pempek, Kirkorian, Lund, & Anderson, 2008). However, it is possible that our findings do not replicate previous results due to the manner in which self-regulation has been measured and the ages of children studied within different samples. For instance, Nathanson et al. (2014) used an executive function composite score in a cross-sectional design to investigate the link between electronic media exposure and self-regulation performance, whereas the current study utilized parent-report of inhibitory control in a longitudinal design. Another study by Schmidt et al. (2008) focused on 1- to 3-year-olds (as opposed to our sample of four-year-olds) and measured self-regulation via the length of focused play episodes in the presence of background television. Thus, given the differences in both age groups and measures used to evaluate self-regulation abilities, it may not be entirely surprising that our results fail to replicate previous findings.

Before turning to our next set of regression models, it is important to note that a large proportion of the studies that find associations between amount of media exposure and child outcomes in early childhood primarily focus on how quantity of violent media relates to negative child behaviors (Bushman & Huesmann, 2006; Christakis & Zimmerman, 2007). We did not

measure children's exposure to violent content, which may also explain why our results differ from prior studies. Although we did not have the data to examine whether violent media content related to children's outcomes, we were able to examine whether educational or general media content related to children's outcomes one year later.

Content of Media. Studies that examine media quality demonstrate that higher *quality* media programming is associated with better academic outcomes contemporaneously and longitudinally. For example, greater exposure to educational programming during preschool is positively associated with academic performance during kindergarten (Wright et al., 2001) and grades in high school (Anderson et al., 2001). Our results indicate a small but insignificant effect of proportion of educational programming on math achievement one year later ($\eta^2 = .07, p = 0.11$). Children who watched more educational programming were reported by their mothers as having greater self-regulation one year later ($\eta^2 = 0.19, b=1.76, p = 0.01$) while children who watched more general programming were reported by their mothers as having less self-regulation ($\eta^2 = 0.16, b = -1.62, p = 0.02$). Important to note, however, is that the proportion of educational and general-audience content of the programming watched by the preschoolers in our study was unrelated to externalizing behavior and *observed* self-regulation one year later.

In addition to the other possible explanations for our null findings we mentioned previously (e.g., our coding did not capture non-recorded electronic media exposure and small sample size), it may also be the case that more detailed coding of the content (e.g., for violence/adult ratings) is needed to capture the association between preschooler's media exposure and poorer behavioral or *observed* self-regulation outcomes. It should be acknowledged that based on our coding, most children in the sample were actually meeting American Academy of Pediatrics recommendations for screen time (e.g., 2 hours or less; AAP, 2013). Thus, our

sample may have been skewed to lower amounts of electronic media exposure for a variety of factors (e.g., demographic characteristics such as higher maternal education), thus limiting variability and ability to detect significant associations.

Finally, it is also possible that how parents manage children's exposure to types of media may relate to some of these outcomes. For example, children whose parents talk to them about TV content may have better outcomes than those children who watch general programming without the scaffolding of a parent. Take for example, this interaction, coded as communication about media content during an episode of *Phineas and Ferb*:

Child: "That made her sick"

Mother: "Uh oh."

Child: "Mama...Stacy [character on *Phineas and Ferb*] sneezed, Candace made Stacy sick."

Mother: "Yeah. She didn't cover her mouth when she sneezed I bet."

Child: "Yeah."

Although the content is not educational in this example, the mother's explanation of how one of the characters likely became sick is an example of how parents can facilitate child's understanding of media content (that is applicable to real-life). Also consider this exchange:

Child: "Mama on the TV I saw somewhere 'love.'"

Mother: "Oh yeah? How do you spell love?"

Child: "L-O-V-E. Mom?"

Mom: "Yeah?"

Child: "It said L-I-V-E."

Mom: Oh, that's the word live."

Child: "Ohhh"

Mom: "Now you know two words. Well, you know more words than that."

In this example, the mother-child interaction demonstrates how feedback and engagement with the mother facilitated the child's learning of a new word. In both instances, the television content was not educational but the mother's interaction with the child around the media exposure enabled learning experiences for her child. Taken together, these examples demonstrate perhaps another reason why the proportion of non-educational content was largely unassociated with poorer child outcomes in the present study. Thus, it is possible that parent-child communication about the content (given that it is age-appropriate) may moderate the impact of exposure to certain types of content on child outcomes.

Finally,

Discussion

Using enhanced audio recordings and coding of naturalistic observations, our study provided a comprehensive description of the home media environment of preschoolers, across multiple media formats (e.g., television, computer, tablet, video games, other mobile devices). Importantly, in addition to describing the quantity and quality of children's media exposure, we also examined the nature of conversations between mothers and their preschool-aged children surrounding electronic media exposure and explored whether maternal interaction with children while using electronic media differed by demographic factors.

Our findings indicate that preschool-aged children are exposed to a variety of media but that television is still the most commonly used medium in this sample. Nonetheless, our study highlights the need to assess the frequency of multiple types of media in the home, given the rapid growth of mobile devices. We also found differences in amount and content of media

exposure, based on mothers' level of education. Even in our (relatively speaking) highly educated sample, we found differences in amount of electronic media exposure. For example, children of mothers with graduate degrees were exposed to a greater proportion of educational programming. Children of mothers with graduate degrees had less electronic media exposure, compared to children of mothers with high school degrees and/or some college courses. Given these demographic differences in quantity and quality of media exposure in this sample of mothers with high school degrees or higher, future research should examine such differences in a sample that includes mothers without a high school diploma or with a high school diploma/GED only. This is especially important because prior literature suggests that children from lower SES families have higher electronic media exposure and may be more susceptible to the negative correlates of excessive media use (Anand & Krosnick, 2005; Christakis, Ebel, Rivara, & Zimmerman, 2004).

In addition to reliably coding the presence of different types of media formats and programs, we also were able to transcribe a broad array of mother-child interactions about media over many hours of audio-recordings. A noted limitation in the literature on parent-child communication related to media content is that the vast majority of the studies use parents' report of communication during children's electronic media exposure. Although we did not measure parents' report of their communication styles, we were able to classify mother-child interactions into categories reflecting co-viewing dialogue and communication with children about media content. Importantly, we found that children of mothers with less than a graduate degree were exposed to media without any dialogue related to the content of media or co-viewing dialogue for the vast majority of the time. Indeed, Christakis et al. (2009) found that with each additional hour of television exposure, there was a decrease of 770 adult words the

child heard during the recording session. Our study adds to those findings by demonstrating that not only is there less talk in general, but in the context of media exposure, there is little communication between parents and children related to media content. It is not yet known how prevalent parent-child interaction around media is in families with lower parental education levels or in families with lower SES. Given the small sample size, future research should implement this coding system in a larger, more diverse sample.

Future Directions

In addition to the aforementioned ideas for future research, future investigations should examine other types of the child's media environment in their home not assessed (i.e., electronic media use after bedtime or the presence of electronic media in the bedroom), when examining the longitudinal associations between media exposure and child outcomes (e.g., achievement, externalizing symptoms, and self-regulation). Investigating these additional types of electronic media exposure, which are correlated with children's achievement and behavioral functioning, would address some of the limitations of the study described herein.

Although we were able to classify parent-child interaction about media into three different categories (no communication, co-viewing, and communication about media content), further qualitative analysis of the conversations around media and other management language (e.g., parents setting limits, children negotiating for more screen time, etc.) is recommended. Identifying themes of parent-child communication around media could be important in furthering our understanding of how parents manage the many media formats present in the homes today. Future research should also consider parent-child interaction around media as a moderator of the associations between media exposure and child behavioral and self-regulation outcomes longitudinally. Parent-child interaction around media may promote or reduce risks of media

exposure or internalization of messages propagated by the media (e.g., advertising, stereotypes, gender roles, body ideals, etc.). Finally, given that parent-child interaction around media will be different across developmental stages, longitudinal studies with observational data using enhanced audio recordings could greatly add to the literature on parenting of children's media use.

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Table 1.

Descriptives of Media Variables and Reliability Statistics at Wave 1

	M or %	SD	Min	Max
Frequency				
Mothers' Report: Average Hours/Weekday	2.95	2.48	0	12
Mothers' Report: Average Hours/Weekend	2.88	1390	0	9
Enhanced Audio Recording: Hours/Weekday	0.80	0.80	0	4.70
Enhanced Audio Recording: Hours/Weekend	1.10	0.89	0.01	3.34
Coded: Average Hours/Weekday	1.26	1.38	0	6.97
Coded: Average Hours/Weekend	1.85	1.51	0	6.47
Coded Content				
Educational Programming	22%		0	1
General Programming	74%		0	1
Coded Conversation Quality				
Conversation Absent	54%		0	1
Co-Viewing	33%		0	1
Active Mediation	13%		0	1
Reliability Statistics for Coded Variables				
Media type (television, computer, etc.)	ICC's			
Media type (television, computer, etc.)	0.72			
Child versus Adult Program	0.94			
Education versus General Program	0.91			
Media Rules Discussed	0.90			
Media Content Discussed	1.00			

Table 2.

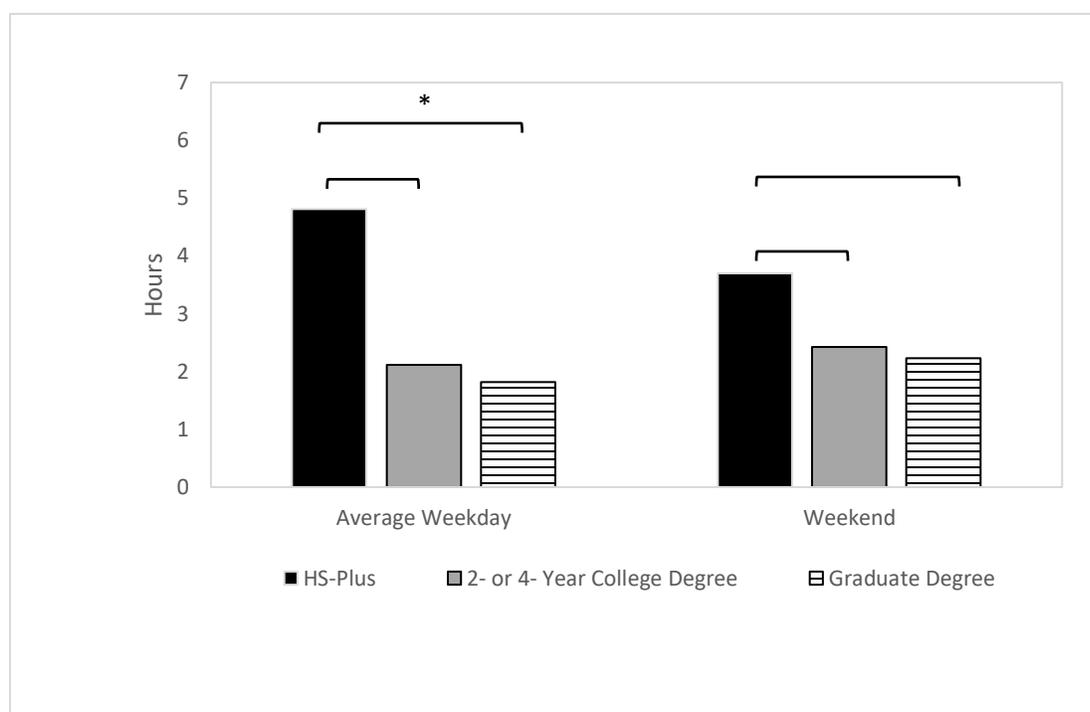
Correlations between Mother-report and Coding of Children's Electronic Media Use in Average Number of Hours per Day

	1	2	3	4
1. Mother report: Average Hours/Weekday	1.00			
2. Mother report: Average Hours/Weekend	0.62***	1.00		
3. Coded: Average Hours/Weekday	0.49***	0.28	1.00	
4. Coded: Average Hours/Weekend	0.46**	0.37*	0.46**	1.00

Note. Mothers reported on the following media: TV, video games, computer, and educational software

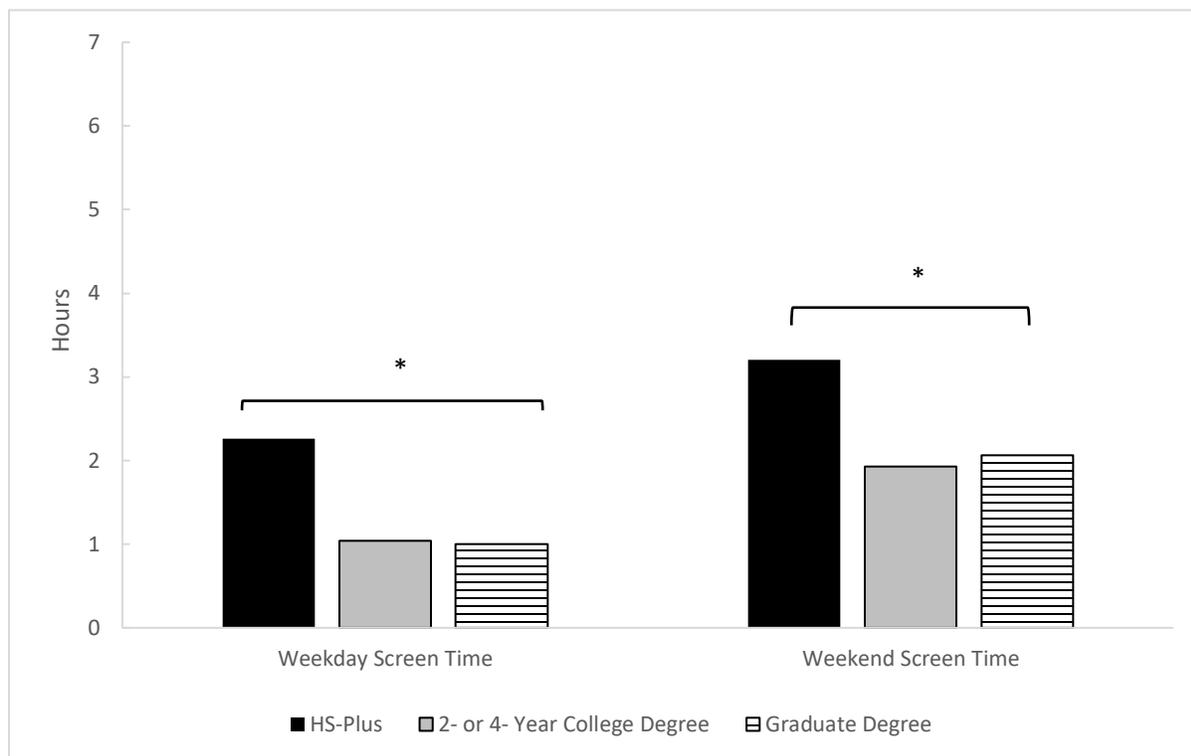
* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 1. Mother-reported Weekday and Weekend Screen time by Maternal Education



Note. Asterisks indicate significant group differences.

Figure 2. Coded Weekday and Weekend Screen time by Maternal Education



Note. Asterisks indicate significant group differences.

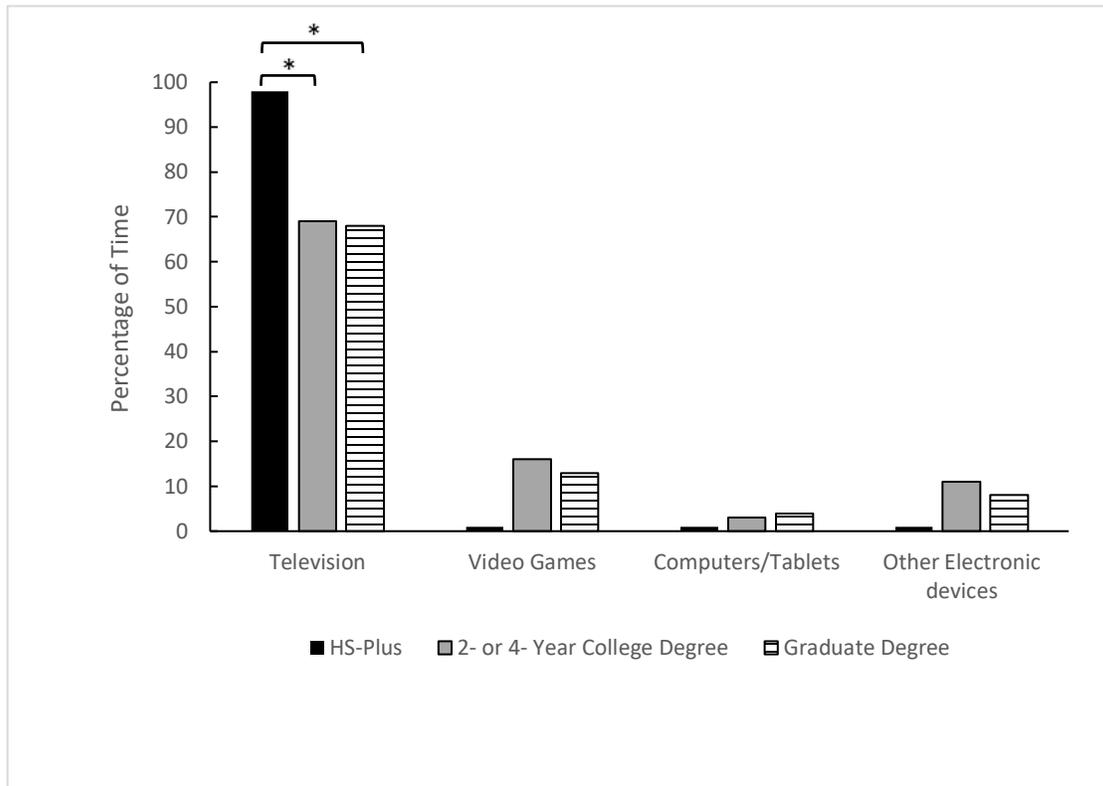
Table 3.

Intercorrelations between Mother Report and Coded Electronic Media Use in Average Hours per Day by Maternal Education

	1	2	3	4
1. Mother report: Average Hours/Weekday	1	0.67***	0.43*	0.44*
2. Mother report: Average Hours/Weekend	0.39	1	0.29	0.36
3. Coded: Average Hours/Weekday	0.50	0.01	1	0.45*
4. Coded: Average Hours/Weekend	0.28	0.07	0.23	1
HS-Plus Mean (SD)	4.82 (3.22)	4.20 (2.15)	1.80 (1.27)	2.80 (1.90)
Degree Mean (SD)	1.98 (1.19)	2.20 (1.35)	0.97 (1.37)	1.49 (1.19)

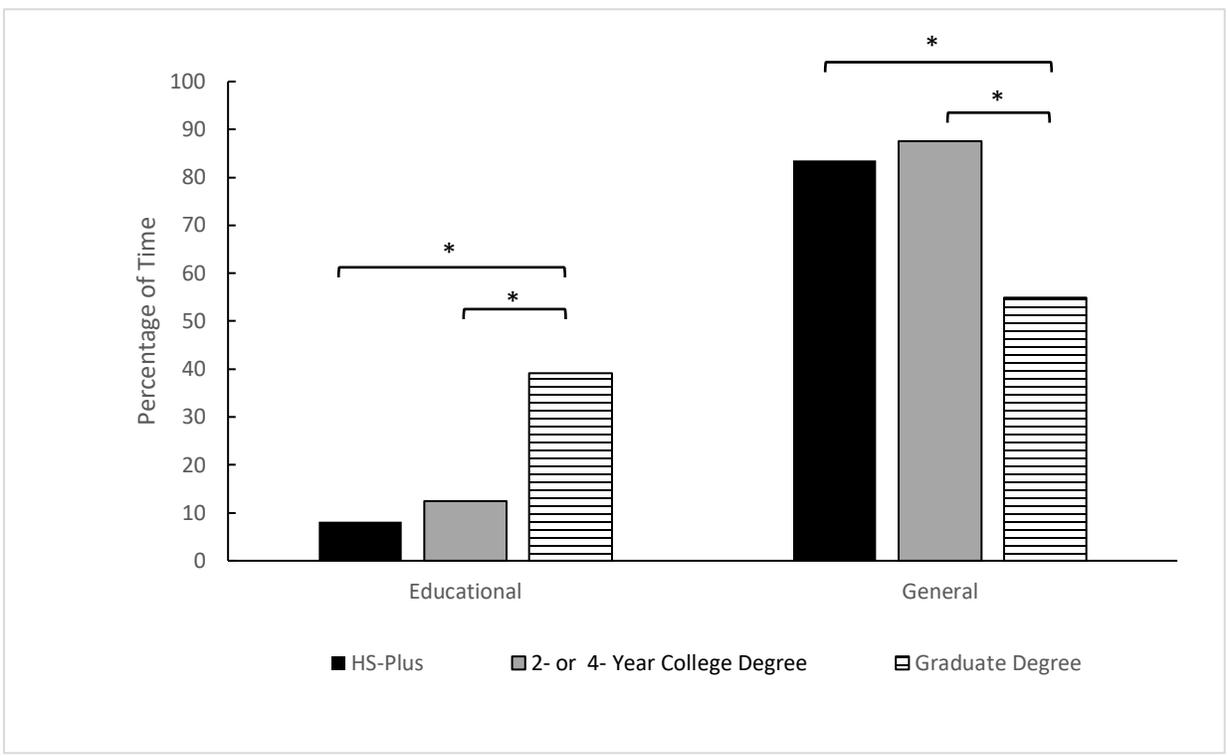
Note. Mothers reported on the following media: TV, video games, computer, and educational software. Below diagonal correlations represent mothers with a high school degree and/or some college courses ($n=15$). Above diagonal correlations in grey represent correlations for families with a 2-year college degree or higher ($n=29$). * $p < .05$, ** $p < .01$, *** $p < .001$

Figure 3. Frequency of Use by Electronic Media Category by Mother's Education Level



Note. Asterisks indicate significant group differences.

Figure 4. Percent of Time Exposed to Educational and General Programming by Mother's Education Level



Note. Asterisks indicate significant group differences.

Figure 5. Percentage of Media Segments consisting of No Communication, Co-Viewing, or Parent-child communication by Mothers' Education Level

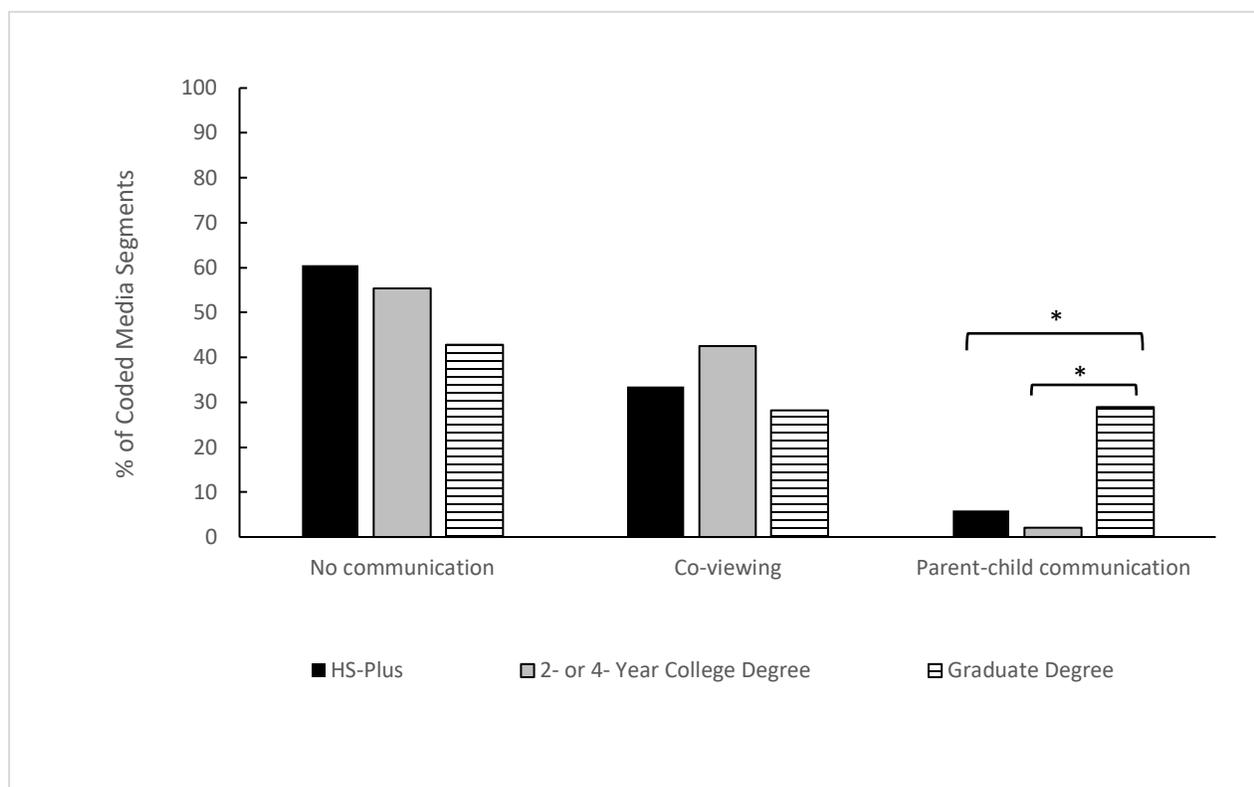


Table 4.
Child Math Achievement and Externalizing Behavior Regressed on Quantity of Media based on Coded Electronic Media Use and Mother Report

	Wave 2									
	Math Achievement					Externalizing				
	η^2	b	SE	p	n	η^2	b	SE	p	n
Wave 1										
Coded: Average Hours/Weekday	0.00	-0.84	3.76	0.83	34	0.02	0.36	0.39	0.35	35
Coded: Average Hours/Weekend	0.02	-2.08	2.37	0.39	29	0.02	0.16	0.24	0.50	30
Mother Report: Average Hours/Weekday	0.01	-0.75	1.78	0.68	34	0.10	0.35	0.17	0.05	35
Mother Report: Average Hours/Weekend	0.04	-2.12	1.76	0.24	34	0.11	0.37	0.17	0.04	35

Note. Maternal education and child sex were included as covariates in the model but are not shown in the table.

η^2 = Effect size (Eta-squared)