# Predictors of baby video/DVD ownership:

# Findings from a national sample of American parents with young children

Working Paper

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## ABSTRACT

This study examines demographic and attitudinal predictors of parents' reported ownership of baby DVDs among a national sample of U.S. parents with children under age 3. Results indicate few associations with demographic variables. Fathers report greater ownership of baby videos/DVDs, and parents with more children in the home report more satisfaction with these products. Parents' promotion focus orientation (i.e., propensity to pursue possible rewards when outcomes are uncertain) and focus on early childhood education are each positively related to both ownership of and satisfaction with baby videos/DVDs. Furthermore, results indicate that relationships between these attitudinal and outcome variables are partially mediated through parents' belief in the educational value of media for young children. In light of the controversy surrounding baby videos/DVDs and growing number and variety of screen media for infants and toddlers, implications of these findings for policy and further research are discussed.

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Since the mid-1990s there has been a dramatic rise in the screen media programming produced specifically for children under two years of age (Garrison & Christakis, 2005), due largely to the market success of infant/toddler products like *Teletubbies* and *Baby Einstein* (Wartella, Richert & Robb, 2010). In 1997, entrepreneurial stay-at-home mom, Julie Aigner-Clark began producing the *Baby Einstein* series in her basement. She designed the infant-targeted videos to incorporate music, puppets and toys as a means to "provide fun, interactive ways to expose her own babies to the arts and humanities" (Disney, 2010). By 2000, *Baby Einstein* was bringing in over $12 million a year in sales (Dunn, 2001); leading the Disney Corporation to purchase the video/DVD line in 2001 (DeLoache & Chiong, 2009). Since that time, hundreds more media products and programs targeting infants and toddlers have emerged; including *BabyFirstTV,* which became available to cable and satellite subscribers in 2006 as a premium channel offering 24 hours a day of programming for children between 6 months and 3 years of age (Itzkoff, 2006).

Recent estimates suggest that baby videos/DVDs[1] are commonplace in the homes of American infants and toddlers. Barr and her colleagues determined that the average child has at least four such baby videos by the age of 6 months, and the typical 18-month-old has more than seven (Barr et al., 2010). A 2006 Kaiser Family Foundation study indicated that, in a typical day, 24% of children 12 months old or younger and 41% of 2- and 3-year-olds spend time watching videos/DVD (Rideout & Hamel, 2006). Furthermore, the average child under two

[1] The term "baby videos/DVDs" is used in the present paper to refer to any DVDs or VHS videotapes created for children under the age of 3 years.

spends nearly an hour and twenty minutes a day watching television or videos/DVDs. This viewing occurs despite the official position of the American Academy of Pediatrics (2011) to discourage any screen media use among children under two years.

Many parents report that their infants and toddlers watch mostly "educational" programming (i.e., 35% of parents; Rideout & Hamel, 2006). Several studies have queried parents more deeply about their beliefs related to young children's media, particularly with regards to their educational value (Rideout, Vandewater & Wartella, 2003; Vandewater et al., 2007; Zimmerman, Christakis & Meltzoff, 2007) These surveys indicate that many parents consider baby media products to be beneficial for young viewers' learning and development. One Kaiser Family Foundation study found that 58% of parents surveyed felt that educational television programs were important for the intellectual development of children under age six, and 49% felt this way about videos/DVDs (Rideout, Vandewater, & Wartella, 2003). In additional research, over 70% of parents of 6- and 18-month-olds felt that baby videos had the "potential to stimulate brain development", while more than half felt that baby videos "teach concepts" to their children (Courage, Murphy, Goulding & Setliff, 2010).

A survey by Zimmerman and colleagues (2007) indicated similar results. Nearly a third of parents in this study felt that the television programs and videos they showed their child "teach him/her something or are good for his/her brain," and rated this belief as the most important reason for using screen media with their child. Additionally, Vandewater and colleagues (2007) found that those parents who believed that "television mostly helps children's learning" were more than two times more likely to show television or videos to their child under two than those who did not endorse this belief, though differences in the actual viewing rates were not reported.

These beliefs and predictive relationships are in contrast to available research that has largely not confirmed educational benefits of television or videos/DVDs for infants (Krcmar, 2010; Wartella, Richert, & Robb, 2010). Rather, most studies have indicated what Anderson and Pempek (2005) have termed the "video deficit effect", whereby children under age two learn more readily from live demonstrations than video presentations of the same information. The few studies that have shown some learning from screen media among children under two have used video content created by the researchers (e.g., Barr, Muentener & Garcia, 2007; Barr et al., 2007; Houston-Price, Plunkett & Duffy, 2006; Troseth, Saylor & Archer, 2006). These videos are typically characterized by simple subject matter and context (e.g., an adult holding an object and repeating its name), and lack the fancy production elements found in videos produced and marketed for babies (e.g., cuts, zooms, and sound effects; Goodrich, Pempek & Calvert, 2009). Conversely, the majority of studies examining infants' and toddlers' learning from commercially available videos have shown substantial video deficit effects (e.g., DeLoache et al., 2010; Krcmar, 2010; Krcmar, Grela & Lin, 2007; Richert, 2007; Robb, Richert & Wartella, 2009), suggesting that babies likely glean very little from currently available programming.

The lack of demonstrated benefits of media content for babies and toddlers has led to complaints from parents and child-advocates about the seductive educational claims used to market baby videos/DVDs (see Garrison & Christakis, 2005; Fenstermacher et al., 2010). In one prominent case the Campaign for Commercial-Free Childhood (CCFC) filed a complaint with the U.S. Federal Trade Commission (FTC) about unsubstantiated claims of intellectual benefit displayed on the packaging and marketing materials of *Baby Einstein* and *Brainy Baby* DVDs (CCFC, 2006a). They later issued additional complaints regarding cable channel *BabyFirstTV* (CCFC, 2006b) and DVD line *Your Baby Can Read!* as well (CCFC, 2012). The FTC did file

charges of false and deceptive advertising against the producers of *Your Baby Can Read!* (Bachman, 2012), who subsequently ceased production in 2012 (CCFC, 2012). While the FTC did not take action against the baby media producers in the other cases, *Baby Einstein* began offering refunds for returned videos/DVDs in 2009 (Lewin, 2009) and both *Baby Einstein* and *Brainy Baby* have since reduced the number of explicit educational claims displayed on packaging and marketing materials (Engle, 2007).

Though our full understanding of the predictors of families' baby video/DVD ownership is quite limited, several studies have examined additional factors that might be related to parents' use of television and videos/DVDs with their infants and toddlers. In particular, this research has explored demographic predictors of infants' and toddlers' time spent viewing television and videos/DVDs. One study by Zimmerman, Christakis & Meltzoff (2007) suggested that having one or more siblings was associated with higher odds viewing of children's non-educational (i.e., entertainment) programming among infants and toddlers, and lower odds of watching baby videos and adult programming, compared to children with no siblings. Babies with two or more siblings spent less total time viewing the screen, however. Additionally, babies whose mothers had not finished high school were more likely to watch child-directed non-educational programming, and spent more time viewing baby videos. Having a father without a high school degree was associated with more overall time viewing. Conversely, those whose mothers had some post-college education were less likely to watch children's educational programs or baby videos compared to other maternal education levels. Finally, African American infants and toddlers were more likely than their white peers to watch children's educational and non-educational programming.

What is needed now is a more comprehensive understanding of which parents purchase baby videos/DVDs for their infants and toddlers and why. Determining the foremost predictors of this behavior is especially crucial in light of the controversy surrounding these media products and research findings that suggest family resources might be better invested in other products or experiences for the benefit of infant and toddler development. Using a national sample of parents with young children, the present research sought to determine demographic and attitudinal predictors of baby video/DVD ownership among parents with young children. While it is expected that parents' attitudes about the educational value of media products for infants and toddlers will be especially predictive of baby video/DVD ownership, this study also examines more distal predictors of those attitudes, including parents' promotion focus orientation and focus on young children's education more broadly.

## Hypotheses and research questions

*Demographics.* Several family- and parent-level demographic factors have been linked in prior surveys to infants' and toddlers' time spent viewing television and video/DVD content (e.g., Zimmerman, Christakis & Meltzoff, 2007). In particular, analyses have indicated associations with race/ethnicity, number of children in the home, and parents' education level and children's viewing estimates. However, given that the current analyses focus instead on predictors of family ownership of baby videos/DVDs, it is not clear that these relationships would operate in the same way. As such, the possible associations between these and other demographic factors with parents' reported ownership of and satisfaction with baby videos/DVDs will be examined as research questions in the present study.

Research question 1: Which family- and parent-level demographic factors will be predictive of parents' ownership of baby videos/DVDs?

Research question 2: Which family- and parent-level demographic factors will be predictive of parents' satisfaction with baby videos/DVDs?

*Promotion Focus Orientation.* One individual characteristic that may impact parents' attitudes and purchase of infant/toddler media products is their level of promotion focus orientation. Promotion focus is a component within the broader theory of regulatory focus orientation, applied frequently in health and consumer behavior research. Regulatory focus theory is based on the premise that individuals have two parallel internal self-regulation systems for satisfying separate classes of personal goals (Higgins, 1997; Higgins et al., 2001). The first class of goals includes those pertaining to a person's growth, reward, and nurturance needs—or promoting their ideals and desires (Werth & Foerster, 2007). The "promotion" self-regulation system works to satisfy these types of "reward" goals by prompting the individual to pursue desired outcomes (Camacho, Higgins, and Luger, 2003). The second class of goals includes those pertaining to an individual's security and protection—or "preventing" undesirable outcomes. Thus, person's prevention self-regulation system works to fulfill security needs by prompting him or her to perform obligations and responsibilities and avoid unfavorable consequences (Camacho et al., 2003).

Studies have found that individuals have a chronic orientation towards either a promotion or prevention focus. Specifically, some individuals have a greater motivation to pursue the possibility of desired outcomes (i.e., stronger promotion focus orientation), even when the certainty of obtaining those rewards is unknown. Conversely, others are more on-guard against erring and thus motivated to avoid failures or negative outcomes. This "prevention focus

orientation" makes them generally more likely to avoid behaviors which have some risk of unfavorable results (Camacho et al., 2003, p. 499).

Given that the majority of screen media products for infants and toddlers carry implicit or explicit claims of educational benefit (Garrison & Christakis, 2005; Fenstermacher et al., 2010), we hypothesize that a higher promotion focus would predict greater ownership and satisfaction with baby videos/DVDs. That is, more promotion-focused parents would be more likely to pursue the possible beneficial outcomes ("rewards") described on video/DVD packaging and in promotional materials. Furthermore, we expect that this relationship will be mediated by parents' attitudes toward infant/toddler educational media. Promotion-focused parents are more likely to endorse greater educational potential of media products for young children given their propensity to seek beneficial outcomes in general. This higher perception of educational media products should in turn lead parents to purchase more baby videos/DVDs.

Hypothesis 1a: Parents' with a higher promotion focus orientation will own more baby videos/DVDs on average, and report higher levels of satisfaction with baby videos/DVDs.

Hypothesis 1b: The positive relationships between parents' promotion focus and baby video/DVD ownership and satisfaction will be mediated by parents' attitudes regarding educational infant/toddler media products.

*Education focus.* Parents' level of focus on young children's education is also likely to impact their attitudes and use of baby videos/DVDs. A recent nationally representative survey conducted for *Zero to Three* suggests there is some variability among parents with young children in the emphasis placed on early academic learning compared to other parenting issues (Hart Research Associates, 2009). For example, only

13% of parents with children 3 years old or younger cited a concern that their infant/toddler would do well in school, compared to 25% who were concerned about their inability to protect their children from injury. When asked about the most important skills that children needed to master before Kindergarten, 45% of parents mentioned playing well with others, while only 16% suggested knowing most of the alphabet was particularly important. Parents that place a strong emphasis on infants' and toddlers' education are likely considering whether experiences with videos/DVDs marketed as educational could boost their children's learning. Such consideration may lead them to develop positive attitudes toward infant/toddler media, particularly in light of the seductive educational claims that generally accompany these products. These attitudes may in-turn lead parents to purchase baby videos/DVDs for their young children, and may also boost their feelings of satisfaction with those videos.

Hypothesis 2a: Parents' with a stronger focus on their young children's education will own more baby videos/DVDs on average, and report higher levels of satisfaction with baby videos/DVDs.

Hypothesis 2b: The positive relationships between parents' education focus and baby video/DVD ownership and satisfaction will be mediated by parents' attitudes regarding educational infant/toddler media products.

## METHODS

### Participants

A total of 831 parents/legal guardians participated in this study. Of the sample, there were more women (N = 464, 55.8%) than men (N = 367, 44.2%). Participants ranged in age from 18 to 70 years of age ($M$ = 31.4, $SD$ = 7.4), were from predominantly middle class households

(median household income = $25,000 to $49,999) and White/Non-Hispanic (68.7%) households. Participants had an average of 14.5 years of education (approximately an Associate's degree; *SD* = 2.6) and came from households consisting of 2.1 adults on average (*SD* = 0.73) along with 2.1 (*SD* = 1.17). See Table 1 for a complete description of sample characteristics.

## Procedure

The data for this study were collected through the Time-Sharing Experiments for the Social Sciences (TESS) project, which through a partnership with Knowledge Networks enables researchers to conduct survey experiments with a nationally representative sample.[2] With access to approximately 40,000 US residents, TESS also gives researchers the ability to choose certain segments of the population to sample. For the purposes of this study, we were interested in the opinions and reactions among parents with very young children (i.e., three years old and younger) as this age range represents the demographic that infant/toddler DVD producers are most likely to target.

The data reported for this study was generated by a survey experiment embedded within a larger set of surveys conducted by Knowledge Networks. Participants were first asked if they were the parent or legal/guardian to a child under the age of 36 months. Participants who answered in the affirmative were then directed on to the main study. Participants were then told that their opinions were being sought about a new video for infants and toddlers. They were informed that this product was designed for use with children aged zero to three and they were being asked to evaluate the video for use with their own child who was under the age of three. Each participant viewed the front and back covers of an infant/toddler DVD, created by a professional graphic designer for the study. The experimental manipulations included changing

[2] See www.knowledgenetworks.com for more information about Knowledge Networks and the TESS program.

the title of the video, changing the specificity of the verb used with the video's educational claim, and the specificity of the outcome associated with the video's educational claim (Authors, 2012).

Once finished evaluating the product, participants filled out a brief survey that addressed their involvement in their children's education, opinions about educational media, the extent of their promotion focus orientation, ownership of infant/toddler DVDs for their own children's use, and their satisfaction with these videos. In total, 831 parents with at least one child under the age of 3 participated in this study.

## Independent Variables

*Demographics.* The demographic measures investigated in this study were parent age, parent gender, parent education, family race/ethnicity, family income, number of adults in the home, and number of children in the home.

*Parent age.* Parent age was reported in years ($M$ = 31.4 years; $SD$ = 7.3).

*Parent gender.* Respondents were asked to report their gender (reference category = Female, 55.1%).

*Family race/ethnicity.* For these analyses, family race and family ethnicity were combined and reported as one variable. The racial breakdown in the sample was: White, Non-Hispanic (68.7%, reference category), African American, Non-Hispanic (11.1%), Hispanic (13.4%), Other race/ethnicity (6.9%).

*Family income.* Family income was assessed by asking for the family's income from the previous year and was put into categories with increments of $25,000 (1 = less than $25,000; 8 = more than $175,000); $M$ = 3.01; $SD$ = 1.78).

*Number of adults in the home.* Participants were asked, including themselves, how many other adults lived in the home (i.e., how many people were 18 years or older; $M$ =2.14, $SD$ = 0.73).

*Number of children in the home.* Parents were asked how many children were living in the home. The methodology used by Knowledge Network was to ask how many children fit within certain age categories (aged 0 to 2, aged 2 to 5, aged 6 to 12, aged 13 to 17), with these categories combined into a total number of children under the age of 18 in the home ($M$ = 2.10, $SD$ = 1.17).

*Promotion Focus*

Participants filled out a 5-item subscale from the BIS/BAS questionnaire (Carver & White, 1994). Specifically, the subscale was the BAS "Reward Responsiveness Subscale" ($\alpha$ = .84), and included questions like "When I'm doing well at something I love to keep at it" and "When I get something I want, I feel excited and energized". Responses to questions were recorded on a 4-point Likert scale and the items were averaged to create the scale for promotion focus (1 = very untrue for me, 4 = very true for me; $M$ = 3.46, $SD$ = 0.49).

*Education focus*

Participants were asked about their involvement with their child's educational development with a 5-item scale developed by the researchers. These questions asked how much these parents agreed with the following: "It is important for me to have an academic plan for my child", "It is never too early to prepare my child for his/her academic future", "My child's intelligence depends a great deal on the educational experiences he/she receives between 0 to 3 years of age", "If I do not help my child succeed academically when he/she is young, I will be putting his/her future at risk", "It is more important for my child to have fun being a kid, rather

than preparing for years of formal education". The last question in the list was reverse coded for computation of the scale. When testing the reliability for this scale, it was clear that removal of the reverse coded question would significantly increase the scale's internal consistency ($\alpha = .81$). Responses to the other four questions were recorded on a 5-point Likert scale and the items were averaged to create the scale for education focus (1 = definitely disagree, 5 = definitely agree; $M = 4.10$, $SD = 0.78$).

*Attitude about children's educational media*

Parents answered three questions designed to assess their attitude towards educational media. The questions were designed by the researchers and asked whether they agreed with the following statements: "Educational television can make a big difference in children's intellectual development", "Educational television/videos are valuable learning tools for infants and toddlers", and "Making sure my child has many educational materials is important to me". An analysis of the measure's internal consistency revealed that the measure would be more reliable if the item related to ownership of educational materials were removed ($r(856) = .86$, $p < .001$). In addition, the researchers believed that this measure was more conceptually coherent with this item removed from the measure. An average was calculated for the remaining two responses with all responses recorded on a 5-point Likert scale (1 = definitely disagree, 5 = definitely agree; $M = 3.84$, $SD = 0.97$).

## Dependent Variables

*Baby DVD ownership*

Parents were asked how many videos/DVDs directed for use with infants/toddlers they owned (e.g., *Baby Einstein, Brainy Baby*; 1 = none, 2 = 1 to 3 videos, 3 = 4 to 6 videos, 4 = 7 to

9 videos, 5 = 10 to 12 videos, 6 = 13+ videos; *M* = 2.44, *SD* = 1.36). In total, 62.9% (N = 609) of participants reported that they purchased or owned at least one of these videos.

*Satisfaction with baby DVDs*

After being asked about how many videos/DVDs the family's infants/toddlers had, parents were then asked how satisfied they were with these videos on a 5-item scale (1 = very unsatisfied, 2 = somewhat unsatisfied, 3 = no opinion, 4 = somewhat satisfied, 5 = very satisfied; *M* = 3.90, *SD* = 0.86).

*Analytic Approach*

We first tested relationships using zero-order correlations to determine whether any of our dependent variables were linked to select demographic variables (see Table 2).

Two hierarchical regression models were then constructed to determine the extent to which attitudinal variables contribute additional explanatory power to demographic variables in predicting parents' ownership of and satisfaction with baby videos/DVDs respectively. Because the data for this study was collected as part of an experimental study, we entered the conditions for each of the experimental manipulations in the first step of the model to control for any effect the manipulations may have had on our dependent variables (in the experimental study these dependent variables were used as covariates). The second step of the model contained the demographic variables of interest, as well as the number of baby videos/DVDs owned in the model predicting satisfaction. In the third, the BAS scale and educational involvement scales were added as predictors. In the fourth and final step of each model the scale representing parents' attitude toward infant/toddler media products was added to the model. Mediation was determined by the extent of attenuation of relationships between the promotion focus and

educational focus variables and the dependent variables (i.e., video/DVD ownership and satisfaction)

## RESULTS

### *Zero-order Correlations*

Table 2 shows the zero-order correlations for all variables of interest in our study. There were also some small but marginally significant correlations between assignment to the original experimental conditions and certain demographic variables (the experimental manipulations were not part of this survey, but they were included to control for any potential confounding effects with our dependent variables). With regard to assignment to the brand name condition, parents of Hispanic background were marginally more likely to be assigned to the Lil' Genius condition ($r(831) = .08$, $p < .10$) while families with lower income were marginally more likely to be assigned to the Lil' Genius condition ($r(831) = -.08$, $p < .10$). There were no significant or marginally significant relationships with any of the variables of interest and the other experimental conditions.

In looking at the demographic variables and their bivariate relations with both the attitude variables and the dependent variables, there were numerous significant or marginally significant relationships found. First, we found that older parents were less likely to indicate a chronic promotion focus ($r(831) = -.17$, $p < .001$), indicate a strong education focus ($r(831) = -.13$, $p < .001$), and believe that educational media could be valuable ($r(831) = -.11$, $p < .01$). We further found a marginally significant association whereby older parents owned more infant/toddler videos ($r(831) = .06$, $p < .10$). Second, when compared to the fathers in our sample, mothers were more likely to report a higher promotion focus ($r(831) = .10$, $p < .01$) and reported owning fewer videos for infants/toddlers ($r(831) = -.10$, $p < .01$).

We found some interesting differences in how families of different race/ethnicity responded to the attitudinal questions. White, Non-Hispanic parents were significantly less likely to endorse a promotion focus ($r(831) = -.11$, $p < .01$), less likely to indicate that they were focused on their children's education ($r(831) = -17$, $p < .001$), and less likely to believe that educational media is beneficial to children ($r(831) = -.19$, $p < .001$) when compared to respondents that did not select this racial/ethnic category. Conversely, African American, Non-Hispanic parents were significantly higher on promotion focus ($r(831) = .13$, $p < .001$), education focus ($r(831) = .15$, $p < .001$), and were more likely to believe that educational media could benefit their children ($r(831) = .19$, $p < .001$) than non-African American respondents. Lastly, parents of Latino background were more likely to have favorable attitudes towards educational media ($r(831= .08$, $p < .05$), while parents reporting other races/ethnicities (combined into one group for the present analyses) were significantly more focused on their child's educational development ($r(831) = .07$, $p < .05$).

Family income was significantly associated with less education focus ($r(831) = -.10$, $p < .01$) and having more negative opinions regarding educational media and their appropriateness for children ($r(831) = -.18$, $p < .001$). Moreover, wealthier parents were marginally less likely to express satisfaction with owning infant/toddler videos ($r(609) = -.07$, $p < .10$). Similarly, parents with more years of formal education had more negative assessments of infant/toddler videos ($r(609) = -.09$, $p < .05$) and were less likely to believe that educational media had any value ($r(831) = -.21$, $p < .001$). Conversely, in homes where there were more children, parents had more positive experiences with these videos ($r(609) = .10$, $p < .05$).

Lastly, there were a number of significant bivariate relationships when looking at attitudes, video ownership, and satisfaction with these videos. Parents who reported higher

promotion focus were more likely to indicate a greater education focus ($r(831) = .38$, $p < .001$), expressed more positive attitudes towards educational media ($r(831) = .31$, $p < .001$), indicated owning more videos for their infant/toddler ($r(831) = .11$, $p < .01$), and were happier with the videos that they did own ($r(609) = .20$, $p < .01$). Similarly, parents with higher education focus were more likely to believe that educational media was beneficial for their children ($r(831) = .34$, $p < .001$), owned more videos for their infants and toddlers ($r(831) = .17$, $p < .001$), and expressed greater satisfaction with these videos ($r(609) = .21$, $p < .001$). Not surprisingly, parents who had more positive beliefs regarding educational media were more likely to own videos for infants/toddlers ($r(831) = .29$, $p < .001$) and were happier with these videos ($r(831) = .34$, $p < .001$). Parents who owned more of these videos were more likely to say that they were satisfied with the experience of owning them ($r(609) = .26$, $p < .001$).

*Predicting Baby Video/DVD Ownership*

The next tests explored which factors predicted family ownership of infant/toddler videos using hierarchical linear regression. The first step included the original experimental manipulations to control for any confounding effects of stimulus exposure. As shown in Table 3, none of these three variables were significantly associated with video ownership and the model did not account for a significant amount of variance in the number of videos owned ($F(3,824) = 0.38$, $R^2 = .001$, $p = 0.77$).

The second step was to enter our demographic variables to determine if they significantly predicted number of videos owned. Surprisingly, this set of variables did not account for a significant amount of variance in the model ($\Delta F(9,815) = 1.53$, $\Delta R^2 = .02$, $p = 0.14$). However, one variable did emerge as a significant predictor of video ownership, gender of respondent as mothers were less likely to indicate ownership of infant/toddler videos ($\beta = -.11$, $p < .01$).

The third step in the model included two of the attitudinal variables: promotion focus and educational focus. The addition of these two variables was significant ($\Delta F(2,813) = 15.93$, $\Delta R^2 = .04$, $p < 0.001$), as both promotion focus ($\beta = .08$, $p < .05$) and education focus ($\beta = .17$, $p < .001$) were both positively associated with infant/toddler video ownership. In addition, gender of parent remained as a significant predictor of video ownership ($\beta = -.11$, $p < .01$).

The last step in the model included one variable: parent attitudes towards educational media. The addition of this last variable was significant ($\Delta F(1,812) = 55.56$, $\Delta R^2 = .06$, $p < 0.001$) with results indicating that parents with more favorable attitudes about educational media reported owning more infant/toddler directed videos ($\beta = .28$, $p < .001$). Moreover, with the addition of this variable, parent promotion focus was no longer a significant predictor of video ownership ($\beta = .02$, $p = .59$) and the magnitude of the association between education focus and video ownership was cut nearly in half ($\beta = .09$, $p < .05$). Gender of respondent remained a significant predictor of video ownership ($\beta = -.09$, $p < .05$).

*Predicting satisfaction with baby videos/DVDs*

The last of our statistical tests investigated which demographic and attitudinal factors predicted parents' satisfaction with these videos. Similar to the model used above, the first step in this analysis included the original experimental manipulation variables to control for any extraneous effects related to stimuli exposure. The inclusion of these variables did not account for a significant amount of variance in the model ($F(3,602) = 0.34$, $R^2 = .002$, $p = 0.80$).

The second step in the model included the demographic variables of interest as well as the number of the videos that the family owned for their infant/toddler. The addition of these variables was significant, $\Delta F(10,592) = 5.90$, $\Delta R^2 = .09$, $p < 0.001$. Of the variables entered into

the model, only two were significant predictors of video satisfaction: number of videos owned ($\beta = .27$, $p < .001$) and number of children in the home ($\beta = .10$, $p < .05$).

The third slate of variables entered into our regression model consisted of the two attitudinal variables- promotion focus and educational focus. The addition of these variables accounted for a significant amount of variance in the dependent variable, video satisfaction ($\Delta F(2,590) = 16.30$, $\Delta R^2 = .05$, $p < 0.001$). Both of these variables were positively correlated with parent reported satisfaction with the videos with about the approximately same magnitude (promotion focus: $\beta = .14$, $p < .01$; education focus: $\beta = .14$, $p < .01$). In addition, both number of videos owned and number of children in the home remained as significant predictors.

The last step in the analysis included one variable: parent attitudes regarding educational media. As predicted, the addition of this variable was significant ($\Delta F(1,589) = 41.16$, $\Delta R^2 = .06$, $p < 0.001$) as parents with more positive attitudes towards educational media reported being more satisfied with these videos ($\beta = .27$, $p < .001$). Interestingly, with the addition of this variable, parent's educational focus no longer remained as a significant correlate of video satisfaction ($\beta = .07$, $p = .12$) while parent's promotion focus remained ($\beta = .09$, $p < .05$). Number of videos owned along with number of children in the home remained as significant predictors of video satisfaction (see Table 4).

## DISCUSSION

These findings suggest the existence of numerous relationships between parents' demographic characteristics, attitudes, and ownership of and satisfaction with baby videos/DVDs. In particular, associations were found between ownership of and satisfaction with baby videos/DVDs and the extent to which parents are generally motivated to pursue possible rewards (i.e., promotion focus), level of focus on their young children's education, and attitudes

toward young children's educational media. Additionally, attitudes toward young children's educational media appeared to mediate relationships between parents' promotion focus orientation and educational focus and their reported ownership of and satisfaction with baby videos/DVDS. The full models were able to account for 12% and 20% of the variance in parents' ownership of and satisfaction with these products, respectively. Taken together, the findings suggest that parents' attitudes toward pursuing possible rewards and global attitudes regarding infant/toddler education do play a role in their considerations and ownership of video/DVD products for infants and toddlers.

Surprisingly, very few demographic variables were predictive of baby video/DVD ownership or satisfaction with baby videos/DVDs among the participants in this study. Previous research linking both children's media ownership and media exposure to demographic variables with multivariate analyses have found consistent links for media use/ownership and select demographic categories (e.g., Anand & Krosnick, 2005; Lapierre, Piotrowski, & Linebarger, 2012). As such, it is interesting that, for the most part, ownership and satisfaction with these videos cuts across demographic categories in the present national sample of U.S. parents.

Of the variables that were linked to ownership or satisfaction, fathers were more likely to report higher numbers of baby videos/DVDs in the home, and parents with more children under the age of 18 tended to report higher levels of satisfaction with baby videos/DVDs. Furthermore, neither of these variables appeared to be mediated by the attitudinal variables in the respective models. The differences by parent gender were not expected; it may be that fathers are more likely to over-estimate the number of baby videos/DVDs their children have, while mothers are more likely to under-estimate or under-report them due to social desirability. The fact that number of children in the home predicted parents' satisfaction with baby videos/DVDs

regardless of whether the attitudinal variables were included in the model suggests that parents may purchase, use, and appreciate these videos in part for their utility in occupying young children's attention in a busy household. The use of these products for more practical purposes (e.g., entertaining a young child while a parent accomplishes household chores) would presumably not be influenced as highly by a parent's consideration of the educational merits of the programming.

Parents in this study generally had relatively high scores on the promotion focus scale (i.e., mean of 3.46 on a 4 point scale), suggesting that parents of young children may generally feel motivated to pursue possible rewards even when achieving those rewards is uncertain. In the context of baby video/DVDs, it seems that parents with a higher promotion focus orientation are more likely to own and be satisfied with these media products. These findings suggest that, in deciding how much access to videos/DVDs is appropriate for children, parents tend to rely—at least in part—on their perceptions of the possible desirable outcomes of this access for their children. What is more, these relationships appear to be partially mediated by parents' attitudes toward baby educational media. That is, parents with a higher promotion focus orientation are more likely to believe in the positive potential of young children's educational media, which, in turn, makes them more likely to own and value these products.

Notably, parents' promotion focus remained a significant predictor of their satisfaction with baby videos/DVDS even after controlling for video/DVD ownership and attitude toward young children's educational media. It may be that parents who have a higher promotion focus are also more likely to perceive actual benefits of baby video/DVD exposure for their children (e.g., believe their children learned their ABCs or vocabulary from viewing), causing them to

feel particularly satisfied with these products. More research is needed to examine the possible mechanisms underlying this uncovered relationship.

Future research should also investigate possible relationships with parents' prevention focus orientation as well (i.e., the Behavioral Inhibition Scale (BIS) of the BIS/BAS measure). Strict space limitations of the Time-sharing Experiments of the Social Sciences (TESS) program precluded the inclusion of both regulatory focus subscales in this study. While our a priori hypotheses pertained specifically to parents' promotion focus orientations, it is possible that the extent to which parents are generally motivated to avoid possible failures or undesirable outcomes may also play a role in their perception, ownership, and valuation of baby videos/DVDs.

In general, parents had a relatively high focus on their young children's education as well (i.e., a mean score of 4.09 on a 5 point scale). This is not surprising, given the strong societal focus on the importance of the "zero to three" years in human development which has been growing since the 1997 White House conference on early childhood development and education (see Bruer, 1998). However, the present findings suggest that a stronger focus on early childhood education may encourage parents to purchase more baby videos/DVDs marketed as educational and to be more satisfied with these products, despite the fact that existing research does not support their educational value for infants and toddlers. The mediation analyses indicate that a stronger focus on young children's education may lead parents to have more positive attitudes regarding the educational potential of videos/DVDs for infants and toddlers, which leads them to own more of these products and place higher value on them.

Taken together, these findings have important practical and policy implications. How parents with young children perceive of infant/toddler media marketed as educational makes a

difference for the number of products they own—and presumably purchase, as well as their level of satisfaction with those products. However, the existing research does not confirm the educational value of TV and video content for infants and toddlers. Given that baby videos/DVDs cost, on average, about $15 each[3], parents may be better served to invest this money in other products or experiences for their young children (e.g., storybooks; trips to the zoo). As this study did not find differences in ownership based on families' socio-economic status, these implications are likely to be particularly profound for those who are spending limited resources to purchase baby videos/DVDs, perhaps to the exclusion of other resources.

The present results add to growing evidence that the ways in which infant/toddler media products are marketed do influence parents' perceptions, purchase, and use of these products with their young children (e.g., Authors, 2012). As such, the regulatory actions of the U.S. Federal Trade Commission (FTC) and other regulatory agencies carry particular weight. In the past, the FTC has largely opted against investigation or punitive action against media producers who include seductive statements of educational benefits on infant/toddler videos/DVDs or related marketing materials (Engle, 2007). Yet, it seems that these marketing statements may contribute to parents' sense that videos/DVDs can be educational for young children, and their propensity to own and value these products. This impact may be especially strong among parents with the strongest desires to give their young children the best educational start in life.

The regulation of baby media marketing claims unsubstantiated by available research is especially critical in light of new emerging media for infants and toddlers. In fact, there are currently a variety of educational "apps" for children under the age of three, as well as at least one tablet computer created solely for this demographic (i.e., the "Vinci", see vincigenius.com).

[3] e.g., As of October, 2012 on Amazon.com, *Baby Einstein*'s "Baby Beethoven Discovery Kit" cost $14.99; *Brainy Baby ABC's* cost $18.94; and *Baby Genius Favorite Nursery Rhymes* cost $9.68.

As parents face increasingly complex decisions about their young children's media use—among a plethora of diverse media products for young children and amidst a barrage of conflicting messages—the present findings indicate that it is likewise increasingly important that they are given accurate information on which to base their judgments.

## Limitations

There are several limitations to consider when interpreting these findings. The first is the cross-sectional design of this survey study. Because all variables were measured at one time it is not possible to be certain of the direction or causality within these uncovered relationships. It may be, for example, that parents who already own baby videos/DVDs form more positive attitudes about young children's educational media, rather than the reverse.

In addition, the fact that parents viewed a fictional infant/toddler DVD cover prior to answering survey questions may have impacted their responses. It is possible that viewing an example of a baby DVD primed their positive attitudes about young children's educational media product, though it's not clear how this would have varied between parents in such a way as to produce the observed relationships between the attitudinal variables and each of the dependent variables. Future research should use diverse methodologies to verify these relationships and offer additional estimates of their respective magnitudes.

Finally, as measured, the "baby video/DVD ownership" variable does not account for the means by which families came to own the baby videos/DVDs. While the premise of this paper assumes that parents bought these products themselves, it is possible that many parents received the videos/DVDs as gifts. The implications of the present findings would be less clear of a majority of the products were gifted rather than purchased. However, we believe that receiving

the products as gifts would actually reduce the strength of uncovered relationships and lead to an underestimate of the actual associations between attitudinal variables and ownership.

## Conclusion

This study represents an important early step in understanding the predictors of parents' ownership of and satisfaction with screen media products for infants and toddlers. Findings suggest that, while well-intentioned, parents' focus on their young children's education may make them more vulnerable to unsubstantiated claims of educational benefits associated with baby videos/DVDs. Furthermore, a basic underlying trait—level of focus on pursuing desirable outcomes—may also lead them to purchase and value these products. Further understanding these and other predictors of infant/toddler screen media ownership and use is critical and timely in light of the ever-increasing number and variety of media products for very young children.

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*Table 1*. Participants' demographic characteristics

| | |
|---|---|
| Age mean (SD), years | 31.4 (7.3) |
| Gender (Female), n (%) | 458 (55.1) |
| Race/ethnicity, n (%) | |
| White/non-Hispanic | 571 (68.7) |
| Black/African American | 92 (11.1) |
| Latino | 111 (13.4) |
| Other[a] | 57 (6.9) |
| Family income, n (%) | |
| Less than $25,000 | 182 (21.9) |
| $25,000 to $49,999 | 215 (25.9) |
| $50,000 to $74,999 | 153 (18.4) |
| $75,000 to $99,999 | 124 (14.9) |
| $100,000 to $124,999 | 72 (8.7) |
| $125,000 to $149,999 | 41 (4.9) |
| $150,000 to 174,999 | 23 (2.8) |
| More than $175,000 | 21 (2.5) |
| Years of education, n (%) | |
| Less than high school | 67 (8.1) |
| High school | 177 (21.3) |
| Some college | 249 (30.0) |
| Bachelor's degree or higher | 338 (40.7) |
| Number of adults, n (%) | |
| One | 50 (6.0) |
| Two | 685 (82.4) |
| Three | 57 (6.9) |
| Four or more | 39 (4.7) |
| Number of children, n (%) | |
| One | 280 (33.7) |
| Two | 323 (38.9) |
| Three | 148 (17.8) |
| Four or more | 80 (9.6) |

N = 831; [a] includes participants of mixed race

Table 2. Zero-order correlations between demographic, attitude, and dependent variables.

| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | $15_a$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Age | -.35*** | .08* | .07+ | -.06+ | .02 | .41*** | .37*** | -.06 | .19*** | -.17*** | -.13*** | -.11** | .06+ | -.05 |
| 2. Gender (Female, 1) | 1 | -.09* | .11** | .00 | .03 | -.17*** | -.19*** | -.01 | -.01 | .10** | .05 | .01 | -.10** | .05 |
| 3. Race: White | | 1 | -.52*** | -.58*** | -.40*** | .17*** | .16*** | -.01 | .04 | -.11** | -.17*** | -.19*** | -.01 | -.05 |
| 4. Race: African-American | | | 1 | -.14*** | -.10** | -.18*** | -.09* | -.03 | -.03 | .13*** | .15*** | .19*** | .04 | .04 |
| 5. Race: Hispanic | | | | 1 | -.11** | -.13** | -.18*** | .03 | .03 | .03 | .04 | .08* | -.04 | .01 |
| 6. Race: Other | | | | | 1 | .08* | .07+ | .01 | -.07* | .00 | .07* | .01 | .02 | .02 |
| 7. Family Income | | | | | | 1 | .54*** | .05 | .02 | -.05 | -.10** | -.18*** | .01 | -.07+ |
| 8.Parent Education | | | | | | | 1 | -.06 | -.08* | -.05 | -.05 | -.21*** | -.01 | -.09* |
| 9. Adults in Home | | | | | | | | 1 | .11** | .02 | -.01 | .04 | .01 | .00 |
| 10. Children in Home | | | | | | | | | 1 | .00 | -.08 | -.04 | .02 | .10* |
| 11. Promotion focus (BAS) | | | | | | | | | | 1 | .38*** | .31*** | .11** | .20*** |
| 12. Education focus | | | | | | | | | | | 1 | .34*** | .17*** | .21*** |
| 13. Attitudes toward educational media | | | | | | | | | | | | 1 | .29*** | .34*** |
| 14. Videos owned | | | | | | | | | | | | | 1 | .26*** |
| 15. Satisfaction with videos | | | | | | | | | | | | | | 1 |

N = 831; $_a$N = 609; ***p < .001; **p < .01; *p < .05; + p < .10

*Table 3*. Parents' demographic characteristics and attitudes as predictors of baby video/DVD ownership.

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|---|---|---|---|---|---|---|---|
| | B(SE B) | β | B(SE B) | β | B(SE B) | β | B(SE B) | β |
| Constant | 2.49(0.09) | | 2.83(0.45) | | 0.85(0.59) | | -0.02(0.58) | |
| Experimental condition: DVD name | -0.08(0.10) | -0.03 | -0.07(0.10) | -0.01 | -0.07(0.09) | -0.03 | -0.04(0.09) | -0.02 |
| Experimental condition: Verb | 0.02(0.10) | 0.01 | 0.04(0.10) | 0.04 | 0.05(0.09) | 0.05 | 0.04(0.09) | 0.01 |
| Experimental condition: Outcome | -0.06(0.09) | -0.02 | -0.06(0.10) | -0.02 | -0.06(0.09) | 0.01 | -0.06(0.09) | -0.02 |
| Parent's education | | | -0.01(0.02) | -0.02 | -0.02(0.02) | -0.03 | 0.01(0.02) | 0.02 |
| Household income | | | -0.01(0.03) | -0.01 | -0.01(0.03) | -0.01 | 0.01(0.03) | 0.01 |
| Parent's age | | | 0.01(0.01) | 0.05 | 0.01(0.01) | 0.06 | 0.01(0.01) | 0.06 |
| Parent is female (dummy) | | | -0.29(0.10) | -0.11** | -0.29(0.10) | -0.11** | -0.24(0.10) | -0.09* |
| Number of children in the home | | | 0.02(0.04) | 0.02 | 0.03(0.04) | 0.02 | 0.04(0.04) | 0.03 |
| Number of adults in the home | | | 0.01(0.07) | 0.01 | 0.02(0.07) | 0.01 | -0.01(0.06) | -0.003 |
| Parent is Black (dummy)[a] | | | 0.18(0.16) | 0.04 | 0.03(0.16) | 0.01 | 0.06(0.22) | 0.02 |
| Parent is Hispanic (dummy)[a] | | | -0.11(0.14) | -0.03 | -0.17(0.14) | -0.04 | -0.22(0.14) | -0.06 |
| Parent is other race/ethnicity (dummy)[a] | | | 0.16(0.19) | 0.03 | 0.07(0.19) | 0.01 | 0.03(0.18) | 0.01 |
| Promotion focus (BAS) | | | | | 0.21(0.10) | 0.08* | 0.06(0.10) | 0.02 |
| Educational focus | | | | | 0.28(0.07) | 0.17*** | 0.16(0.07) | 0.09* |
| Attitude toward baby media | | | | | | | 0.39(0.06) | 0.28*** |
| R | 0.04 | | 0.13 | | 0.23 | | 0.34 | |
| $R^2$ | 0.001 | | 0.02 | | 0.06 | | 0.12 | |

N = 828. ***p < .001; **p < .01; *p < .05; [a]White/non-Hispanic omitted as reference category.

*Table 4*. Parents' demographic characteristics and attitudes as predictors of satisfaction with baby videos/DVDs.

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
|---|---|---|---|---|---|---|---|---|
| | B(SE B) | β | B(SE B) | β | B(SE B) | β | B(SE B) | β |
| Constant | 3.90(0.07) | | 3.48(0.34) | | 1.81(0.45) | | 1.30(0.44) | |
| Experimental condition: DVD name | 0.05(0.07) | 0.03 | 0.08(0.07) | 0.04 | 0.07(0.07) | 0.04 | 0.08(0.07) | 0.03 |
| Experimental condition: Verb | 0.001(0.07) | 0.001 | -0.01(0.07) | -0.01 | -0.01(0.07) | -0.004 | -0.02(0.07) | -0.01 |
| Experimental condition: Outcome | -0.05(0.07) | -0.03 | -0.04(0.07) | -0.02 | -0.04(0.07) | -0.02 | -0.03(0.06) | -0.02 |
| Number of baby videos/DVDs owned | | | 0.19(0.03) | 0.27*** | 0.18(0.03) | 0.25*** | 0.15(0.03) | 0.21*** |
| Parent's education | | | -0.02(0.02) | -0.06 | -0.02(0.02) | -0.05 | -0.01(0.02) | -0.01 |
| Household income | | | -0.01(0.03) | -0.02 | -0.01(0.02) | -0.02 | -0.01(0.02) | -0.01 |
| Parent's age | | | -0.01(0.01) | -0.03 | 0.001(0.01) | 0.004 | -0.001(0.01) | 0.001 |
| Parent is female (dummy) | | | 0.09(0.07) | 0.05 | 0.07(0.07) | 0.04 | 0.09(0.07) | 0.05 |
| Number of children in the home | | | 0.08(0.03) | 0.10* | 0.07(0.03) | 0.10* | 0.09(0.03) | 0.11** |
| Number of adults in the home | | | -0.02(0.05) | -0.01 | -0.01(0.05) | -0.01 | -0.03(0.04) | -0.03 |
| Parent is Black (dummy)[a] | | | 0.04(0.11) | 0.01 | -0.08(0.11) | -0.03 | -0.18(0.11) | -0.07 |
| Parent is Hispanic (dummy)[a] | | | 0.03(0.11) | 0.01 | -0.01(0.10) | -0.004 | -0.04(0.10) | -0.02 |
| Parent is other race/ethnicity (dummy)[a] | | | 0.09(0.14) | 0.03 | 0.01(0.14) | 0.004 | -0.06(0.02) | -0.01 |
| Promotion focus (BAS) | | | | | 0.26(0.08) | 0.14** | 0.17(0.08) | 0.09* |
| Educational focus | | | | | 0.17(0.05) | 0.14** | 0.08(0.05) | 0.07 |
| Attitude toward baby media | | | | | | | 0.28(0.04) | 0.27*** |
| R | 0.04 | | 0.30 | | 0.37 | | 0.44 | |
| $R^2$ | 0.002 | | 0.09 | | 0.14 | | 0.20 | |

N = 596. ***p < .001; **p < .01; *p < .05; [a]White/non-Hispanic omitted as reference category.