THE INFLUENCE OF TECHNOOGY
ON PARENT RESPONSIVENESS

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ABSTRACT

Objective. *Technology in the homes has been increasing in the new millennium, and has changed how parents and children interact. The goal of this study was to explore whether parents use technology in responsive ways that support childhood development or unresponsive ways that disrupt the parent-child relationship.* ***Design.*** *This study used a likert scale survey to ask 40 parents (ages 24-42) how they use technology with their children (ages 3-8).* ***Results.*** *Parents use technology in both responsive and unresponsive ways; however, parents appear to use technology more often to be responsive rather than to disrupt the relationship.* ***Conclusions****. Parents appear to use technology responsively with their children more often than unresponsively. These findings contrast modern media and the single previously published study that was found. These results provide guidance for encouraging the use of technology by parents to support child development.*

Keywords: *Technology, Parent-Child, Responsiveness, Child Development*

INTRODUCTION

The 21st century brought with it a rapid influx of technology into homes and schools (Radesky, et al, 2014). This technology has changed how people interact with children by becoming a tool in the relationship between parents and their children. The question is whether this tool is being used in a manner that fulfills children's affective developmental needs. There is ample research that focuses on parent responsiveness as the main mechanism for fulfilling the affective developmental needs of children (Alegre, 2011; Carlo, Mestre, Samper, Tur, & Armenta, 2010; Morris, Silk, Steinberg, Myers, & Robinson, 2007).

Meeting Needs with Responsiveness. Most theorists appear to agree on one specific trait, as a key component to fulfilling childhood affective needs: parental responsiveness to the child (Carlo, Mestre, Samper, Tur, & Armenta, 2010; Ransona & Urichuka, 2008; Morris, Silk, Steinberg, Myers, & Robinson, 2007; Hastings, Utendale, & Sullivan, 2007). Parental responsiveness has been called many things, including connection, nurturance, warmth, and support (Alegre, 2011, p. 57; Carlo, Mestre, Samper, Tur, & Armenta, 2010, p. 116; Miller & Stiver, 1997). The underlying definition of all of these terms remains constant. Parental

responsiveness is also a component in differentiating parenting styles in attachment theory (Bowlby, 1988; Alegre, 2011).

Parental responsiveness has been found to have a direct correlation with social emotional skills including self-confidence, trust, empathy, communication, and relating to others; the ability of the child to regulate negative emotions, empathize with others, and develop a moral conscience (American Academy of Pediatrics, n.d.; Morris, Silk, Steinberg, Myers, & Robinson, 2007; Mullin, 2012). Maggi, Irwin, Siddiqi, and Hertzman (2010) also found a role for parental responsiveness in helping the child to develop self-regulation and confidence. In contrast, children raised with less responsiveness from their parents are more likely to use relational aggression such as rumors, slander, and verbal aggression to damage peers' self-esteem and social status (Hoeve, Dubas, Gerris, Laan, & Smeenk, 2011).

Carlo, Mestre, Samper, Tur, and Armenta (2010) noted the role of responsiveness in building attachment, which is associated with higher emotional sensitivity, perspective taking, and prosocial behaviors. Ransona and Urichuka (2008) found that securely attached children were more active and popular; had a more positive outlook; and had less social anxiety. Securely attached children had better cognitive development including greater problem solving skills, ego resiliency, higher IQ, and greater language and reading skills. In contrast, the insecurely attached children were more hostile, impulsive, and dependent. In addition, poor attachment was linked to reactive attachment disorder, conduct disorder, anti-social personality disorder, substance abuse, anxiety, depression, and academic failure (Ransona and Urichuka, 2008).

Alegre (2011) discusses the relationship of responsiveness to the four parenting styles: authoritative, authoritarian, permissive, and neglectful. The responsive parenting styles have been linked to greater self-regulation, self-esteem, emotional knowledge, flexibility, communication skills, and psychological adjustment. In addition, responsive parenting styles are linked to lower externalizing behaviors (anger, disruptive behaviors, anxiety, and aggression, etc.) and to lower internalizing behaviors (depression, self-doubt, somatization, withdrawal, etc.) (Alegre, 2011; Rinaldi & Howe, 2012; Milevsky, Schiechter, Netter, & Keehn, 2006). Von Suchodoletz, Trommsdorff, & Heikamp (2010) found children with responsive parents displayed greater internalization of rules of conduct, and motivation to follow rules without supervision.

Contrary to the vast majority of research linking responsiveness to a variety of positive developmental outcomes, a few studies found no correlation between responsiveness and these outcomes (Hastings, Utendale, & Sullivan, 2007). Hastings, Utendale, and Sullivan (2007) found that there was no long-term increase in empathy or prosocial behaviors correlated with parental responsiveness. In addition, child temperament has been found to be a moderator of the relationship between responsiveness and child development outcomes (Cornell and Frick, 2007; Morris, Silk, Steinberg, Myers, and Robinson, 2007).

Technology. The increasing technology in homes has been a controversial issue (DeGaetano, 2010). The largest debate has been whether violence on television increases aggression in children, but this debate has been settled in

academic realms since 1976. It has also been found that four hours of television a day limits neural growth and cognitive development. Still, today 90% of homes use televisions an average of 7 hours and 44 minutes a day. Kids between ages two and twelve average 4-5 hours of television a day, and by the time a child reaches kindergarten, they have watched an average of 6,000 hours of television. When children graduate high school, they have spent about twice as much time in front of a television as they have in front of a teacher. This extensive exposure to technology warrants consideration in the affective development of the child, since the time spent with devices takes away from interactions with people.

There is very little research on the impact of technology on the parent-child relationship (Radesky, et al, 2014). One study did find that when dining with their children, parents' cell phone use ranged from merely having the phone on the table to complete absorption into the device (p. 848). Some of these children accepted that their parents were relatively absent, while others increased their disruptive behaviors in an attempt to get attention. The more absorbed into the device the parent was, the less they responded to their child, the less they held conversations with their child, and the further the child escalated their disruptive behaviors (p. 846-847).

The goal of the current study is to understand whether the technology absorption found by Radesky, et al (2014) in the parent-child relationships at restaurants extends to the rest of the relationship. Radesky, et al (2014) also found that parents were not responsive to the child if they were using their devices, unless the parent was engaging the child with the device. Thus, parents may use technology in responsive ways that support childhood affective needs by engaging the child in connection with the parent. However, parents may use the technology in unresponsive ways, such as distracting the child, minimizing the child's feelings, or ignoring the child, that would not fulfill the child's developmental needs. The current study seeks to explore whether parents use technology in responsive or unresponsive ways.

METHODS

Subjects were parent volunteers obtained from Eastern New Mexico University's Child Development Center, and the Portales Recreation Center. The subjects read and signed the informed consent. Then the survey was given to the subjects. Each survey (and therefore, each data entry) represented one parent-child relationship. Forty parents ranged in age from 24 years old to 43 years old with a mean age of 32.9 years. The children ranged in age from three years old to eight years old with a mean age of 5.53 years.

Since the interest of this study is each specific parent-child relationship, each survey represented one parent and one child. Thus, if a parent had more than one child under the age of eight, the parent was encouraged to fill out one survey regarding each individual child. The surveys were voluntary, confidential, and untimed. Forty surveys were collected. Surveys with incomplete results were included only in the responses that were given.

The surveys asked open-ended demographics questions, and six point likert-scaled questions (some scaled 1= multiple times per day to 6= less than once a week, and others scaled 1= never to 6= 5 or more hours per day) to determine how the parent and child use technology, and how often the use is responsive or unresponsive. In addition to the raw scores, the total time using devices unresponsively and responsively were calculated by totaling the number of hours answered on the likert-scale questions according to type of activity. Finally, the last variable used was a ratio of responsive use to unresponsive use.

The surveys were collected and analyzed using SPSS for a significance level of.10. Descriptive statistics were run on independent variables (parent and child age; hours using technology to distract, entertain, reward, play with, play music for, read stories to the child; hours using technology to calm the child when upset, energetic, scared, or before bed; total responsive hours; total unresponsive hours; and ratio of responsive to unresponsive uses).

Ethnicity of the parent was analyzed against each independent variable using a One-Way ANOVA (F test). Gender was analyzed against each independent variable using an Independent t-test. A Pearson's r correlation was run to analyze the relationship between each possible pair of the independent variables. In addition, A Pearson's r correlation was run to analyze the relationship between each of the total factors on the survey (total responsive, total unresponsive,) and each of the parent and child demographics.

RESULTS

Forty parent-child relationships were measured using self-report surveys. The data reflect the raw score on questions, and total responsive and unresponsive scores.

Descriptive Analysis of the Independent Variables. The descriptive analysis revealed that parents used technology to entertain their children 1.23 hours per day (s= 1.0), to distract the child.69 hours per day (s=.46), and to reward the child.39 hours per day (s=.54). Parents used technology with the child to play games an average of.61 hours per day (s=.92), listen to music an average of.68 hours per day (s=.90), to read stories an average of.35 hours per day (s=.46). Parents used technology to calm their upset child an average of.09 hours per day (s=.22), their energetic child an average of.11 hours per day (s=.24), their scared child an average of.03 hours per day (s=.16), and to calm their child before bed an average of.31 hours per day (s=.48).

The responsive use of technology score was obtained by summing the answers for watching TV together, rewarding the child, playing games together, playing music together, and reading stories together. The result was an average of 4.70 hours per day of responsive use (s= 4.18), compared to 3.67 hours per day of unresponsive use of technology in parent-child relationships (s= 1.88). The ratio of responsive to unresponsive use was an average of 1.33 hours per day of responsive use for every 1.00 hour of unresponsive use (s=.91).

Gender. An independent t-test was run to analyze the parent and gender differences across independent variable. Parents were more likely to use TV to

occupy male children while the parent completed other tasks, to calm an energetic male child then energetic female child, or to calm a scared male child than a scared female child, $t_{(35)}= 1.02$, p=.088; $t_{(35)}= 2.20$, p<.001; $t_{(35)}=.920$, p=.060. Finally, parents used technology in responsive ways more often with female children than with male children, $t_{(35)} = 1.22$, p=.060.

Ethnicities. An ANOVA (F-test) was used to analyze the survey responses across the different ethnic groups of the parents. During this analysis, groups had to be combined so that each group would have more than one variable. Hispanic-African American and Hispanic-Caucasian were combined to create a Mixed Ethnicity group. Jewish was combined with the Caucasian group. Tukey's HSD was run as post hoc analysis. Cases were also excluded when the parent did not own the device in the question, or did not respond to the question.

The ANOVA for parent ethnicity had a statistically significant result for the number of hours per day the parent uses technology to calm an *upset* child, $F_{(3, 35)} = 2.98$, p=.044; Asian parents calmed an upset child with technology significantly more than Hispanic parents (MD=.50, p =.035), Caucasian parents (MD=.42, p=.048), or African American parents (MD=.50, p=.099), M_A=.50, s_A=.00; M_C=.083, s_C=.231; M_H=.00, s_H=.00; M_{AA}=.00, s_{AA}=.00. No other pairs had statistically significant comparisons.

The ANOVA for parent ethnicity was statistically significant result for the number of hours per day the parent uses technology to calm an *energetic* child, $F_{(3, 35)} = 8.48$, p<.001l; Asian parents calmed an energetic child with technology significantly less than Hispanic parents (MD=.75, p <.001), Caucasian parents (MD=.67, p<.001), or African American parents (MD=.50, p=.062), M_A=.75, s_A=.35; M_C=.083, s_C=.19; M_H=.00, s_H=.00; M_{AA}=.25, s_{AA}=.35. No other pairs had statistically significant comparisons.

The ANOVA for parent ethnicity had a statistically significant result for the number of hours per day the parent uses technology to calm a *scared* child, $F_{(3, 35)} = 11.07$, p<.001; Asian parents calmed a scared child with technology significantly less than Hispanic parents (MD=.50, p <.001), Caucasian parents (MD=.50, p<.001), or African American parents (MD=.50, p<.001), M_A=.50, s_A=.71; M_C=.00, s_C=.00; M_H=.00, s_H=.00; M_{AA}=.00, s_{AA}=.00. No other pairs had statistically significant comparisons.

Technology Use Correlations. A Pearson's r correlation between the parent demographics and each independent variable revealed a correlation between increasing parent's age and increasing hours per day the parent uses technology to 1) read stories to the child, $r_{(40)}$ =.272, p=.089; 2) calm an upset child, $r_{(40)}$ =.336, p=.034; and 3) calm an energetic child, $r_{(40)}$ =.275, p=.086. Parent's increasing age was correlated to decreasing hours per day of use to entertain the child, $r_{(40)} = -.316$, p=.047. In addition, parent's age was correlated with decreasing hours per day watching adult shows together, $r_{(40)}= -.288$, p=.072, and decreasing hours per day watching child shows together, $r_{(40)}= -.311$, p=.050. The child's age had no significant correlations with any of the independent variables.

DISCUSSION

Technology in homes has greatly increased, and is used by parents and children more than ever (DeGaetano, 2010; Radesky, et al, 2014). The parent-child relationship is the main mechanism children use to fulfill their developmental affective needs, and the increase in technology may change how that relationship works by changing how parents respond to their children (Bowlby, 1988; Miller & Stiver, 1997; Erikson, 1980; Radesky, et al, 2014).

Developmental affective needs and parental responsiveness have both been linked to positive outcomes in emotional regulation, social interaction, behavioral control, and cognitive development (Alegre, 2011; Carlo, Mestre, Samper, Tur, & Armenta, 2010; Morris, Silk, Steinberg, Myers, & Robinson, 2007; Ransona & Urichuka, 2008). The lack of parental responsiveness and failure to meet developmental affective needs have been linked to poor emotional regulation, empathy skills, prosocial skills, trust, communication, academic performance, and self-esteem; not to mention links to a variety of social and emotional disorders.

Technology can be used in a responsive manner that engages the child in connection, fun, and learning (Radesky, et al, 2014). It can also be used in unresponsive ways, such as distracting the child, minimizing the child's feelings, or ignoring the child. The current study used self-report surveys administered to parents of children three to eight years old to explore the way parents currently use technology in the parent-child relationship.

The survey measured responsive uses of technology: watching TV shows together, rewarding good behavior, playing games together, reading together, and listening to music together. The average responsive use of technology was 4.70 hours per day. In addition, the survey measured unresponsive use of technology: occupying, distracting, or entertaining the child so the parent can do other things, and calming the child with technology rather than responding to the child's feelings when the child is energetic, scared, upset, or getting ready for bed. The average unresponsive use of technology was 3.67 hours per day. In addition, a ratio of responsive to unresponsive use was calculated for each parent, and the average ratio was 1.33 hours per day of responsive use for every 1.00 hour per day of unresponsive use. The results show that technology is used more often to respond to children rather than to ignore children.

The analyses run compared how the male parent and female parent use technology. Although the specific types of responsive or unresponsive use varied between male and female parents, both genders used technology in both manners. Females had higher hours per day of unresponsive use, but the ratio of responsive to unresponsive use was not significantly different between the genders. Similarly, parents used technology in both responsive and unresponsive ways with both genders of children. Female children received more responsive use of technology than male children did; however, once again, the ratio of responsive use to unresponsive use was not significantly different. This suggests that gender of the parents or children do not affect whether technology is used in a responsive manner.

Ethnicity of the parents was also analyzed. The results found that Asian parents used different technology in different ways than Hispanic, Caucasian, African American, or Mixed Ethnicity parents. However, this appears to be the result of a small sample of Asian parents rather than a true difference in use, as only two Asian parents were subjects.

These results suggest that the increasing use of technology in homes and specifically within the parent-child relationship may still meet the developmental affective needs of the children. Parents appear to use technology more often to continue to be responsive to their child's needs rather than to disrupt the parent-child relationship.

These results suggest that, in contrast to popular media and the Radesky, et al (2014) study, technology may be used more to respond to children in ways that support childhood development rather than to ignore children. This suggests that guiding parents towards more responsive uses of technology may allow children to reap the benefits of early experiences with technology skills and still obtain the developmental benefits of parent responsiveness.

Some limitations of this study include a small sample of Asian and African American families. In addition, the survey looked at each parent child relationship, but the data did not code for when two surveys were about the same child with different parents or the same parent with different children. This may have skewed the results. Another limitation of the sample was that the research noticed a very high number of parents were either nurses or professors. This extreme in professions and possibly education level may have skewed the results preventing generalization to parents in other professions. In addition, the questions may not have been broad enough. Each answer was two hours (1-2, 3-4, etc.). It may provide better data to find exact hours per day or week. Another limitation is that many of the parents have heard on the media that technology is used too much, and the content displayed on technology may cause problems for children. This may have caused parents to underreport their technology use.

Further research should increase the sample size. Although the sample size is considered large enough (n>30), the sample size should be increase to obtain a better sample. In addition, future studies should record profession and education level of the parent, since these may affect how the parent uses technology with the child. In addition, it may be beneficial to conduct more observational studies by watching how parents use technology in public; similar to the study completed by Radesky, et al (2014). This may help to eliminate the potential bias from self-report surveys. Finally, a longitudinal study should assess how technology is used when children are young, and then how the children behave and develop through adolescence; similar to how the responsiveness studies measure parent behavior when the child is young, and then look at how the children develop later.

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