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iBusy: Research on Children, Families, and Smartphones

Bill Garris, Lindsay Lester, Erin Doran, Andrea Lowery

Abstract

Within the past 10 years, mobile devices have been widely adopted by adults and are now present in the lives of almost all U.S. children. While phones are common, our understanding of what effect this technology has upon children's development is lagging. Bioecological theory and attachment theory suggest that this new technology may be disruptive, especially to the degree to which it interferes with the parent-child relationship. This article reflects a National Organization for Human Services conference presentation and shares preliminary results from semi-structured interviews conducted with 18 youth, ages 7 through 11. Only four of eighteen interviewees voiced any negative thoughts concerning their parents' use of mobile devices. However, those who reported feeling ignored by their parents experienced the negative emotions deeply. Themes that emerged from analysis of transcripts included *devices as tools* and *boundaries*.

Introduction

Within the past decade, smartphones and other mobile devices have been widely adopted by adults. With market penetration exceeding 80% (Pew Research Center, 2015), these devices may be considered an integral part of the environment. While adoption of this technology has occurred quickly, our understanding of the implications lags. This is particularly true as it relates to children, their emotional development, attachment, and family life. This research used semi-structured, qualitative interviews of children aged 7 to 11 to understand how children were experiencing this new technology within the context of the family.

Previous Research

Research into the Effects of Mobile Devices

Mobile device use is high and is a significant part of children's development. According to the Pew Research Center's Internet and American Life Project, 86% of Americans aged 18 to 29 own a smartphone (Pew Research Center, 2015). A survey of 1521 children ages 6-12 found that 62% described their parents as distracted when they tried to talk to them, and cell phones were most often responsible (Highlights' The State of the Kid, 2014). The ubiquity of electronic devices in the lives of children leads one to wonder what effect, if any, these new devices may be having.

Other researchers have explored the way electronics influence our interpersonal relationships. In 2009, Kirkorian, Pempek, Schmidt, and Anderson investigated whether TV as background noise influenced parent-child interactions. The results were striking. Background television reduced overall interaction. Children were less social, and parents were less verbally

engaged with their child and tended to ignore them. Radesky, Silverstein, Zuckerman, & Christaki (2014) used non-participant observational methods to view 55 caregivers with small children in fast food restaurants. The research found that 40 of the 55 caregivers used a smartphone device while eating with the children and that some parents ignored their children's bold efforts to get their attention. Finally, Hiniker, Sobel, Suh, Sung, Lee, and Kientz (2015) watched how adults used phones while with their children at playgrounds. First, a majority of adults glanced at their phones only briefly or not at all. However, around a third spent more than 20% of the time on the playground on their phones.

iphone effect

shortly after one person in the group brings out their iphone, the rest follow suit, ultimately ending all conversation and eye contact.

"Hey, what do you want to order for drinks?" "Not sure, let's see what *Imbibe Magazine* has for their best beer this month." First iphone comes out of the pocket--enter safari search. Next iphone comes out--enter Facebook post. Third iphone makes an entrance -- the iphone effect has arrived.

From
urbandictionary.com

Ever notice how iPhones shut down casual adult interactions? This is called the iPhone effect. It turns out the effect is real. Misra, Cheng, Genevie, and Yuan (2014) conducted research that found the mere *presence* of phones diminished the quality of social interactions among adults. The study, a naturalistic field experiment, found that just having the phone visible during the interactions, whether or not it was turned on, resulted in participants describing the social interactions as less engaging.

These devices can also interfere with adult romantic relationships. Roberts and David (2016) developed and researched a construct called *phubbing*: snubbing another vis-a-vis phone usage. In findings that will surprise no one, phubbing was correlated with increased conflict and depression but decreased relationship satisfaction and life satisfaction. Finally, McDaniel and Coyne (2016) conducted an online survey among 143 women regarding the degree of technology interference within their romantic relationships. They termed this interference *technoference*. Again, as one might expect, questionnaire research found that as women reported more technoference, they also reported more conflict over technology use, decreased relationship satisfaction, and also more depression and less life satisfaction.

Survey research has found that cell phones and mobile devices are common features in children's lives. Other studies, using naturalistic observation and experiments and surveys, have found that the mere presence of electronic devices diminish the quality of social interactions among adults and between parents and their children. Although early studies suggest a majority of parents are able to prioritize their children's needs over their use of a mobile device, a large minority of parents may be prone to absorption with their devices and ignoring their children's bids for attention (Hiniker et al., 2015; Radesky et al., 2014). Studies also suggest that mobile devices disrupt family relationships, yet, as mobile devices are a relatively new addition, research is just beginning.

Theoretical frames: Ecological systems theory and attachment

Theory helps interpret surveys and findings and knits observations into a science. Two theories seem to be particularly relevant as we consider the effect of technology on child development and the family system: Bronfenbrenner's bioecological model and Bowlby and Ainsworth's attachment theory.

Ecological Systems Theory

The bioecological model is a good model to begin with because of its emphasis on both context and policy concerns. At the time Bronfenbrenner began his scholarly work, developmental psychology focused on the individual child, stripped of context, "...the science of strange behavior of children in strange situations with strange adults for the briefest possible periods of time" (Bronfenbrenner, 1977, p. 513). Dissatisfied with both reductionism and a lack of other good alternatives, Bronfenbrenner proposed an integrated and holistic model that focused on the interactions between a developing child and their ecology (Bronfenbrenner, 1977; Bronfenbrenner, 1979).

The basic conception of the bioecological model frequently calls to mind an image of nested Russian dolls. Drawing loosely from this imagery, a child develops within an environment, conceived as layers, spanning from more intimate relationships out to more abstract, distant relationships and structures farther removed from the child. The first system or layer is the microsystem. The microsystem is defined as the web of relationships that exist between the developing child, aspects of their immediate setting (home, classroom, daycare, work or the girl scouts, for instance). Sometimes microsystems interact and affect one another. Interacting microsystems (absent the child) comprise the mesosystem. Bronfenbrenner identifies a third system, further removed from the developing child, as the exosystem and describes it as a layer that consists of social structures that are local but do not directly impinge upon the child yet, nonetheless, influence the child's development. Succinctly, one might think of this as local culture, and it includes elements such as regional industry, political climate, neighborhoods, religious communities, and public services, just to name a few. Finally, the macrosystem is loosely translated as culture. It includes what might be considered normative changes and rites within a particular society.



If systems represent the *what* of development, Bronfenbrenner attempted to address the *how* in the final iteration of his model by emphasizing what he termed proximal processes. Proximal processes are increasingly complex interactions that occur between people and their

environments. The interactions are reciprocal, occur on a regular basis and over a long span of time. Very simply, one might imagine the interactions that occur between a mother and child across the years: reciprocal, increasingly complex, and sustained across time. This, Bronfenbrenner argued, was the crucible of development. It remains unclear what effect the additional ingredient of technology in this crucible will be. Though correlational, it is occurring at the same time there is an increase in narcissism and anxiety, while there is a stark, corresponding decrease in empathy.

Attachment Theory

A second lens that offers insight into how early relationships affect development is attachment. Attachment is defined as a biological instinct to draw close to another (the parent or caregiver), especially when the child senses some threat or feels anxious. Of course, this behavior is motivated because the child anticipates some comforting action from the attachment figure, normally the parent. Healthy attachment is believed to be evolutionarily adaptive and considered the normative outcome of child-caregiver interactions (Ainsworth & Bowlby, 1991).

When attachment is effective, the benefits are many. The presence and dependability of these early social relationships likely contribute to the child's emotion regulation skills, including their ability to securely attach and manage stressful situations. However, when children fail to successfully attach to caregivers, the consequences are significant and negative.



But, children are not automatically attached; there is a process, and the outcome is not guaranteed. Attachment behaviors themselves are viewed to be initially a *fixed action pattern*, an idea that more commonly hails from animal studies. A fixed action pattern is understood to be an invariant sequence of behaviors designed to elicit a particular outcome. It might be thought of as something like a reflex that interacts with the environment. As such, a child is hard wired to emit certain behaviors such as smiling, crying, and grasping, which typically result in the environment responding. A mother, part of the child's environment, may be nudged to pick up her crying child.

These complementary actions (cry, get picked up) may become synchronized, especially if the caregiver responds to the bids reliably and predictably. Over time, these expectations develop into a basic roadmap of how the world works, which Bowlby called an *internal working model* (IWM). The IWM is a blueprint concerning the responsiveness and accessibility of caregivers. Tight synchrony between a mother and child precedes attachment and most likely influences attachment style. So, to summarize, the current thinking in the field is that the environment matters, the caregiving space matters, the infant's environment is relational, and the interactions are essential for healthy attachment and empathy (Mesman, van IJzendoorn, & Bakermans-Kranenburg, 2009).

Poor synchrony, on the other hand, may presage difficulties later. While observed synchrony predicted later attachment (Feldman, 2007), dyssynchrony preceded avoidant, resistant, or anxious attachment, depending on the type of dyssynchrony the mother and child created (Isabella & Belsky, 1999). To summarize, although emotional and relational outcomes are influenced by a vast number of inputs, a broad review of the research supports that maternal and paternal sensitivity contributes to a healthy synchrony with the infant, which in

turn, fosters healthy attachment (Braungart-Rieker et al., 2014). Attachment, subsequently, is an important contributor to development across the lifespan, associated with emotional regulation and relationship dynamics (Thompson, 2008).

Within the past decade, consumer electronics have come to occupy a central role in our lives, even displacing other important relationships. Casual armchair speculation raises red flags. Ecological systems theory suggests that this new technology is having an effect, though this particular lens is less clear at anticipating exactly what we might see. Attachment theory and research on synchrony suggest that interference with caregiver-child interactions may negatively impact and initiate a sequence of difficulties for the child. However, our understanding of the impact of this technology on relationships is only just beginning. This research sought to add to this growing literature by endeavoring to understand how technology is influencing families from the perspective of children.

Method

Collecting the Data

The research team consisted of a faculty member in a university department (Counseling and Human Services) and three primary grade faculty at the university-affiliated K-12 laboratory school. The Institutional Review Board approved all research protocols, and then teachers sent flyers home with students in grades 1 through 6. If parents indicated a willingness to learn more about the research and potential interest in participating, the principal investigator followed up with the parents to obtain written informed consent. Child assent was secured before interviews proceeded. All contacts were originally a convenience sample of willing participants.

The participants were 18 youth, age's seven to eleven. Six were male, while twelve were female. All resided in a medium-sized, southern Appalachian community and were socio-economically middle class. All were white, which loosely approximates the demographic of the piedmont community. Seventeen of the eighteen children interviewed said family members had smart phones. The one child whose family did not have smartphones still articulated views about the impact of personal electronics on families based upon his observations of friends and their families. Participants were drawn from a lab school which requires a family interview and parental initiative. This may affect the generalizability of the findings.

The central questions participants responded to were "Who uses smart phones in your home?" followed by "How do smart phones affect how people are able to talk to one another in the family?" The interviews were audio and video recorded, then transcribed verbatim. Following the interviews, the investigator jotted down reflections into a research diary, which was shared with other research team members to help mitigate bias and contribute to the trustworthiness of the study. Subsequent interviews with the same participants were scheduled as needed to serve as member checks and as theoretical sampling when more detail about an emerging category was required.

Data Analysis

The researchers used a modified grounded theory approach to try to understand how young people might be affected by cell phone use within their family. Videos of the interviews, transcriptions of the videos, and investigator's notes comprised the qualitative data set. The research team read through the transcripts, employed open coding, and assigned in-vivo codes to the youths' descriptions. The research team discussed codes until achieving consensus on in-vivo codes. The transcripts were read through a second time with the in-vivo codes and the research team abstracted more general themes from recurring codes.

As themes emerged, the investigator interviewed eight of the original 18 children a second time. These eight were selected as a theoretical sample to help complete categories and address questions the research team had. The investigator also performed member checks with four of the participants to help verify the codes and emerging themes. Data collection ended when it became evident the research team was no longer encountering new information and after categories were reconciled with the participants' experiences. The researchers attempted axial coding, in which categories are related to one another in an effort to create a grounded theory where categories could be described as interacting with one another. This did not yield the sort of complex model we hoped to see, however, and instead what remained were themes or categories that did not seem to affect one another in an interactional way.

Results

Neither Good nor Bad: A Tool

Coding of the interviews revealed, first, that smartphones and tablets were common in families but not innately problematic for families. Seventeen of eighteen informants said their parents used phones extensively, while one family purposefully avoided mobile phones. As with previous technology, smartphones were neither inherently good or bad, helpful or harmful to family interactions but were only tools in the hands of their users. This was the position articulated by most young people interviewed and ran counter to the investigators' expectation that children would view phones dimly, and with contempt and distrust, because they drew their parents' attention away from them. Instead, interviewees generally viewed phones and devices as necessary for families to coordinate plans and to keep in touch should work travel separate them. For instance, one child noted "Parents are on the phone for work and to help make arrangements for activities" and another explained, "Sometimes I need to contact my mom for medical reasons."

Children indicated that phones were a necessary logistics managing tool in their families and they saw value in them for bridging distances when family members had to travel for work. Said one child whose father traveled a lot for work, "Dad is pretty good; he Facetimes me when he is gone." Sometimes phones were used as a part of social interactions with those immediately present. "My mom takes pictures with her phone," said one third grade girl. Items of common interest may be shared on the phone and it becomes a part of the social interaction with the family.

But, phones can also impair relationships. Some interviewees described very purposefully using technology to modulate relationships, that is, to control communication and interactions. In this instance, a twelve year old explained her use of the phone to minimize her relationship with her caregiving grandmother, “We would be a lot closer, probably talk a lot more, without technology. She wants me to talk about what happens at school and stuff, but I don’t ever do that. I just come home from school and put in my earbuds.”

Boundaries

Whether the tool aided or diminished family life had a lot to do with boundaries. Typically, boundaries were initiated by the parents. As one child described, “We have boundaries – after school, not after 9pm.” Another responded, “If my mom didn’t have rules, then we’d be playing with our phones when we get bored at the dinner table.” Most often, mothers would be in charge of creating boundaries for device use. Dads supported the policies, but, on occasion, were described as sneaking glances at their phone in violation of family expectations.

Rules and boundaries were apparently important tools for managing phones. The interviewees, children aged 7 to 11, had all grown up during the Great Recession, a time of economic stressors and period when technology persistently eroded the barrier between work and home life. The children interviewed accepted that their parents’ work would continue at home and into the evening. The research team was struck with how understanding the children were of their parents’ phone and device use for work, even as it intruded upon family time. Illustrating the technology enabled encroachment of work upon family life, “Dad works with computers - focuses on it before breakfast and during dinner.” Said a fourth grade girl, “Mom is a realtor. She has to do a lot of work on her phone... We don’t have our phones out when we’re eating as a family, unless my mom gets a work call.”

The interviewees were generally accepting if the parents made some effort at demonstrating boundaries. A sixth grader noted, “About half the time it hurts. The other half I’m cool with it, and I know she has to work.” Phones and electronic devices are ubiquitous and potentially disrupt family life. Managing them and creating boundaries seemed to be an essential family skill.

Poor Boundaries

Although most parents in this study were described by their children as creating effective boundaries on family phone use, in a minority of interviews (four of eighteen), this was not the case, with negative consequences for relationships. This set of informants clearly articulated that “Kids might feel like their parents don’t care about them,” as one fifth grade boy said.

A girl, a fifth grader, said her father was on the phone “Whenever he had the slightest moment.” She described tossing a ball with her father, “I dropped the ball; it rolled down the hill - not a very big hill... I went to pick the ball up, and I turned around. When I turned around he had the phone out.” In the interview, she elaborated that she understood but felt sad because “You cannot get that time back.” A fourth grader also described a family softball game. Her father got his phone out. “We had to wait until he finished to continue playing.”



One participant shared several stories, all illustrating a pained relationship with her mother; the phone played a central, mediating role. Indeed, the interview was briefly halted because the eleven-year old was overcome with tears. In her situation, she is reared in a single parent home, her and her mother's. The schism is especially evident.

“She has a tendency to kind of block me out because usually she won't know what I am saying. She'll be on the phone for ten minutes and I'll be like having this conversation that's only me. Then there are other times when she will hear me and get off on the phone and she'll say, 'okay so you were talking about...!' but other times she's like, 'okay...now what were you saying?' ...It's not very nice when you're ignored by the only other person in the house...occasionally it hurts a bit.”

The research probes focused initially on the parents' use of electronic devices. Interestingly, however, the interviewees also often spoke about how electronic devices interfered with a sibling relationship. A fifth grade boy with four other siblings explained having closer relationships with his older teen sisters. Then, they got phones. “Phones,” he said, “kind of interfere with your ability to connect with your family...Feels kind of strange that someone would shut off all human interaction to stare at a rectangular cube.” Apparently, the interviewer got to him just after a geometry class. He still had a relationship with his younger sister who was near his age.

The generalities of his story were repeated by others by other interviewees. The pattern involved siblings being close, the older sibling becoming an adolescent and getting a phone, and then effectively withdrawing from the sibling relationship in favor of time on the phone interacting with peers. Preadolescent interviewees were wistful as they described the closeness they had earlier experienced with their older siblings. Chores that had been shared among siblings were redistributed among fewer children, as the older kids had mastered feigning unavailability and were instead secluded with their smartphones. Six of eighteen participants felt it interfered with their ability to connect to and engage with their older sibling.

The interviews suggest that, from the perspective of the interviewed child, smart phones were not uniformly good or bad. Instead, it appeared to depend upon the boundaries that the parents designed, boundaries that were often explicit, self-imposed, and typically generated and enforced by the mother. Most children did not feel ignored by their parents or displaced by the electronics, suggesting the parents had found a balance between the phone's utility and prioritizing presence in the here and now. However, when parents, a minority in this sample,

failed to establish boundaries that prioritized meaningful relationships their kids, the young people deeply felt hurt and anger.

Discussion

Based upon Sherry Turkle's 2011 book *Alone Together* and anecdotal personal experiences, there was the expectation that most children would report that they were deeply and negatively affected by their parents' absorption with personal mobile devices. The findings, instead, roughly align with the small number of previous observational studies. The Hiniker et al. (2015) study of children and caregivers at a playground found that most caregivers only glanced at their phone, but that a third spent 20% of their time absorbed with their devices. Similarly, the Radesky et al. (2014) observational study reported that 16 of 55 parents in restaurants used their phone nearly continuously while eating with their small children. Correspondingly, our study found that most children reported that their parents were sufficiently present for them to have their emotional needs met. However, also fitting with the previous studies (Hiniker et al., 2015; Radesky et al., 2014), a small number of interviewees (4 of 18, or 22%) clearly lamented their parents' absence.

The findings might be thought of as somewhat analogous to the early research on how divorce affects children. Wallerstein's initial research (Wallerstein & Kelly, 1976) sounded the alarm that divorce was acutely distressing for children. Later research, with more representative samples, found that though divorce was stressful for children, most children coped with the change. Similarly, a casual and unscientific investigation suggests that children are very frequently ignored by device-absorbed parents. However, as research is maturing, we openly speculate that a majority of parents do quite well managing the intrusion of the electronic devices. A small number do experience a parent-child relationship which is significantly, negatively affected, something quite analogous to the early decades of research on the effects of divorce on children. Negative effects were not as widespread as anticipated, but where they did occur, children did feel the pain of neglect.

A second interesting aspect of the research involved categories. Radesky et al. (2014), identified absorption with the mobile device as the most important theme. This is reasonable considering their research team employed naturalistic observation and saw parents, from an outsider's perspective, absorbed with their devices. This research, which achieved more of an emic perspective, saw interviewees use words like *rules* and *use* and *boundaries*. Boundaries, representing something more active and volitional, emerged as a significant theme. Boundaries reflected something of decision-making and connoted the parents as being somewhat more active. If boundaries represent a significant parenting or family skill, it appeared that parents more often exercised control over the who, where, and how long of phone use, compared to the adolescent siblings. The corresponding disappearance of older siblings was noted by several research participants.

This research suggests several areas deserving further study. First, while there has been public handwringing and research concerning parents, mobile devices, and children, findings from this research suggest another generally overlooked aspect: how technology interferes with sibling relationships. This was unexpected, and the research team was struck

with how frequently this issue arose among the sample. The effect may not carry the same emotional load as being neglected by one's parents, but within this sample, the absence was deeply felt. Second, it would be interesting to get parents' perspectives on mobile device use, especially their views on boundaries and how this aligns with their children's perceptions of family device use. Would there be agreement? Third, it might be useful to see what relationship exists between the issue of parental absorption with mobile devices and a classification of more general parenting approaches, such as Baumrind's typography.

Is device absorption a function of a more general, neglectful approach, or does phone use somehow stand apart from more general parenting approaches? For instance, might one be an authoritative parent, who also frequently ignores the child at other times to attend to the phone? Finally, the research sample consisted of students in primary grades who were attending a university-based laboratory school. Inasmuch as the environment is similar to a magnet school, children who attend are not necessarily a representative sample. Our understanding of how phones influence children's development would be enhanced by including children who come from different types of family backgrounds.

Conclusions

This study explored children's perspectives on parental mobile device use. Although a qualitative study using semi-structured interviews and no formalized a priori hypotheses, based upon the literature review as well as attachment and bioecological theories, there was an expectation that interviewees would report frequently being ignored by their parents and that there would be strong negative emotions as a result. Instead, the research found that, according to the children interviewed, a majority of parents used their phones moderately and not in a way that negatively affected their parenting. However, a significant minority did report that family members exercised poor boundaries and control over device usage and that they experience salient negative emotions as a result. It is our hope that these findings prompt further research and discussion about technology, family communication, and child development.

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