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Extended Abstract

Parents' Views on the Impact of Technology on 18 to 24-Month Old Infants*

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Abstract

Spanning the first years of life, infancy constitutes an important development process for an individual. As it is known that environmental factors influence infants' development and as information and communication technologies, such as smart phones, tablet computers, and the Internet, have become integral components of the environment, the impact of technology on infants is a matter of concern. The importance of this discussion is compounded when it is born in mind that such devices attract the oft-undivided attention of 18 to 24-month old infants, possibly impairing infants' ability to fully take advantage of this stage of discovery. In that respect, the aim of this study is to investigate the impacts of technology on infants where parents use technological devices for themselves or their infant or where they allow their babies to use these devices. The data were through qualitative research methods. The study population consisted of 52 parents, of which 32 were mothers and 17 were fathers, with at least one 18 to 24-mont old infant in the province of Van, Turkey in 2017. A semi-structured interview form containing a single question was prepared and probes were asked to obtain detailed information and guide the interview. Content analyses were conducted to analyze the qualitative data. The study reveals three main themes gleaned from parents' views on the impact of technology on 18 to 24-month old infants, namely: (i) parents' reason for using technology, (ii) change of emotions in infants when technological devices are used and not used, and (iii) infants' reactions and behaviors during use. These results were discussed in terms of technology's impact on infants.

Keywords

Technology • Infant • Parent views • Child development • 18 to 24-month old

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During infancy, defined as the period starting with birth and ending at the age of two, an individual experiences rapid growth in all areas of development. Since the impact of environmental factors carries near, if not equal importance as the features that the infant was born with, this unique development period is also important for those individuals responsible for the care and education processes of infants.

Despite the studies conducted, those studies investigating the impacts and reflections of information and communication technologies related to parents and their infants remain in adequate in the literature. Moreover, it is seen that this subject is limited to studies conducted with infants in the early childhood period (i.e. 18-24 months of age) and that studies discussing the impact of technology on the development of infants are equally inadequate. In this regard, it can be said that research detailing the impacts of mothers' technology use habits on the development of infants would constitute a significant contribution to the field. The use of technology by today's parents renders important those studies presenting parents' attitudes and behaviors toward technology and their impacts on the development of infants. The roles of parents, and especially those of mothers, in this process are essential on this age group. Given that most of today's parents very frequently use information and communication technologies, such as smart phones, the Internet, tablets, and personal computer, collecting and interpreting their reflections on the development of infants is deemed important. For this reason, the current study aims to investigate the impacts of technology on infants where parents use technology for themselves or their infants or where they allow their infants to use the technology.

Method

In this study, interviews were conducted with parents aiming to investigate the impact of technology on 18 to 28-month old infants. Content analysis, a qualitative method, has been used to collect data for this study. Content analyses consist of four stages, namely processing qualitative research data obtained from documents, encoding the data, finding themes, organizing codes and themes, defining and interpreting the findings (Yıldırım & Şimşek, 2006). Content analysis has been preferred in this study since parents' views on technology are gathered together and interpreted within the framework of certain themes in a way that may be understood by readers. In this study, the scope of word technology includes information and communication technologies such as tablet computers, laptops, smart phones, and the Internet.

Population and Sample

The study population consists of mothers and fathers with one or more 18to 24-month old infant living in the province of Van, Turkey in 2017. The sample consists of 52 volunteering parents (35 mothers and 17 fathers) from different

families with one or more 18 to 24-month old infant registered in the Family Health Center Numbers 9, 10, and 12 of Van's Ipekyolu district in 2017.

Data Collection Tool

In this study, a semi-structured interview form is used. In qualitative studies, interviews can be carried out as structured, semi-structured, or unstructured (Punch, 2005). Since the study investigates the impacts of technology on the development of 18 to 24-month old infants, the researchers gave participants the interview form containing the following question: "Is there a situation regarding your infant that draws your attention during either your own or your infant's use of technology? Please explain." The interview form includes a single question and probes were further asked both to obtain detailed information from parents and to guide the interview. The interviews were carried out in face to face and Turkish language.

Data Analysis

In the analysis of the qualitative data, semi-structured interviews were converted to text. The content analysis process was conducted by two experts in their field and data for mothers and fathers were analyzed separately until a consensus in themes was ensured. Four main themes were determined as a result of the encoding. Sub-themes were then created for each main theme. All views of the participants were included in the study. For the reliability of the study, interviews were read by two researchers and their consistency was compared. Moreover, the dates and locations of the interviews made with parents are given in Table 1 for the sake of reliability. For the validity of the study, participants' statements in relation to themes were reported verbatim after the content analysis was completed.

Findings

As a result of the interviews with parents, a content analysis was conducted separately for mothers and fathers and both the main themes and sub-themes given in Table 2 were reached. It is seen that although data for mothers and fathers were analyzed separately, the main themes are the same. Yet, mothers provided data that allowed for many more themes to be created, which indicates that mothers' observations of their infants and the time they spend with them are greater than those of fathers.

Table 1

Data on Interviews with Parents

Code	Parent	Date	Location	Code	Parent	Date	Location
M1	Mother	15Aug. 2017	9-way FHC	F1	Father	17Aug. 2017	9-way FHC
M2	Mother	15Aug. 2017	9-way FHC	F2	Father	17Aug. 2017	9 –way FHC
M3	Mother	15Aug. 2017	9-way FHC	F3	Father	21Aug. 2017	9-way FHC
M4	Mother	16Aug. 2017	9- way FHC	F4	Father	21Aug. 2017	9 –way FHC
M5	Mother	16Aug. 2017	9-way FHC	F5	Father	21Aug. 2017	9 –way FHC
M6	Mother	16Aug. 2017	9 –way FHC	F6	Father	22Aug. 2017	10-way FHC
M7	Mother	16Aug. 2017	9 –way FHC	F7	Father	22Aug. 2017	10-way FHC
M8	Mother	17Aug. 2017	9-way FHC	F8	Father	22Aug. 2017	10-way FHC
M9	Mother	18Aug. 2017	9 –way FHC	F9	Father	23Aug. 2017	10-way FHC
M10	Mother	18Aug. 2017	9-way FHC	F10	Father	23Aug. 2017	10-way FHC
M11	Mother	18Aug. 2017	9-way FHC	F11	Father	23Aug. 2017	10-way FHC
M12	Mother	20Aug. 2017	10-way FHC	F12	Father	07Sep. 2017	12-way FHC
M13	Mother	20Aug. 2017	10-way FHC	F13	Father	07Sep. 2017	12-way FHC
M14	Mother	20Aug. 2017	10-way FHC	F14	Father	07Sep. 2017	12-way FHC
M15	Mother	24Aug. 2017	10-way FHC	F15	Father	08Sep. 2017	12-way FHC
M16	Mother	24Aug. 2017	10-way FHC	F16	Father	08Sep. 2017	12 –way FHC
A17	Mother	24Aug. 2017	10-way FHC	F17	Father	08Sep. 2017	12 –way FHC
M18	Mother	24Aug.2017	10-way FHC				
M19	Mother	24Aug. 2017	10-way FHC				
M20	Mother	24Aug. 2017	10-way FHC				
M21	Mother	25Aug. 2017	10-way FHC				
M22	Mother	25Aug. 2017	10-way FHC				
M23	Mother	29Aug. 2017	10-way FHC				
MF24	Mother	29Aug 2017	10-way FHC				
M25	Mother	05Sep. 2017	10-way FHC				
M26	Mother	05Sep. 2017	12-way FHC				
M27	Mother	05Sep. 2017	12-way FHC				
M28	Mother	11Sep. 2017	12-way FHC				
M29	Mother	11Sep. 2017	12-way FHC				
M30	Mother	11Sep. 2017	12-way FHC				
M31	Mother	13Sep. 2017	12-way FHC				
M32	Mother	13Sep. 2017	12-way FHC				
M33	Mother	13Sep. 2017	12-way FHC				
M34	Mother	13Sep. 2017	12-way FHC				
M35	Mother	13Sep. 2017	12-way FHC				

FHC: Family Health Center, M: Mother, F: Father.

Table 2
Views of Mothers and Fathers on the Impact of Technology on Infants

Mother	Father
Reason of use	**Reason of use**
For feeding	For feeding
For silencing/entertaining	For silencing
For putting to sleep	
For speaking or communicating	
Change of emotion while taking or giving	**Change of emotion while taking or giving**
Becomes cranky/crying	Becomes cranky/crying
Becomes happy	Calms down/silencing
Calms down	
Reaction toward technology	**Reaction toward technology**
Becomes solely concerned with device upon obtaining it	Becomes attracted when seeing it, wanting to take it
Resists parent' staking it back	Becomes interested
Becomes interested	Imitates/takes parent as an example
Becomes attracted when seeing it, wants to take it	Not interested
Not interested	
Imitates/takes parent as an example	
Does not sleep without telephone	
Mother's attitude/views	**Father's attitude/views**
Mother believes that it is helpful or has to use it	Father believes that it is helpful or has to use it
Mother believes that there are adverse impacts/is uncomfortable with the situation	Father believes that there are adverse impacts/is uncomfortable with the situation
Tries not to give	Tries not to give
Technology is harmful because of radiation	
Technology use should be guided toward real life	

As seen in Table 2, when the data obtained from interviews with parents is evaluated, it is seen that the negative aspects of technology on infants are more frequently emphasized. Although several parents think that technology have negative aspects, many mothers use technology or let their infants use it. The themes given above are ordered from the most to least frequently observed. The main themes and sub-themes presented in Figure 1 were created by evaluating Table 2 and emphasizing important points.

Discussion and Conclusion

As the most basic conclusion of the study, it was revealed that technology has direct and indirect impacts on infants' behavior and psychology. In addition, it was found that parents use technological devices to help them feed their infant, put him/her to sleep, and improve his/her speaking and communication skills especially when they are unable to manage/control their infant. In this regard, it was observed that mothers in particular use technological devices to entertain their infants so that they may attend to other chores. These chores pertain sometimes to housework and sometimes other activities, like watching TV or surfing on the Internet. At this point, there is an important problem for the infant. Considering that the average age that a child acquires the ability to feed him/herself at 18 months of age (Neyzi, 2004),

technology will have a significant impact on an infant's feeding habits. Indeed, infants should be aware of what they eat, but the complex transitions and colors displayed on technological devices cause them to eat the food their parents choose without any objection. This may affect an infant's eating habits. According to the results of this study, it is concluded that parents use technology to feed their infant with the food that they choose rather than the based on their child's own preferences.

As seen in this study, parents use technology to silence their infants. Parents stated that technology calms their infants and makes them happy. This is because the child that parents prefer, at least in terms of social-emotional development features, is a child who does not object, who accepts parents' expectations, who does not cause problems, and who is quiet and compliant. It has been concluded that parents who use technology are those wishing to curtail what they consider to be negative characteristics of 18 to 24-month old infants, such as infants' refusal to do what is requested of them and their being autonomous, both of which are social-emotional development characteristics. This is a different subject and needs to be discussed and investigated in terms of causing possible changes on natural development characteristics.

Another reason cited by parents for using technology was to accelerate the language development of the infants and to support what they consider to be insufficient language skills. Although using appropriate images and sounds is a positive aspect of the technology, technology should be used more cautiously considering the future negative impacts it may cause.

In this study, it is found that although those infants who have become accustomed to using technology show such emotional changes as becoming cranky or crying and resist when they are restricted from using technology. They experience a temporarily calm and happiness upon obtaining the technological device. This is particularly true for infants acquainted with and accustomed to using technology. The fact that infants become accustomed to using technology within a very short period of time and that withdrawal symptoms are observed in infants unable to access technology following exposure is quite worrisome.

Since children born into the digital world become familiar with technology at a very young age, studies have been conducted to discuss how technology affects the physical, linguistic, and cognitive development of children (Bransford, Brown, & Cocking, 1999). In this study, parents stated that technology supported the early literacy and cognitive skills of their infants, supporting their learning of numbers, colors, and music. Based on this finding, it can be concluded that parents seek to begin using technology at a very early age so as to provide education support to their infants.

The researchers found that infants, after observing their parents talking on the phone, writing on the keyboard, and using the touch screen, attempt to imitate their parents'

use of technological devices. It is known that infants learn how to think through symbols after the 18th month, first examining and weighing the problem and then display behaviors toward solution instead of attempting to solve problems through trial and error. During this period, deferred imitation is observed in parallel with infants ability to symbolize (Berk, 2013). Being of considerable importance in terms of mental development, this ability is the precise imitation of a behavior even in the absence of the original model. During this period of cognitive development, this behavior is manifested by infants in their relation to technology; namely, they imitate the ways their parents use and interact with technological tools. Even if parents do not allow their infants to use technology, they may cause that their infants to develop an interest in technology by using it in their presence. At this point, it is recommended that parents neither be excessively engaged in technology in front of their infants nor use technology to feed, calm, or put their infants to sleep so as to prevent them from being affected by technology's adverse effects. Although some parents state that videos, images, and cartoons containing appropriate content watched by means of technological devices do indeed contribute to infants' mental and cognitive development, it is nonetheless recommended that such exposure to technology occur after children reach two years of age due to potential brain development issues (American Academy of Pediatrics, 2011). However, as seen in the findings of this study, the fact that some parents embrace an attitude of not wanting their infants to use technology due to potential adverse effects is not a correct attitude in today's digital age.

Technology offers children unique mental experiences and opportunities (Clements, 1999). Through computers, children acquire various processes, such as remembering, classifying, and generalization in the form of a continuous period. Using computers in preschool improves children's high-level skills, such as creativity, critical thinking, and problem solving (Siraj-Elatcford & Siraj-Elatcford, 2001). However, it is currently difficult to state conclusively whether such contributions exist for 18 to 24-month old or younger infants and even if positive contributions do exist, whether or not they are accompanied by adverse effects. In this regard, any recommendation for infants younger than two years of age to use technology should be taken lightly and possibly a mere result of the dearth of infant-technology studies focusing on this age group. However, it is critical that studies be carried out for this age group covering an extended period of time and identifying both the positive and negative effects of technology on infants' cognitive, behavioral, and psychological development.

According to the results of this study, technology attracts nearly all infants' attention and even infants can sit in a corner engaged with a telephone or tablet computer for hours. In this sense, it is held that infants are mobile and active when they are not using technology, while they are in a state of hypnosis while using technological devices. According to the results of the study, the fact that infants attempt to reach

their father's phone rather than interacting with him and try to take the phones of guests visiting their house shows that technology has adverse effects on infants' social relationships.

This study demonstrates that 18 to 24-month old infants are not far from or outside the world of technology. It has also ensued that parents have a perception that their children should use the technology safely and healthy. Although only a limited number of infant-technology studies on healthy parenthood in terms of technology use exist, this study illustrates that the relationship between technology and development should be examined and investigated from birth.

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