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Young Children's Social Interactions with Parents during Digital Activities at Home

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Abstract

The aim of this current study was to investigate how young children and their parents interact during in-home digital activities. A total of 40 home visits were conducted to observe children's social interaction with their parents during the digital activity time. Data were collected through participant observation as well as through interviews conducted with the parents. The results revealed that children and their parents frequently interacted with each other for a variety of purposes. These interactions were divided into categories of conflict and synchrony. The conflicts were resolved through three strategies of resolution: parental submission, child submission or compromise. The observed synchrony strategies were based on either following instructions, accompanying or cooperation. This study showed that parents play a key role in enriching children's digital activities through consistent interactions. No matter if there was conflict or synchrony, the social interactions between children and parents provided opportunities for improving children's understanding and arrangement of their emotions. However, each interaction between children and parents during digital activities has unique features. It should be highlighted that the interactions may vary across contexts and parent-child dyads.

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1 Introduction

Digital technology and digital media form an extremely significant aspect of children's lives today. These technologies and media have quickly become the cultural tools of the modern era in the home, at school, and throughout the community (Rideout 2013). As a result, investigations into digital technology use in early childhood has gained significant importance due to the dramatic increase in children's usage of digital technologies (Blackwell et al. 2014).

Today, it is not uncommon for children to use televisions, smartphones, and/or tablet computers both in the classroom (Saracho 2015) as well as at home (Plowman and McPake 2013). For example, a study conducted in the US shows that 98% of children aged 8-years-old and younger use televisions, 95% use smartphones, and 78% use tablet computers (Rideout 2017). When this same technology usage is observed in children in Turkey, it is revealed in a study by Merdin (2017), that technology usage by children aged 3-6 years-old were at 98.3% for television, 93.2% for smartphones, and tablet computers at 63.3%. It is important to recognize that digital technologies do effect children's environment. These technologies have become an integral part of the physical and social world of today's children. On the other hand, to fully understand young children's digital lives, parents should also be viewed as an important element in this equation. This is important because parents are the owners of digital technology devices that their children are using in the home setting. Parents hold an element of control over such devices and decide when, where, how, with whom, and for how long their children can use digital technologies. Consequently, children and parents frequently interact with each other during the children's digital activities.

During digital activities, children's interactions with other individuals socially connects them to the real world. Social interaction is a form of exchange between two or more individuals and children's social interactions can help to shape their early learning experiences (Siraj-Blatchford and Siraj-Blatchford 2003). Children also exchange knowledge and emotions through social interactions with their parents, siblings as well as with their peers. Therefore, focusing on children's social interactions can provide a viewpoint for understanding how their social interaction connects them to the context in which digital activities occurs.

In this current study, researchers examined how young children and their parents socially interact with each other during digital activity use in the home. Importantly, parents and children engage in complex interactions during digital activities, and inevitably there will be both conflict and synchrony between the parents and children regarding the time, place, and duration of the children's digital activities. In this current study, children and parent's interactions in terms of (i) the aim of the interactions, and (ii) interaction strategies used by children and parents during digital activities. The term "digital activity" refers to children's and parents' active and passive engagement with digital technologies such as televisions, smartphones, and tablet computers. Broad-leveled information can help parents, caregivers, and teachers initiate and maintain these interactions, which in turn establishes a base for the exchange of information, emotions, thoughts, and desires during digital activities.

2 Literature Review

2.1 Social Aspect of Children's Digital Technology Use in the Home

Children live in a world with a ubiquitous presence of digital technology, and they often use digital technology in the home. By frequently engaging in digital activities within the home, children can maintain their interaction with others around them (Saracho 2015). Also, each day family members may utilize differing forms of digital technology for a variety of purposes. Therefore, digital technologies have very much become a part of lives of children, their families, and the culture in which they reside.

Young children's engagement with digital technologies within the home has been investigated for a variety of reasons. Some surveys focus on the availability of digital technologies within the home and children's interaction with those technologies (Ofcom 2013; Rideout 2013; Takeuchi 2011). Past research has provided information regarding the trends of digital technology use as well as a more complete picture of children's technology use within the home. On the other hand, other detailed studies focused on young children's play behavior, development, and learning through use of digital technologies in the home. McPake et al. (2013) report that children's engagement with digital technologies at home can improve their overall level of communication and creativity. In addition, children can improve their competency in digital technologies through the use of software programs, online searches, and from digital books, and as a result, extend their knowledge and understanding of the world around them (Plowman et al. 2012). Another important aspect of digital technology use is that it can facilitate multimedia learning among children at-risk of reading difficulty as well as combine nonverbal information and language (Bus et al. 2015). It was emphasized through a meta-analysis that technology-enhanced stories are more beneficial for young children's literacy development than traditional reading contexts like storybook reading (Takacs et al. 2015). Also, family members are found to scaffold learning and improve the technological capabilities of children through the engagement of digital technologies within the home (Marsh et al. 2017). Furthermore, children can benefit from digital technologies through participatory literacies with digital technologies that reflect the ideas of participation, collaboration, and distribution of knowledge (Wohlwend and Rowsell 2017).

It is important to point out that young children may be affected by digital technologies at home in two ways. First, children have a desire to use digital technology equipment and actively engage in digital activities. As a result of their interest, children are more exposed to and become more actively involved with digital technologies. Second, through passive exposure, children may unintentionally utilize and/or experience digital technologies (McKenney and Voogt 2010). Both types of digital technology use constitute children's total screen time and thus influence their development (Sweetser et al. 2012).

It can be argued that there is no well-established guidance for parents regarding children's use of digital technologies at home (Livingstone and Franklin

2018). Each family has their own unique set of circumstances which they live by. The variety of characteristics that make up families as well as the context each one experiences results in differences in the level of children's digital tool use as well as how influenced they are by digital technologies within the home. Parental usage of digital technologies, parenting styles, and family socioeconomic status (SES) are also underlying factors that affect children's access to and use of digital technologies (Ihmeideh and Shawareb 2014; Nevski and Siibak 2016). It was highlighted that when it came to adapting and using digital technologies for creating a better learning environment at home there is a difference found between older and less educated parents with their younger and more educated counterparts (Papadakis et al. 2019). Moreover, the social aspect of the family context may influence the children's digital technology use. For example, Stephen et al. (2013) investigated family contexts in which young children experienced digital technologies within the home. Their study reveals that parents and elder siblings influence the younger children's digital activities by providing instruction, encouragement, broad information, and modeling behavior to the children. In addition, parents and siblings were also often found to provide additional motivation when the younger children failed to succeed.

The pattern of co-use is another key aspect of children's digital technology use. Co-use, which is a form of scaffolding, refers to the cooperative use and social sharing of digital technologies (Johnson 2015), facilitated learning, and the protection of children from unnecessary risks such as exposure to inappropriate content (Cho and Cheon 2005). Children's digital activities are enriched when they co-use digital technologies with parents, due to parents' tendency to naturally explain, extend, question, monitor, and broaden the information provided by the digital content.

As previously expressed, digital technologies are now considered to be an integral part of children's daily life. On the other hand, certain concerns have been reported in the literature regarding digital technology's negative role on children's social development as well as the fact that digital technology may isolate children from natural social interaction (AAP 2016; Armstrong and Casement 2000; Fomichova and Fomichov 2000; Van Evra 2004). Social interaction may occur via children's digital activities as either child-child or child-adult interactions. When interactions occur, participants involved in digital activities better understand their position in the interaction based on their intentions. Ljung-Djärf (2008) expressed three positions regarding children's role in a digital activity as either owner, participant or spectator. Children therefore socially interact with other digital activity participants in relation to their position, and in doing so, engage in different forms of interaction such as accompanying, scaffolding, and negotiating during these digital activities (Yelland 2011). Importantly, these social interactions provide opportunities for social and emotional development among children as well as a variety of circumstances where developmental and learning experiences can occur.

2.2 Theoretical Framework

The focus of this current study was placed on children's social interactions during digital activities. This is important because children communicate with their environment during the social interactions and activities they participate in. Therefore, a framework that combines environment, digital technologies, and young children was utilized in this current study.

A detailed view of the effect environment can play on learning and development is offered through Bronfenbrenner's Ecological Theory, which places the child into the multi-leveled surrounding environments (Johnson and Puplampu 2008). To provide a framework for the interaction of children with technology, the research of Johnson and Puplampu (2008) focuses on the social aspect of children's engagement with digital technology. They reconceptualized Bronfenbrenner's model to fit the role digital technology plays regarding the various systems in which children socially interact with others. They propose a techno-subsystem which enables children to engage in both a digital activity as well as other systems that occur during the digital activity. For example, a holistic view regarding the effect of digital technology use on the development of young children is provided through the Ecological Techno Subsystem. However, the subsystem lacks a detailed explanation of the effect of these interactions, as a result, Johnson (2010) proposes the idea of an Ecological Techno Microsystem (Fig. 1).

Johnson (2010) emphasizes that different aims and uses of technology occur within differing contexts. Therefore, various elements related to the environment are included into the techno-microsystem model. In addition, the techno-microsystem underscores three concepts; the bio-ecology of the child, digital technologies, and context. Furthermore, it is highlighted in Johnson (2010) that the developmental areas of children, such as their social development, are interrelated with digital technologies as well as the context of their use. Importantly, a framework for systematizing the areas of development and learning for children related to their
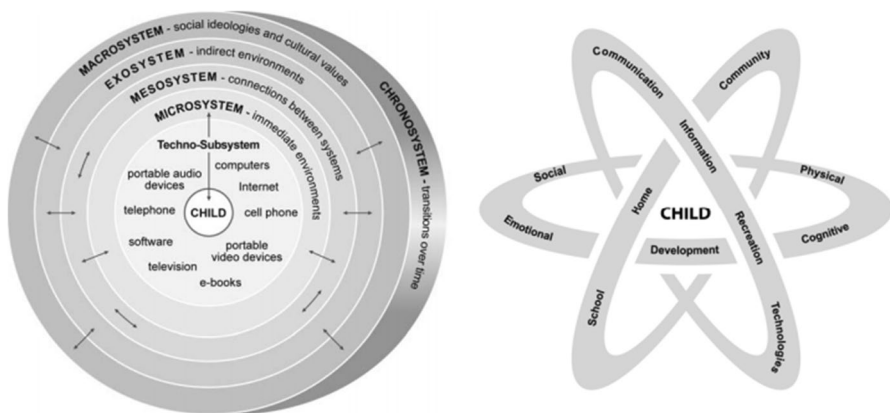

Fig. 1 Ecological Techno Subsystem (Johnson and Puplampu 2008) & Ecological Techno Microsystem (Johnson 2010)

digital technology use within different contexts and for differing purposes is provided through the ecological techno-microsystem.

3 Methodology

In this current study a phenomenological research design was employed to develop a composite description of "what" and "how" individuals experience, describe, and understand the "essence" of "lived experiences" they have within "particular" phenomenon (Lichtman 2013; Moustakas 1994). Therefore, the aim of the current study was to describe and understand children's social interactions with their parents during their in-home digital activities. In addition, it was important to bracket, analyze, and compare these children's experiences to describe and understand young children's social interactions. To carry out this purpose, within this current study the researchers' examined: (i) the aim of interactions, and (ii) the interaction strategies used by parents and children during their digital activities.

The term "digital activity" was defined in this current study as the engagement of children and their parents with televisions, smartphones, and/or tablet computers. Importantly, the term "digital activity" is meant to encompass both the active and passive use of digital technologies of children and parents, which includes the watching and accompanying of each other's technology use.

3.1 Participants

The participants in the current study were four children aged 48 to 60 months as well as their parents. This age group of children was chosen because children's interaction with digital technologies begin to increase at this age (Rideout 2017). Ownership of digital devices was another criterion for participant family selection. Rather than conducting less observation data from a greater number of families, the decision was made to collect more intense data from fewer families. Therefore, four families were included in the study to collect richer data from each context. Each family was from Kırşehir, a city located in the central Anatolian region of Turkey. The socioeconomic levels, household demographics, personal values, and educational backgrounds of each family differed. Importantly, there was no aim in this study to make any comparison between the differing backgrounds of the families, but instead the aim was to examine the role family context played in children's digital activities and their social interactions during digital activities. The demographic information regarding the participant families is presented in Table 1. Pseudonyms have been substituted for the actual names of children and family members to assure their anonymity.

According to the reports of parents' regarding their children's digital technology use, their children were regular users of digital technology, were beyond their first digital experience, and had already acquired the fundamental skills to operate digital technologies. Each family participating in this study reported owning at least one television as well as at least two smartphones which belonged to the parents. In

Table 1 Demographic information of families

Participant (age in months)	Gender	Monthly family income bracket	Other family members (age in years)
C1 (55)	Male	Low	F1, Sedat (37) M1, Dilek (31) S1, Didem (10)
C2 (59)	Female	Middle	F2, Ismail (32) M2, Ozlem (30)
C3 (50)	Male	Middle	F3, Salim (37) M3, Zeynep (35) B3, Murat (10)
C4 (57)	Female	High	F4, Mete (43) M4, Meryem (33)

addition, each of the participant children C1, C3, and C4 were reported to have their own tablet computer. The participating children's daily screen time ranged from 1 h to 2 h per day, and the parents reported usually being in close proximity to monitor their children's digital technology use.

3.2 Data Collection

Several data collection methodologies were employed in this current study. For example, to collect data, researcher observations were conducted during home visits with participating families, two separate semi-structured interviews were also held with the parents, and short interviews were conducted with the children during the home visits. The utilization of a variety of data collection methods provided a useful and rich data set for answering the study's research questions.

A total of 40 home visits were carried out by the first author of the current study. Each home visit lasted for approximately 2 to 3 h in length. As part-participant and part-observer, the researcher observed each child, took extensive field notes, talked with both the child and other family members, and behaved appropriately in the participant observation setting. A systematic observation form was constructed to gather detailed field notes during the observations. The form was comprised of several sections to fully document the context and interaction between parents and children. To best portray the context, the form included sections for digital devices in use during interaction, people present in the context, and on-screen content of the digital devices. Moreover, to collect in depth information regarding interactions, the observation form contained parts to describe how and who initiated the interaction, how the interaction flowed, and how the interaction ended. In addition, video recordings were captured during the home visits, although in most cases, the first three home visits were not video recorded. Following the initial three visits to each home, the researchers considered the families were sufficiently acclimated with the observer's presence and the use of video recordings was discussed. Subsequently, video recordings were made during at least five of the following home visits, which

enabled detailed data to be captured regarding the gazes and tacit movements of the subjects.

Semi-structured interviews were another data collection method carried out with each family on two separate occasions at the beginning and end of the current study. First, prior to carrying out the semi-structured interviews, the interview questions were prepared and piloted. As a result, the final version of the interview questions was composed according to the pilot interviews as well as the opinions of two experts (one expert who focused on young children's digital activities, and one expert who worked with parents). The two interviews were comprised of different questions and had differing purposes. The first interview was aimed at creating a collaborative and trustworthy atmosphere between the researcher and interviewees. Information about family demographics, the digital environment in the home setting, and the children and parents' digital technology use habits were gathered during these first interviews. The second interviews were conducted following the completion of the home visits. The second interviews were primarily aimed at collecting broader information regarding the data which had been observed during in-home family visits. For example, questions relating to the parents' explanations of their children's digital activities were included within the second interview.

Before collecting data, ethical approval was acquired from the Applied Ethics Research Center of Middle East Technical University (2017-EGT-063/05-04/2017). As a result, throughout the study, all procedures were performed in accordance with the established ethical standards. No benefits were offered to the participants, and they voluntarily engaged in the current research. In addition, for full disclosure an informed consent form was provided to the parents of the children which outlined the content, purpose, and process of the research. Furthermore, the confidentiality and anonymity of the participants was ensured, and data collected throughout this study was only used for the purpose of this research and was not shared to any third party.

3.3 Data Analysis

The data collected during this current study included field notes as well as audio and video recordings. The recordings were transcribed verbatim prior to the data analysis, and Lincoln and Guba's (1985) coding procedure was employed during for the analysis with new codes and emerging concepts considered to be part of the analysis process.

During this research, issues related to validity and reliability were also taken into consideration. Importantly, multiple and lengthy home visits allowed for prolonged engagement and persistent observation of the children and their parents in the home. Triangulation was also performed to ensure sufficient validity of the data analysis findings. Data were collected through different sources such as direct observations of families within the home context, interviews held with participant children's parents, field notes, and through researcher interviews with each participating child. In addition, a second coder was employed to assure a sufficient level of reliability was maintained in the data results. A total of 20% of the video recordings were analyzed

both by the first researcher and then by the additional second coder. According to Miles and Huberman's (1994) formula, interrater reliability was calculated as being .89, which is considered as an acceptable level of reliability (Creswell 2007).

4 Results

Both the participant children and their parents were open to interacting with each other during the digital activities. However, the aims and strategies of the children and parents during these digital activities differed. A general outline of the results and some brief examples are presented in Table 2.

4.1 Aim of Interactions

It was observed that the interactions between children and parents during digital activities were initiated for a variety of purposes. First, both the children and parents directed each other during the digital activities. Second, both the parents and children aimed to share their digital activities with one another. Finally, they initiated interaction during their digital activities that lead to talk about daily issues.

Both the parents and children provided instructions to each other whilst the other was in control of the digital technology; for example, instructions were given regarding how to operate the digital technology they were using. These instructions included

Table 2 Outline of the results

Aims of interactions	Examples
• Directing – 40.75%	Operating digital technologies; children's proper use of digital technologies.
• Sharing – 53.55%	Parents' and children's sharing and engagement in each other's digital activities.
• Daily life – 5.7%	Informal talking; children's expressions used in daily life.
Interaction Strategies	Examples
Types of Interactions	
• Conflicts – 54.9%	Divergence between parents and their children.
• Synchronies – 45.1%	A match in children's and parents' goals.
Conflict Resolution Strategies	
• Child submission – 34.8%	Children's acceptance of turning off the television and eating a meal at the end of a conflict.
• Parental submission – 53.92%	Parents providing extra time for children to play on the tablet.
• Compromise – 11.28%	Children's and parents' decision on a common channel to watch, despite individual wishes to view different content.
Synchrony Strategies	
• Following instructions – 27.4%	Parents opening cartoons because the child wanted to watch.
• Accompanying – 47.95%	Parent's accompanying a child's digital activity; parent and child watching television together.

such directions as opening/closing the digital tool being used, turning the volume up or down, and selecting a different channel or application from the device. The following scenario is an example of a child observed while providing direction to their parents about changing the television channel.

> C1 was laying on his mother's arm. They had been watching a movie on television together for a while.
> C1 *"Mom, change the channel, open Channel X. Change the channel, go up."*
> M1 started changing the channels again. C1 recognized a cartoon on another channel.
> C1 *"Okay, stop. I'll watch this."*

Sharing was the second parent-child interaction phenomenon observed during the in-home digital activities. For example, parents either solely watched their children's digital activities, talked about the activity in addition to watching or became fully engaged in the activity themselves. In addition, it was observed that the children were keen to share in their digital activities, to demonstrate their play, and often demanded help from their parents in order to accomplish certain tasks as well as improve their standard of play. Furthermore, the children were also observed watching some of their parents' digital activities and even initiated interaction with their parents to join in the activities themselves. The following excerpt presents a child (C4) sharing her digital play with her parents, and also provides her parents' subsequent response.

> C4, her family, and the researcher were out on the balcony. The parents were chatting.
> C4 was playing a cooking game on her tablet computer and she showed what she was playing to her father.
> C4 *"Oh, I'm so tired… Aha, it's ready, loooook. Didn't we do well?"*
> F4 (looks at the screen) *"Well done! What did you make? A sandwich, avocado, chicken burger…?"*
> C4 *"Hey, all of them. Look!"*
> M4 *"Can I see? Turn the tablet."*
> C4 *"See, a sandwich, avocado..."*
> F4 *"It's amazing!"*
> M4 *"Wow, it looks beautiful."*

It was also observed that beyond solely interactions related specifically to their digital activities, the parents and children also interacted and shared aspects of their daily life while participating in the digital activities. For example, they talked together and expressed their emotions and ideas during their digital activity time. Also, some of the children expressed their daily needs such as when they were hungry and/or when they needed to go to the restroom.

4.2 Interaction Strategies

The interactions that were observed between the parent and child during the home visits were categorized as either conflict or synchrony according to the degree of

harmony that appeared to occur between parents and their children. While a divergence in agreement, ideas, and/or selection between the parents and children were labeled as conflicts, when their choices and/or behavior matched between the goals of the children and parents these instances were labeled as synchronies. As a result of the analysis of the parent-child interactions, 54.1% of their interactions were viewed as conflicts, while 45.9% of these interactions were viewed as synchronies.

4.2.1 Conflicts and Resolution Strategies

Each conflict that was observed during the home visits with the participating parents and their children had some form of resolution, and these resolutions were grouped into three categories. For example, "child submission" included the children adjusting to their parents' viewpoints, while "parental submission" referred to the parents' acceptance of the child's demands. In addition, "mutual resolution" referred to a mutually agreed upon solution that was acceptable to both the parents and the children.

> C3 was playing a game. His parents and the researcher were chatting. C3's mother wanted him to turn off the device he was using.
> C3 *"Mom, can I play some more?"*
> M3 *"No, you have finished your time."*
> C3 *"Mom, come on, one more."*
> …
> C3 *"Nooo, Daaad. Dad, please?"*
> F3 *"Charge it. When it's full, then you can play."*
> C3 *"Nooo, I don't want to."*
> F3 (Pushed the power-off button) *"Ooooww, it has stopped working now. Go and charge it."*
> C3 gave up playing and placed the tablet on the table.

This interaction was an example typical of the conflicts observed between the parents and their children regarding their digital technology use. Although the parents eventually forced the child to turn off the device, the child still wanted to continue with the digital activity and was not entirely compliant with the parents' wishes and/or commands. While the child demanded to continue the digital activity, the parents offered an alternative and insisted on the children turning off the device. As was observed, the father quietly pushed the power-off button to the tablet computer and implied that the battery level had become significantly depleted, and then at that point, the child gave up trying to use the device. As a result, because of this action it can be inferred that the conflict ended due to the submission of the child. On the other hand, in the following excerpt is an example of when parental submission occurred between a parent and child regarding the digital activity use in the home setting.

> C2's father was watching a news program on television. C2 looked at her father and silently took the remote control.

F2 *"C2, haven't you already watched television today? Let's turn down the volume. Give it to me."*
C2 *"No!"* (she then changed the channel)
F2 *"That's enough. Give me back the remote control so I can watch the news."*
C2 pushed away from her father, but her father did nothing more. He began talking to C2's mother, while C2 continued watching cartoons.

This example of a conflict that was observed to occur between the parent and child within the home regarding the use of digital technology (i.e., the television) resulted in C2 changing the channel, even though her father was in the middle of watching a news program on the television at the time. While C2's father did disagree and resist the action of the child, C2 took control of the television remote and said "*No*" to her father before moving away from him. Although F2 wanted to watch a news program, he gave up his attempts to direct C2 and instead allowed C2 to watch the television program (i.e., a cartoon) that she had selected. As a result, F2 adjusted his behavior according to C2's decision.

The two examples of conflict resolution regarding the in-home digital technology use observed among parents and their children have each contained a so to speak winner and loser of the interaction. However, when compromise was seen to occur, the conflict between the parent and child reached some form of solution where it was a win-win for both the child and their parents. As a result, both parties had to adjust their behaviors and decisions according to the intentions of the other party involved. Importantly, each person's adjustment to their behavior led to a mutually agreed upon compromise or mutual resolution to the situation. Clearly, this type of strategy can be seen as a productive resolution that suited both parties.

C1's parents and the researcher were having a discussion while C1 was watching a fairytale on television. C1 took the remote control and turned up the volume.
C1 *"You are too noisy, I cannot hear, aargh!"* (C1 turned the volume up a bit)
The parents continued talking louder and C1 became angry with his father.
C1 *"Dad, I'm telling you I cannot hear!"* (Started turning up the volume louder)
F1 *"Okay, you watch, and we'll talk. Enough, now turn down the volume, we will be quieter."*
C1 turned down the volume and continued watching. C1's father began to speak more quietly.

In this example of conflict that was observed between the parent and child within the home setting, the child C1 wanted to continue watching a fairytale program on the television. However, child C1 was disturbed by the level of noise coming the conversation taking place by others in the room. As a result, he became frustrated and turned up the volume in response to the perceived disruption to his digital activity. Then, the father began to speak louder in response to C1 having turned up the volume on the television. Ultimately, the two sides came to an agreement and C1 turned down the television' volume, while the others in the room agreed to speak more quietly. This particular conflict that was observed in the home setting of one

of the participant families resulted in a compromise with both parties coming to a mutual agreement and having the wishes of both parties fulfilled.

4.2.2 Strategies in Synchronies

The children and their parents also interacted in a synchronous fashion during some of the digital activities that were observed in the home environment. While the conflict episodes included confrontation based on the wishes and demands of both the parents and children, the cases where interaction was viewed as synchronous when the objectives and requests were seen as complementary and both the children and their parents acted in harmony in regard to each other's demands, wishes, and notions. For example, the harmony that was observed to be reached by the parents and their children included a variety of strategies such as "following instructions," "accompanying," and "cooperation."

As presented at the opening of this section, the parents and children often encountered situations where one party or the other gave instructions and/or made demands regarding some aspect of their digital activity. For example, in the following interaction the parents' provided an appropriate response to their child's direction which was viewed as a synchronous interaction.

> C4 was playing with her toys one evening while her father was watching the news on television. Her father occasionally commented about the news to C4's mother.
> C4 gave up playing with her toys and began to watch the television. After a while, C4 commented…
> C4 *"Dad, open a cartoon, I want to watch cartoons."*
> F4 *"Which channel do you want to watch?"*
> C4 *"Open Channel 1."*
> Her father opened the channel that C4 had requested.
> C4 *"Okay, I'll watch this one."*

As can be seen from this example of an excerpt from a dialogue which included a demand from the child as well as the parent's positive response. When child C4 asked her father to change the television channel, the father complied with her request and changed the channel. Although within this interaction the synchrony included the parent's alteration or termination of their own digital activity, there were other observed interactions the synchronies occurred on a vice versa basis.

For example, the second strategy observed in synchrony cases occurred when a child was open to sharing their digital activity and in response their parent/s intentionally observed and/or joined in on their child's digital activity. During the in-home family visits there were two ways observed in which the strategy of accompanying emerged. First, the child would invite their parent/s to join in with their digital activity, and the parents would subsequently comply and accept the child's offer. Second, the parents spontaneously approached their child during a digital activity, and the children accepted their offer of accompany the activity. In the following example the first type of accompanying that was observed in the home is explained.

C3's mother was surfing the Internet using her smartphone. C3 entered the living room with a tablet computer held in his hand. He then sat down next to her.
C3 *"Mom, I've brought the tablet. Now I will show you how I cut up fruit."*
C3's mother stops using her phone and places a hand on C3's shoulder.
M3 *"What are you playing? Are you going to make a fruit salad?"*
C3 *"Look, there are lots of fruits. I will cut all of them up. Look, it's a pineapple."*
M3 *"It's a big one isn't it? What is this, is it a cherry?"*
C3 *"Yees, look, it's ready…"*

This interaction provides an example of an engagement between a child and parent where the in this case the mother accompanied in on her child's digital activity. As was observed in this interaction that when the child wanted to show his activity he was participating in to his mother, she was willing to give up her digital activity of using the smartphone and then began to engage in the child's digital activity. As a result, this is an example of the parent accompanying their child in a digital activity.

In other examples, some synchronies between the children and their parents can lead the child behaving in a cooperative manner. In cooperative synchrony, both the parents and children aim to achieve common goals within a cooperative atmosphere. In the following interaction an engagement between the parents and their child can be considered an example of digital play. The child showed a digital game to his father and implied that they could play the game together. In this instant the child was able to play their game and at the same time the main strategy instituted by the parent was one of cooperation.

C3 was playing a game on his tablet computer. The game was about a spider trying to find food within a labyrinth. After several attempts in trying to complete the task, C3 went to sit next to his father.
C3 *"Dad, I have downloaded this game."*
F3 *"What is it? How do you play it?"*
C3 *"Now, look, this is the spider. You must show it the way to the food. Don't touch these bushes… (he explains the game) Now, I will go here."*
C3 tried to find the way to the food for the spider. However, he couldn't complete the task. Meanwhile, his father observed C3's playing and trying to understand the rules of the game.
F3 *"C3, don't start by moving here. Go there and pass the tube…"*
C3 and his father worked together to approach the virtual food. They played the game cooperatively and reached the goal to complete that level of the game together.

5 Discussion

It was revealed through observations made during the in-home visits of this current study that children and their parents engaged in interactions during digital activities for a variety of purposes. For example, they interacted in terms of directing each other, sharing their digital activities, and through informal conversation. Such

interactions are accepted as supporting the development of young children because parent-child interactions are seen as being highly linked to prosocial behaviors of young children (Wong et al. 2020). Although there were concerns about the negative influence of digital technologies on the social behavior of children as well as how the use of digital technology may be an isolating factor for children, it was shown in the results of this current study that children did actively interact with their parents while engaging in digital activities within the home. Correlatively, it was shown in the study by Vourloumi (2014) that interactions during child-initiated and parent-initiated digital activities within the home are social as well as emotional. As a result, it can be argued that digital technology use by children within the home along with the parents' active engagement can ease, maintain, and improve the quality of parent-child interaction (Kenner et al. 2008).

Importantly, it was shown in this study that the environment and context in which the interaction between children and their parents occurs did play a key role in shaping their interactions. For example, it was observed that during digital activities, a tendency for children to exhibit sharing behavior in most cases improved social interaction between the participant children and their parents. Also, it should be noted that the interaction between parent and child can be sensitive to the context of the family unit and the social dynamics that take place. The family context and observed sharing behavior of young children during digital activities within the home context was the focus of Stephen et al. (2013), where researchers report that some parents as well as young children's older siblings voluntarily support the younger children's digital activities through encouragement, providing instruction, and through modeling behaviors. The context of the interactions also influences the role children play in these digital activities. For example, there are three potential positions for children during in-home digital activities: as owner, participant or spectator (Ljung-Djärf 2008). In addition, the support provided to children by others can influence the positional role the children take on within the digital activity. Interestingly, the sharing behavior of children and the other parties engaging in the digital activity can facilitate the child moving from one position to another within the scope of the activity interaction.

It was shown in the analysis of the data from this current study that when it comes to conflicts and synchronies within the parent-child interaction around digital technology use, there were three resolution strategies that emerged in terms of conflicts. For example, in the strategies of "child submission" and "parental submission", one party within the conflict situation acceded to the other party's demands and/or viewpoints. Although the two strategies just mentioned were unilateral, the strategy of "mutual resolution" was when compromise was observed being reached and the parties involved in the interaction came to a mutually agreed upon solution. During interactions around digital activities where a mutual resolution was achieved there was some sort of common ground reached between the parents and children to resolve a conflict situation. While it was observed that parental submission was the most frequently employed strategy during the in-home conflicts, it was also recognized that compromise through mutual resolution was the least observed of the conflict resolution strategies seen among the families. However, in another study, Lin (2009), reports that children's submission as being the most common

form of conflict resolution between children aged 3 to 6 years old and their parents. Although there were standoffs and withdrawals from interaction that were seen as resolution strategies in other research reported in the literature (Vuchinich 1987), neither of these behaviors were observed in this current study, which means that the conflict participants proposed either unilateral or bilateral solutions.

Importantly, it should be highlighted here that the conflict resolutions observed in this current study differed from those reported in the literature. The difference may stem from the current study having focused on conflicts during digital activities, whilst the results portrayed in the literature having been derived from non-digital cases. This may refer to conflicts being highly sensitive and affected by contextual variance as well as the individual characteristics of the conflicting parties involved (Dunn and Herrera 1997; Thornberg 2006). Conflicts within digital activities may naturally be perceived as unfavorable; however, these conflicts may be considered as an opportunity for both the children and their parents to communicate, negotiate, and to experience alternative forms of social behavior. Moreover, children and their parents can also experience new ways to reach a compromise during such conflicts, which can be valuable for conflict resolution in any variety of future situations.

In this current study, both the participant children and their parents were observed following each other's direction, as well as accompanying each other, and behaving cooperatively in synchrony. As a result, the researchers recognized three different synchrony strategies that emerged; including "following instructions," "accompanying," and "cooperation." It was revealed through the study results that children and their parents could synchronously engage in digital activities within the home setting. Importantly, according to Pianta et al. (1989), accompanying and cooperation are seen as two important strategies that can provide opportunities for children to enhance their communication and interaction competence as well as learn about compliance with others' social demands. As a result, the simultaneous engagement that occurs between children and parents during digital activities can ultimately improve the quality of time they spend together.

Sharing patterns during digital activities can be considered key components to improving the social aspect of digital activities within the home context. In this way, a child can experience a variety of social behaviors through digital activity interactions such as waiting their turn to negotiation. In several other studies the constructive role of taking turns, sharing, integrating ideas, and helping as part of children's digital activities is emphasized (Charissi and Rinta 2014; Hyun and Davis 2005; Kucirkova et al. 2014; Lim 2012). Furthermore, parents' sharing their smartphones to enrich the parent-child interaction is linked to higher levels of social engagement of children (Kushlev and Dunn 2019). Ozturk and Hill (2020) also report that the mother-child interaction during shared reading with digital books encourages more behavior-related interaction than with print books. Therefore, it can be said that digital activities provide a variety of opportunities for children to examine social behavior.

While the strategy of accompanying was referred to as co-viewing, cooperation was linked to joint media engagement (JME). These two, co-viewing and JME, can be considered as key concepts in young children's digital activity engagement. Both can be useful for strengthening children's link to their social environment during

digital activities as well as for monitoring digital activities to protect them from unfavorable or inappropriate online content (Valkenburg et al. 1999). Moreover, co-viewing and JME can lead to improvements in children's learning, through the parents and children extending, negotiating, and discussing the content of their digital activities (Takeuchi and Stevens 2011). As reported in a study by Eagle (2012), which focused on parent-child interactions regarding digital picture book use, interaction can be instructional and help to improve children's learning when their parents encourage, demonstrate, and help their children attain the goals related to the digital activity. Therefore, parents play a key role in ensuring the appropriate usage of digital technologies by their young children by watching as their co-viewing or JME partner. Strong recommendations are therefore made to families regarding their co-viewing and JME practices, as underlined by associations such as the AAP Councils on Communications and Media (2016) and the NAEYC and Fred Rogers Center (2012), who recommend that parents utilize digital media alongside their children, that they play together, and avoid the solo use of such media by their children. Also, it is recommended that parents observe and control the digital content that their children are exposed to through their digital activities.

6 Conclusion

In the current study, researchers' explored participant children and their parents' engagement during digital activity interactions as well as the synchronies and conflict situations that arose during these interactions. Synchronies and conflicts can represent intense moments of interaction between parents and children. As a result, these interactions also provide opportunities to potentially support the social development of children. While children experience mutual and harmonious interaction through synchronies, conflicts can also be important for improving children's understanding of others as well as their understanding and arrangement of their intentions, negotiation, and sharing of standards and ideals.

It is emphasized in the literature that the context in which the digital activity occurs plays a key role in the nature of the activity (Knitter and Zemp 2020). It should be highlighted that interactions between children and their parents may be affected by the context in which they occur. For example, the context of the situation can influence the flow of an interaction as well as lead to either conflicts or synchronies within the exchange. In addition, the developmental level of children, parental attitude, digital activity content, children's individual interests and differences, and the technology usage patterns of family members and the children may ultimately affect the interactions between the children and their parents. Parents are one of the key determinants of children's digital activities, and therefore have a highly influential role in their children's digital technology use. Therefore, JME should be taken into consideration when children are involved in the use of digital technology because JME consists of the monitoring and sharing of digital activities.

It has been shown in the current study that children can intensely interact with their surroundings during digital activities. As a result, digital activities have the potential to become integral parts of the natural learning process as well as be part of children's

outdoor activities. As children's interactions with their surrounding may vary across contexts, parents should ensure that they are aware of these differences as well as how valid the contexts may be for their children. Importantly, parents play a key role in their children's digital activities, either as facilitators, teachers or gatekeepers. Therefore, parents should ensure that their children are exposed to appropriate content during their digital technology use, rather than solely focusing on the amount of screen time their children are involved in which is an important consideration that receives a lot of attention regarding children digital activities.

It was deemed that there were three pertinent limitations in this current study. The interactions between children and parents were sensitive to the specific contexts. Therefore, observed results may be different within differing families. Due to a total of only four families being included as participants in this study, further studies should be conducted to explore children's interactions with parents in varying family contexts. Regarding the second limitation, one of the researchers was a participant-observer and video recordings were taken during some of the home visits. As a result, the data collection procedure may have influenced participants' behaviors and actions. Lastly, as there have been only a limited number of studies focusing on children's interactions with family members during digital activities, this may have influenced the scope of the literature review and discussion in this current study. For example, comparisons of the results from this study were limited due to the lack of similar studies which paralleled the current research aims. Therefore, further studies about children's interactions with other individuals in the home setting are necessary to provide an adequate comparison of the findings from this study.

To conclude, it was highlighted in this study that digital activities in the home setting have a potential for enriching social interaction between children and parents. Regardless of synchrony or conflict, social interactions that emerge during digital activities can provide opportunities for children to experience a variety of social behaviors such as negotiation, sharing knowledge, cooperation, exchanging emotions, and self-regulation. Moreover, it was emphasized in this current study that family context can considerably affect social interactions between children and parents during digital activities. Therefore, the context in which social interactions occur should be taken into consideration when investigating the social aspects of digital activities.

Compliance with Ethical Standards

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