


## Article

# “I’m Always Available”: Early Adolescent and Parent Perspectives of Parenting through Interactive Technology

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**Abstract:** Background: Interactive technology (texting, social media, email) is an engrained element of communication in family systems. Methods: This qualitative study examined parenting practices in communication via interactive technology using a sample of 9 parents and 9 early adolescents between the ages of 12 to 15. Parents and adolescents completed phone interviews separately. Data were analyzed using thematic analysis and dyadic techniques. Results: Participants indicated they use interactive technology as channels of communication and for convenient connection. Parenting practices used through interactive technology that both parents and early adolescents identified included open communication and availability, guidance, expressions of parental warmth, and establishing trust. Conclusion: The results of this study provide support for a family systems thinking paradigm when examining interactive technology use in parent-teen relationships.

**Keywords:** interactive technology; parenting; adolescent parent relationships; family systems thinking; qualitative



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## 1. Introduction

Interactive technology use (i.e., social media, texting, email) is ubiquitous among adolescent populations [1]. Currently 95% of American adolescents indicate they have access to a smartphone, and they are using smartphones to connect with others, to learn new things, and simply to “just pass time” [2] (para. 2). Early adolescence is a time when most individuals have their own smartphones (53% at age 11, 69% by age 12) [3], with up to 91% having access to smartphones by the ages of 13–14 [4]. With access increasing at earlier ages, parents note that technology is a predominant concern, both for themselves and their children [5]. As a common component of adolescent life, especially for connection and communication, understanding more about parent and early adolescent interactions via interactive technology is an important aspect of understanding current parenting practices. The purpose of this exploratory study is to examine how parents are using interactive technology to parent their early adolescent children.

Early adolescence, approximately the period of middle or junior high school [6], is a developmental time marked by transitions and changes in individual and relational contexts including increases in autonomy, increases in differentiation (contextual and situational variations in self-understanding), increases in peer interactions, and changes in parent–child dynamics as children make more independent decisions. In adolescence, individuals seek emotional, cognitive, and behavioral autonomy, which includes lessening dependencies on parents [6]. Interactive technologies play a role in adolescent development and expression of self, as well as management of their social relationships [7], and is a key context for examining adolescent development and relational interactions.

Of note, early adolescent online and social media use activity increased between 2019 and 2021 [8]. Around 83% of parents reported that their children used more social media during the COVID-19 pandemic than previously and are reconsidering the amount of screen time they allow for their adolescents [9]. With social media and other interactive

communication options being a prevalent daily practice, examining parent and teen voices simultaneously provides insight into understanding this lived experience.

### *1.1. Parent Mediation of Technology*

Parents influence their adolescent's Internet use by modeling, monitoring, and mediating. A large body of literature is available regarding parental mediation of adolescent technology use. Each child is unique, so mediation styles for technology work best when adapted to an individual child. Furthermore, consistency is key to successful mediation [10]. This allows for a balance between a child's growing autonomy and boundaries set by parents/caregivers [11]. Sanders et al. indicated the importance of parents using developmentally appropriate and realistic strategies for technology use [12]. For example, as adolescents get older, parents' perceptions tend to change, and teens are given more independence and freedom with technology [13,14].

Autonomy-supportive mediation is a prevalent and effective mediation style that includes parental explanation for restrictions placed on technology, with consideration of the adolescents' point of view as part of rule formation [15]. This type of mediation is associated with positive cellphone use [16,17], and influences adolescents' behavior and intentions while employing technology [18]. Coyne et al. found that as part of active media monitoring, 82% of parents use media to talk to their children about serious issues such as themes and ideas portrayed in mass-media, or other topics that adolescents may not want to normally discuss [19].

In addition to autonomy-supportive mediation styles, there are laissez-faire (i.e., low communication, low interaction, low to no feedback for child's behaviors) and permissive styles (i.e., no demands on the child, accommodating child requests) [20], as well as restrictive styles (i.e., rules for media use). Rodrigues-de-Dios and colleagues found that restrictive mediation does not help adolescents, as parents check their children's messages but do not teach them how to protect themselves [21]. Parental monitoring can help teens develop Internet safety practices [22], including avoiding contact with strangers online [23], and preventing online bullying [24].

### *1.2. Family Rules with Technology*

Beyond the mediation aspect of technology use, there may also be larger family system regulation surrounding rules and technology use. For example, parents may set rules regarding social media use for adolescents. These rules are only effective if parents share their expectations consistently and in an understandable manner [25]. Sanders and colleagues found that screen time is best managed using rules and enforcement strategies by parents who communicate clearly and warmly with their adolescents [26]. Furthermore, parenting practices including demonstrations of warmth and demandingness, as well as autonomy granting behaviors, have been associated with positive adolescent online behavior [27].

### *1.3. Parent-Teen Communication*

Communication between parents and their adolescents is a key element of parent-child relationships [28]. Ioffe et al. concluded that open communication with parents can help adolescents understand and process their own emotions better [29]. Good parent-adolescent communication is helpful for adolescents to feel supported, understood, loved, and accepted [30], and assists teens in learning to communicate and form relationships with others [31]. Communication between parents and their adolescents can allow parents to reinforce behavioral expectations for their children while granting adolescents increasing autonomy [32].

### *1.4. Communication Using Technology*

Past research indicates technology has potential to increase family closeness, connection, and communication quality. As adolescents age, parents use texting and email more

to communicate with their child [11,33]. Interactive technology, such as email, texting, and social media use, facilitates parent-teen connection [34], and provides opportunities for daily communication [20] and connection [23]. Parents use this “digital link” to stay connected while their adolescents explore increasing autonomy. Daily texting and calling between parents and their adolescent children is associated with higher levels of family connection [35]. This communication connection has a circular element in that cohesive family relationships, with daily communication between parents and adolescents, lead to positive outcomes for technology use [36]. Furthermore, parents’ open communication assists with adolescent acceptance of family rules surrounding technology [37]. Lau and Yuen found that paternal and maternal warmth are associated with positive learning-related Internet usage [38].

### *1.5. Family Systems Thinking*

Family technology rules and practices are integrated into and a function of the family system. Bortz and colleagues proposed that family systems thinking is a way to integrate concepts from multiple theories to better understand and examine adolescent development [39]. Through this theoretical lens, attachment, parenting style, differentiation, and identity development are woven together, and the overlap in understanding can be demonstrated with three common terminologically relevant themes: warmth (e.g., adult’s responsiveness and engagement in nurturing the adolescent), autonomy (e.g., a relational system that cultivates individuality and a sense of self while remaining in the system), and expectations (e.g., guidance, monitoring, setting limits, clear and consistent expectations). To our knowledge, no studies currently capture this multiple developmental theory-guided thematic organized understanding of adolescent development in relation to interactive technology use using both parent and early adolescent perspectives.

This research addresses the research question of how parents use interactive technology to parent their early adolescents (ages 12 to 15) and includes both parent and early adolescent perspectives. Together, both parent and early adolescent voices lend credence to examining interactive technology use in parenting practices through the theoretical overlaps of the common adolescent-related development elements of warmth, autonomy, and expectations.

## **2. Materials and Methods**

This project was approved by the authors’ university IRB, Protocol #7257. Informed consent was a part of the initial survey process. One parent completed the initial survey and provided consent before the early adolescent in the parent–child dyad was contacted with a similar survey including informed consent. Additionally, each participant was reminded of the informed consent information for the study and their right to terminate participation at any point in time when the phone interview was conducted.

### *2.1. Sample*

A combination of convenience and snowball sampling was used to obtain a sample of 9 parents and their 9 early adolescents. As noted above, early adolescence is the period associated with middle or junior high school [6]. In the United States, junior high school encompasses grades 7 to 9, and includes the ages 12 to 15. Advertisements for the study indicated researchers were seeking parents and their early adolescent children between the ages of 12 and 15 to participate in the study. Advertisements for the study were shared in introductory college classes and posted on various bulletin boards around campus (convenience sampling). At the conclusion of phone interviews with parents, parent participants were asked if they had any friends or acquaintances with early adolescent children that would also be interested in participating in the study (snowball sampling technique). Researchers stopped after completing interviews with 9 dyads as saturation was reached. Nine female parents were interviewed along with 3 male and 6 female early adolescents. Parents’ ages ranged from 36 to 53 ( $m\ age = 43.56$ ), and early adolescent

participant ages ranged between 12 and 15 ( $m\ age = 13.89$ ). All participants listed their ethnicities as white, non-Hispanic.

## 2.2. Procedures

Parents provided contact information for participation. Parents and early adolescents were sent separate online survey links to obtain data regarding age, gender, ethnicity, and questions about access to social media and connection with parents/child through social media, email, and text messaging.

After initial surveys were complete, parents and teens set up times for phone interviews. The online surveys included information regarding the conditions for conducting phone interviews, that they were to be completed without the parent or early adolescent present during the interview, and that the interviews would be recorded. Phone interviews were selected to access participants without a geographic limitation, to easily facilitate interview times that were convenient for both parent and early adolescent participants, and so that participants could be comfortable during the interview. Interviews were completed for early adolescents and parents separately and lasted between 10- and 30-min. Researchers used open-ended questions seeking to gain more information about how interactive technology is a potential tool for parenting practices (e.g., How do you use interactive technology specifically with your teenager? Can you give an example?), and perceptions of parenting practices through interactive technology (e.g., How do your parents use interactive technology to connect with you?).

Interviews were conducted and transcribed by three members of the research team. Interviewees were all asked the same series of questions examining personal interactive technology use, interactive technology use at a family level, and more specific questions about parenting practices using interactive technology as the medium for communication.

## 2.3. Measures

The research team built the interview questions based on past research regarding parenting practices and communication from a family systems thinking perspective. All participants were asked how they use interactive technology within their family and with their parents/child to obtain a general picture of interactive technology use. Next, participants were asked how they use interactive technology to connect with either their parent or adolescent. Finally, questions specific to parenting practices surrounding interactive technology were included. To better understand how interactive technology is employed in parenting, questions were included about expressions of warmth through interactive technology, as well as expressions of disappointment, and if the participants have ever disciplined their child or been disciplined by their parents through interactive technology.

## 2.4. Analysis

Participant responses were analyzed through a content analysis process described by Rubin [40], similar to a standard thematic analysis [41], as well as a dyadic analysis technique for interviews completed separately [42]. The process unfolded in three steps including an initial open coding, coding list pruning, and closed coding. To begin, two researchers reviewed the qualitative data in totality. While immersing themselves in the data, both developed a list of open codes. Next, the researchers discussed the most relevant codes from their coding lists and pruned the coding list prior to closed coding. Finally, the data were coded using a line-by-line approach with the closed coding list. There was an 89% agreement between coders for closed coding. In each instance of disagreement, the researchers discussed the data and came to a consensus on the best code for the data until 100% agreement was reached for coding of the entire data set.

After thematic coding was complete, data were examined using a dyadic analysis technique for interviews conducted separately [42]. This analysis focuses on contrasts and overlaps in response from the dyad. Overall contrasts and overlaps are included through-

out the thematic section results, with specific dyadic contrasts and overlaps highlighted where relevant.

### 3. Results

Information in the results section is presented by providing the parent perspective followed by the early adolescent perspective, and then a dyadic analysis. Major themes are presented in order of prevalence.

#### 3.1. *How Parents and Teens Use Interactive Technology Together*

Parents and early adolescents in this study began by outlining the daily nature of interactive technology use in their communication. They first described specific technologies used as channels for communicating, and second reflected on interactive technology as a tool for convenient connection.

##### 3.1.1. Channels for Communication

**Parent perspective.** Parents in this study primarily spoke about specific technologies used for communication: texting or specific social media platforms that worked best for them to connect with their early adolescents. Parents recognized a personal and an adolescent preference for communicating via technology. For example, one parent said, “we do a lot of texting. A lot of texting, a lot of phone calls. They seem to prefer texting, I prefer phone calls. I tried to mix it up and do a bit of both” (Parent 3).

Another explained that Snapchat, an app her daughter preferred to use, was a great way for communicating and keeping track of her daughter during a school trip. She said:

Well, a good example is my daughter was on a school trip to New York this last week so we were able to keep in contact with each other through, mostly through Snapchat cause we can send pictures and text messages through Snapchat, multiple times a day and I can actually see where she was in the city with the GPS on Snapchat which made it super awesome. I could follow her and I wasn’t even there and I knew where she was (Parent 7).

**Early adolescent perspective.** Early adolescents in this study explained their methods for connecting with parents and other adults were often based on the type of interactive technology. One early adolescent participant explained how she was able to use different forms of technology to communicate with her parents. She said:

Well, honestly, just like, to get ahold of each other, we’ll use, um, Facebook Messenger a lot . . . That’s, like, the only way my mom can get ahold of me because she doesn’t have a phone number currently, so I talk to her on Facebook Messenger, I talk to her on . . . email through, like, a thing called Hangouts. Since I don’t live with my mom, we talk a lot more online than I would with my dad because I live with him, and so, we only text (Teen 6).

**Dyadic analysis.** Both parents and early adolescents focused on specific interactive technologies they use to connect. For both parents and early adolescents, texting was the primary way interactive technology was used in their relationships. Early adolescents highlighted that the type of communication was contingent upon the type of interactive technology.

##### 3.1.2. Convenient Connection

**Parent perspective.** Parents often spoke of the convenience of communicating through interactive technology. One parent said, “it’s just so convenient and handy to keep in touch with people” (Parent 8). The convenient nature included a transactional element of communication, especially when early adolescents needed something. For example, one parent laughed and said, “usually my teenager needs something so he texts me to bring something or ‘can I do this’ or-it’s usually something like that” (Parent 9).

**Early adolescent perspective.** More early adolescents than parents indicated they use interactive technology for convenient connection, and they mentioned this more than did the parent in their dyad. The convenience of communication was really highlighted for teens when it came to quick questions. One teen said, “I usually ask them questions, like, something that they’ve asked me to do, or . . . if I can do something. So, it’s mainly asking questions, and sometimes they’re random questions that I just want to know the answer to” (Teen 8). Another participant noted:

I mostly just [text] when I need to come home from a friend’s house or something, or if I have a question about something I’m doing. Like, just earlier today, I was making dinner, and I had a question about one of the ingredients, and so I just texted my mom, and I got an answer really quick (Teen 2).

**Dyadic analysis.** For both parents and early adolescents, the convenience of communicating using interactive technology daily was highlighted. There was 100% agreement between the parents that mentioned convenient connection and their adolescent children, meaning both parties mentioned convenient connection as how interactive technology is a daily part of communication. For example, one parent said, “I think that they prefer texting partly because if they need to contact me while they’re at school it’s just easier because they’re not having a conversation with me, you know” (Parent 3) and her child said, “. . . I’ll text them if I need, if I forget something from school” (Teen 3). Similar paired statements were made from parents and teens mentioning needs like rides, bringing things to school that were forgotten, and asking quick questions.

### 3.2. Parenting through Interactive Technology

For this study, the communicative elements of parenting that were examined included general questions about connection through interactive technology, how parents show warmth and disapproval, and questions about discipline through interactive technology. Initial open codes that were collapsed to build the theme of parenting for closed coding included open communication, guidance, warmth, and trust.

#### 3.2.1. Open Communication

**Parent perspective.** Texting was noted by parents as a primary form of communication. Furthermore, this medium helped facilitate open communication. One parent stated:

I think just being more involved in their life. I think it helps for them to open up because they will sometimes open up to a text or an email that they may not in person. You know, sometimes things are hard to say or if they have questions they might text it. So I think it really does have an opportunity to help parent and child understand more of one another or their point of view, or just keep more in contact, you know (Parent 8).

Parents were more likely than early adolescents to note the importance of communication for connection. One parent shared that she wants her adolescents to “know that I’m always available if they need to call me, if they need to text me, I’m always available for them” (Parent 3). Another parent reflected that texting was a way to open communication with her son. She said, “. . . it’s just one more way to communicate, you know. I think a lot of the times he will respond to text, he won’t otherwise” (Parent 9).

In addition to open communication, instrumental communication facilitated through texting was discussed. One parent reflected that this type of communication creates smoother transitions during the day. This parent discussed the transactional reminders of chores and homework, noting that “texting or even a phone call on my way home usually prevents a lot of stressful homecomings” (Parent 1).

**Early adolescent perspective.** Early adolescents spoke about interactive technology facilitating open communication. One early adolescent also noted the opportunity to connect and for adolescents to open up through interactive technology. She said that she

talks to her mom through Facebook and Instagram and pointed out that, “if parents really wanted to get their [child’s] attention, they could talk to them through there” (Teen 6).

Early adolescents mentioned this easy, transactional nature of communication often, highlighting the ease of the communication to coordinate schedules. When one early adolescent was asked how their parent used interactive technology to connect with them, she responded, “... it’s mostly texting and, just, telling me to come home, or what activities we have going on throughout the day” (Teen 5).

**Dyadic analysis.** In concordance with our previous findings, both parents and early adolescents stated that the primary way they used interactive technology to parent their teens was communicating through text messages. Both parents and teens talked about the convenient, transactional nature of communication using interactive technology. Early adolescents mentioned the transactional nature of communication more often than did parent participants.

### 3.2.2. Guidance through Interactive Technology

The discussion of interactive technology as a tool for child guidance included parenting practices of providing general behavioral feedback, as well as discussions regarding the appropriate use of interactive technology.

**Parent perspective.** Parental guidance using interactive technology included general feedback on behavior. Parents talked about using technology to communicate with their early adolescents that something was not okay. One parent said they sent messages such as “hey, you know, that wasn’t okay. Next time let’s try to work on ... that I need to be spoken to, you know, with respect” (Parent 3). Parents also mentioned grounding their adolescents via text message. One parent said, “I’ve told her, you know, over a message or whatnot, ‘you are so grounded, you’d better get home’” (Parent 6). Another parent agreed, joking, “I’ve never broken up with them, but I have grounded them over text” (Parent 1).

**Early adolescent perspective.** Multiple early adolescent participants spoke about guidance from parents regarding online behaviors, rules for social media use, and how to process social media. An early adolescent participant reflected that the guidance they receive regarding interactive technology happens face-to-face, “They teach us, like what kind of stuff that we should do online, what we shouldn’t, um, but most of that stuff they do in person” (Teen 2). Another reflected, “They use it to, like, show me what’s good and bad, I guess, about social media, and how to act or react, and how to not act or react” (Teen 5).

Early adolescent participants felt parents do not use interactive technology to discipline, but that the removal of interactive technology was a common punishment technique. Most of the early adolescent participants felt like “... they don’t discipline me through technology. At all.” (Teen 3). They felt that instead of disciplining through technology, parents used the removal of technology privileges as a discipline technique. One early adolescent commented, “I wouldn’t say ‘through’ interactive technology, but they’ll take away my phone or something” (Teen 2). Another early adolescent participant agreed saying, “Other than, like, taking my social media away, no” (Teen 5).

**Dyadic analysis.** Overlapping responses indicated both parent and early adolescent participants agreed that discipline was not very common through interactive technology. A few parents mentioned specific instances in which they did communicate for discipline via interactive technology. In contrast, early adolescents mentioned the removal of technology-related privileges as a discipline technique, which was not mentioned by parents.

Both parents and early adolescents commented on guidance from parents regarding appropriate interactive technology use. One participant said, “Well, you know, there’s times that like my daughter might post something on Facebook and I’ll leave a comment on there saying, ‘really this isn’t appropriate’” (Parent 6). In overlap, her early adolescent mentioned:

Since I don’t see my mom very often, I know that sometimes, if she has something to say, or, like, to make a rule, or anything like that, she does it over Facebook



Messenger or however she contacts me. I know that my—both of my parents have set boundaries with the things I can do on the Internet and stuff like that (Teen 6).

### 3.2.3. Showing Warmth

Participants were asked how parents use interactive technology to show warmth to their early adolescents. In the prompt provided to participants, warmth was further explained as showing affection or approval.

**Parent perspective.** Parents talked about sending their teens text messages to let them know that they were thinking about them. For example, one parent said, “I’ll often text ‘Love you’ or ‘Good job’ or just thinking of you kind of things” (Parent 9). Another parent said she expresses warmth by, “just putting like heart emojis or love emojis or saying I love you in text” (Parent 2). Participants pointed out that the communication could be quick. For example, one parent explained her use of interactive technology as, “Just checking in with her throughout the day, letting her know I’m thinking about her” (Parent 5). Another parent said:

I’ll send them a little message sometimes, you know, that tells them that I love them and I was thinking about them. You know that they look pretty this morning when I saw them. You know to let them know that I was thinking about them (Parent 3).

Expressions of warmth extended beyond texting. Some parents also use social media platforms for this type of communication. This included chatting and making comments on their children’s posts. It also included tagging their early adolescents and creating occasion-specific content. One parent explained:

Sometimes I’ll see some sort of fancy little post that someone did and I’ll copy it or share it and tag, you know, one of my kids in it. And then on their birthdays or if something special happens to them, whatever, then I’ll post something for them about it or about them (Parent 6).

**Early adolescent perspective.** Few teens highlighted warmth in communication from their parents. Early adolescent responses focused more on the transactional nature of communication connection through interactive technology.

**Dyadic analysis.** There was little overlap between parent and early adolescent perceptions of demonstrations of warmth through interactive technology. There was only one overlap present in the data. One parent noted that interactive technology helps facilitate opportunities for warmth and support that would not normally present themselves. She said:

My daughter’s having a hard day or having a hard situation at school I can give encouragement or suggestions or counsel or whatever but otherwise I wouldn’t know about the situation because sometimes by the time they get home they forget to tell you. So, but at school, they will open up at times (Parent 8).

In overlap, the early adolescent participant recognized the efforts and warmth:

Um . . . Well, they’ll ask me questions, like how I’m doing, or if I need something, and, they’ll send me videos and, like, links and stuff. Um . . . Just, sometimes we’ll have, like, a conversation, so, it’s usually, um . . . just like . . . texting, yeah, I guess. Just, it is texting and all that (Teen 8).

### 3.2.4. Building Trust

The final theme presented in the data was building and establishing trust. Participants in this study appreciated the availability for contact provided through interactive technology, but also recognized the need for independence and building trust in the parent–child relationship.



Parent perspective. Parents mentioned a balance in the relationship between establishing trust, but also being involved in their early adolescent's life. One parent said, "I want to know what they're doing but I also know that they need to have their freedom or else they'll hide stuff" (Parent 7).

Another parent shared that communicating using interactive technology provides an avenue through which their early adolescents can come to them if they are in need. She said:

If they're in trouble for something, if there's something that they did wrong and they want to talk to me about it, then I want them to be able to come to me so that's a big part of it. They know that, they know that they can trust me. I established really early on with my older daughters that, you know, lying is not okay, that trust is a two-way street, that communication is a big part of that (Parent 3).

**Early adolescent perspective.** Early adolescent participants indicated a desire for more trust from their parents with interactive technology. The teen participants agreed that parents checking in on teens was okay but invading privacy and using interactive technology to control them is not. For example, one teen said, "I think if they were to, uh, be maybe more trusting or something. Check up on your kids, but not, like, control them through that" (Teen 2).

**Dyadic analysis.** Parent and early adolescent perspectives contrasted in the data. Early adolescent participants indicated a desire for more trust from their parents with interactive technology, which was only mentioned by Parent 7. Parent participants noted that there is a balance between granting autonomy and encouraging independence, but still being involved with their early adolescent.

#### 4. Discussion

Results from this study confirm past research about the prevalence of interactive technology in parent-teen communication [11,20,23,33] and adds voice to the experience of specific parenting practices happening through interactive technology. Although there were contrasting opinions from early adolescents, there was agreement between both parents and their early adolescents about important elements of parent-child communication that happen through interactive technology. Because most adolescents tend to have their phones with them constantly, texting allows for parents to keep a link open with their children.

Although a few social media applications were mentioned, texting was the primary means by which parents and their early adolescents chose to communicate. This agrees with past research about the prevalence of parent-child communication via interactive technology [11,33]. Furthermore, similar to past research [34], the participants in this study pointed out this connection supports increased opportunities for autonomy for early adolescents while their parents can keep track of them.

Study participants highlighted the convenience of connection in the transactional nature of parent-child communication. Both parents and early adolescents agreed that they use interactive technology to communicate regarding daily tasks such as chores, arranging transportation, communication while at school, and assistance during the school day when things were forgotten or left at home. Past research highlights technology providing opportunities for daily communication and connection between parents and teens [20,23]. This research expands on the idea of connection by giving voice to the nature of the connection and communication. Furthermore, there was agreement between parents and early adolescents about this beneficial feature of interactive technology. As Lee et al. noted, daily communication between parents and adolescents helps form cohesive family relationships [36]. Interactive technology is facilitating this opportunity for daily communication in a convenient manner.

One important finding from this study was how interactive technology opens communication between parents and teens that may not be present in face-to-face settings. Symons et al. pointed out that interactive technology can help parents be aware of potential

needs that their children have, as it creates a new space for discussion [37]. This was verified by parents in the present study. Furthermore, both parents and teens felt that the ease and convenience of simple communication through interactive technology helps create smoother transitions throughout the day.

There is a strong body of past research focusing on parent-teen technology use and parental mediation. There is an agreement that the mediation styles in which parents and teenagers talk about the restrictions placed on technology use results in positive cellphone use [15–17]. In this study, early adolescents noted their parents spend time with them face-to-face discussing appropriate interactive technology use. This is not a parenting practice via technology but parenting in person that includes navigating appropriate technology-related behaviors.

Interactive technology allows parents to give feedback to their children regarding acceptable and unacceptable behaviors. Parents in this study shared how they left comments on Facebook posts and texted their children as one way of disciplining them and helping to guide their behaviors. This was a primary area regarding parenting practices via technology in which parents and early adolescents disagreed. Parents listed specific instances of discipline using interactive technology. Their teens stated that discipline did not happen through interactive technology, but technology removal was a potential punishment. This is an area that needs further examination. Early adolescents may not recognize communication as discipline or parental guidance. Teenagers might not see their parent's comments or texts about behavior as discipline. For them, the perception of discipline was no longer having access to technology.

Parents use interactive technology to show their children affection and warmth. Participants reported sending messages to their adolescents to let them know that they were on their mind, doing small things like including emojis, and sending quick messages to express warmth. Parenting practices and communication through interactive technology is one way that we can see the effects of communication between parents and adolescents helping teens to feel more supported and loved [29]. Where some parents and teenagers may have difficulty showing affection face-to-face, interactive technology can provide a channel for parents and adolescents to show affection in a way that may be more comfortable for some.

Movements towards autonomy are key indicators of behavioral growth in adolescence. As noted by Qu and colleagues [31], parent-teen communication can help reinforce behavioral expectations and help facilitate movements towards autonomy. Early adolescent participants indicated they were seeking more trust from their parents, and parents indicated a desire to trust their adolescents. Participants reflected that if parents trust teens more, their adolescents are less likely to hide things. This finding is key to understanding family systemic technology use with an early adolescent sample because as adolescents progress through the developmental period, parents are more likely to recognize that they need less supervision [12]. Future research should examine this balance and shift in navigating adolescent autonomy via interactive technology. Where there is constant connection via interactive technology, it would be interesting to examine how adolescents perceive the shift and change in parenting practices via interactive technology across adolescence.

## 5. Limitations

There are many limitations to consider with this research including a racially homogenous sample. The use of nonprobability sampling techniques limits the generalizability of the study, as does the small sample size. Furthermore, only mothers responded to participate in this study. There may be important differences in father perspectives and experiences that should be considered in future research. Future research on this topic would benefit from adding in diverse voices, examining experiences that provide a more complete picture of the broader parent-early adolescent experience.

## 6. Conclusions

Participant responses highlighted key elements of adolescent development. Participants spoke of parenting practices that demonstrated warmth and responsiveness, autonomy and building trust around interactive technology use, and parental expectations regarding general behavior as well as technology-specific behavior. These major themes map cleanly on the family systems thinking perspective, specifically with warmth (e.g., adult's responsiveness and engagement in nurturing the adolescent), autonomy (e.g., a relational system that cultivates individuality and sense of self while remaining in the system), and expectations (e.g., guidance, monitoring, setting limits, clear and consistent expectations) [38]. Each of these elements were present in the experiences of parents and their early adolescents. Interactive technology is an integrative part of family systems and is one area in which we see these major components of adolescent development and parent-adolescent relationships converging.

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