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Article

## Does Digital Media Use Harm Children’s Emotional Intelligence? A Parental Perspective

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### Abstract

Emotional intelligence (EI) is comprised of a set of critical life skills that develop, in part, through practice in social interaction. As such, some have expressed concern that the heavy screen media diet of today’s youth threatens the development of those crucial abilities. This research assesses how the media diet of children and the media use of their parents relates to child EI levels to assess what, if any, specific patterns exist. Four hundred parents of children aged 5–12 reported on, among other variables, their child’s EI, empathy, and emotional regulation skills along with their child’s various digital and non-digital media use, and non-media activities. Parental EI, screen use, media emotional mediation, and media co-use with their children were also assessed. Analyses revealed no significant relationships between child EI and screen use of any kind, though reading positively associated with child EI. Especially interesting, children whose parents used their mobile device more frequently in the presence of their child had lower EI, and parents who engaged in emotional mediation around their child’s media use reported higher EI levels in their children. These findings suggest that concerns about children’s digital media usage are perhaps overblown in terms of impeding emotional skill development. Further, and especially critical, parents’ own media-related behaviors around their children could have significant impact on child EI development.

### Keywords

children; digital media; emotional intelligence; mediation; mobile media; parenting; screen use

### Issue

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### 1. Introduction

Emotional intelligence (EI) is a critical life skill that develops, in part, through mutually engaging social interaction (Mayer & Salovey, 1997; Salovey & Mayer, 1990). Yet, concern has been expressed that the heavy screen-based media diet of today’s youth could compromise important aspects of child development via displacement of that critical social interaction (e.g., Turkle, 2011; Twenge et al., 2019). If digital media use reduces real-world

social interaction, the opportunity to practice the skills associated with EI (i.e., emotion perception, understanding, and management) are diminished, and the overall skillset along with it. Despite these fears, there is yet no clear evidence for how digital media use, such as internet surfing, digital games, social media, streaming content, and the like, might harm emotion-related skill development. Indeed, there exists the possibility that the educational opportunities afforded by online content along with the social opportunities afforded by social media

(Uhls et al., 2017), for example, may in fact boost opportunities to practice and thus enhance one's emotional skill set.

Further, when considering any relationship between a child's behavior and emotional skill set, it is critical to recognize the centrality of parental engagement within that dynamic (Alegre, 2012). As such, parental behaviors, including their own digital media use, as well as how they engage during their children's media use, should be taken into account when assessing child outcomes. The purpose of this study, then, is to explore how the media diet of children, as well as the media-related behaviors of parents around their children, relate to child EI levels. In doing so, we can assess if there is cause for concern, and, if so, what specific media use patterns are implicated.

### 1.1. Emotional Intelligence

EI is defined as a set of mental abilities that allows a person to, both intra- and interpersonally, accurately recognize and effectively regulate emotional states, and to use emotions to plan, motivate, and achieve goals (Mayer & Salovey, 1997; Salovey & Mayer, 1990). More specifically, EI is comprised of four key skills: (a) emotional perception, which refers to the recognition and expression of unique emotional states; (b) emotional integration, which is the use of emotions to facilitate thinking; (c) emotional understanding, which implies the comprehension of the causes, process, and consequences of one's own and others' emotions; and, finally, (d) emotional management, or the skill of regulating emotions in the self and others to attain certain goals (Mayer & Salovey, 1997; Mayer, Salovey, et al., 2008; Salovey & Mayer, 1990). EI develops during childhood and is shaped by biological and sociocultural factors, such as genes, infant-caregiver interactions, emotional discourses with parents and peers, and reinforcement and modeling processes (Zeidner et al., 2003), and reaches its peak in adulthood (Mayer et al., 1999).

EI has received considerable attention as a skillset that is consistently associated with a range of desirable outcomes throughout a person's life span (for an overview, see Mayer, Roberts, et al., 2008), including academic achievement, choosing a meaningful line of work and succeeding within that field, enjoying good physical and mental health, and developing satisfying relationships with family members and friends (Grewal & Salovey, 2006; Schutte et al., 2013). Consequently, EI has been linked to both subjective as well as psychological well-being, and life satisfaction in general (e.g., Austin et al., 2005; Carmeli et al., 2009; Schutte & Malouff, 2011).

### 1.2. Media Use and Emotional Skills

Despite extensive research on EI generally and its links to a range of highly desirable outcomes and despite concerns that media diets heavy on-screen use may compro-

mise social skill development, media scholars have yet to meaningfully consider how media use might affect EI skill development. Indeed, very few media-oriented articles even mention the phrase "emotional intelligence" (for an early exception, see Nabi et al., 2006). Yet, as a dominant source of learning and socialization, media has the potential, like parents and peers, to shape children's emotion-related abilities. On the one hand, time spent with media at the expense of face-to-face social interaction could reduce the opportunity to develop the EI skill set (e.g., Turkle, 2011; Twenge et al., 2019). Further, the sheer quantity as well as the nature of media content people receive online could challenge their ability to exercise subskills of EI, including empathy (due to depersonalization and desensitization) and emotional regulation (due to reduction in social cues that would otherwise inhibit anti-social behavior). On the other hand, media use may provide forums to exercise these EI-related skills via online social interaction. For example, in the context of online self-disclosure, the internet-enhanced self-disclosure hypothesis suggests that the reduced social cues in online contexts allows adolescents to feel safer self-disclosing, thus allowing them to practice self-disclosure skills, which can then transfer to offline communication (e.g., Valkenburg & Peter, 2009).

As noted above, few published studies explore these issues. Within digital spaces, the few studies that exist focus primarily on problematic behaviors among adolescents and adults, and the results are inconclusive. Parker et al. (2008) identified a negative relationship between adolescent EI level and internet addiction and misuse and problematic gaming. In looking at specific subcomponents of EI, Beranuy et al. (2009) found emotional attention was positively correlated with problematic internet and mobile phone usage whereas regulation was negatively correlated with those outcomes. Yet, van Deursen et al. (2015) found no relationship between EI and either habitual or problematic smartphone use. With different measures of EI, digital usage, and control variables along with the focus on problematic use, it is perhaps not surprising that findings would be as disparate as they are. Also, given the focus on problematic usage, the suggestion across these studies is that EI level generates usage patterns rather than the other way around. Consistent with this interpretation, Herodotou et al. (2011) found that young adult players of the massive multiplayer online game World of Warcraft who had higher trait EI preferred within-game social goals over achievement goals, which is consistent with what one would expect of higher EI individuals. Thus, the question of how media use, particularly at a young age, might help or harm EI skill development is unanswered.

Yet, the need for such research is evident. Indeed, a recent review of online technology and sociability highlights the importance of examining the relationship between online use and EI generally as well as its underlying components, like empathy (Waytz & Gray, 2018). Empathy, a skill that represents one aspect of

emotional understanding, has a long history in psychology research as an ability that, though it has biological roots, can be fostered through parental guidance and life experiences to enhance relationships broadly as well as both personal and societal well-being (e.g., Zaki, 2020). In the realm of media studies, empathy has been a focus of much research as it relates to children (e.g., Feshbach & Feshbach, 1997). However, the impact of media use—digital media in particular—on empathy levels is inconclusive (Waytz & Gray, 2018). Concerns of exposure to violent media leading to desensitization or reduced empathy have been raised over the years (e.g., Anderson et al., 2010). Further, in light of dropping empathy rates among US college students over a 30-year period (1979–2009; Konrath et al., 2011), some have argued that the concomitant rise in social media use is to blame, distracting from and displacing the more human connection derived from face-to-face interaction (Turkle, 2011; see also Chopik et al., 2017). However, casting doubt on this assertion, recent longitudinal evidence among 10–14-year-olds and 17–19-year-olds has revealed that time spent on social media positively predicted self-reported empathy over a one year (Vossen & Valkenburg, 2016) and three-year period (Stockdale & Coyne, 2020; see also Guan et al., 2019). Such findings likely stem from the affordances of media platforms that allow for reflection on both the content consumed and one’s reaction to it. For example, media stories allow audiences to experience a range of emotions in response to story content as well as to observe media characters regulate emotions and interact (e.g., Mares & Woodard, 2005). Similarly, Walther’s (1996) hyperpersonal model of computer-mediated communication suggests that users can manage self-presentation and interactions in digital spaces often better than in face-to-face interaction. Extending this argument to emotional skills, mediated experiences could allow children to rehearse their EI skill set and thus facilitate its development. Although the extant research seems to support a small positive relationship with empathy, the research does not extend to younger children nor to broader digital media use beyond social media, which elementary school children are far less likely to use. Thus, the question of how and under what conditions media use influences empathic skill in children remains without a clear answer.

Emotional regulation is another skill linked to EI that has received attention from media scholars. Indeed, there is extensive research on the use of media for mood management (e.g., Zillmann, 2000), indicating that people consciously and subconsciously select media to help them achieve the mood (typically positive) they desire. However, this work focuses overwhelmingly on adults, rather than children, and considers mood as a predictor of media selection. Research does not, however, address how the skill of emotional regulation might develop as a result of media use nor does it consider how media might assist in the development of other emotional management skills (e.g., aiding others in emotional regu-

lation). Similar to empathy, emotional regulation skills develop as a function of both intrinsic factors, like biological predisposition and cognitive development, along with extrinsic factors, most notably the influence of parents in behavioral modeling, correction, positive reinforcement, and opportunities to experience heightened emotions (Thompson, 1991). Given that media can serve as an extrinsic force that both allows children to see models of emotional regulation and provides opportunities to experience strong emotions and practice regulating them, examining the role of media use in the development of emotional regulation skills is an important yet overlooked area of research.

In light of the limited and inconclusive extant research, we explore how child digital media use relates first to the global construct of EI, and then to the key subskills of empathy and emotional regulation, which are related to EI though readily distinguishable in their more specific and directed natures. In doing so, we may gain insight not only into the relationships between media use and EI generally, but key subcomponents specifically. Given the inconsistencies in the existing research, we are not in the position to pose directional hypotheses. Empirically, there are mixed findings in the relationship of these constructs to one another. Theoretically, too, there are arguments for and against the influence of screen-heavy media diets on emotional skill development. As noted earlier, screens may displace real-world opportunities for children to interact meaningfully with peers and to practice and develop social skills (e.g., Turkle, 2011; Twenge et al., 2019), including those of emotional perception, empathy, and regulation. Alternatively, digital platforms may provide abundant opportunities for children to practice and enhance such skills by being exposed to a range of emotional expressions in different forms and contexts far beyond the child’s personal experience, by having the opportunity to observe how others respond in these diverse contexts, and by having the chance to practice emotional expressions with fewer immediate demands. With this in mind, we ask the following:

RQ1: Does child digital media consumption relate to EI, empathy, or emotional regulation skills?

Given that the relationship between digital media consumption and the outcomes of interest gain more meaning when placed in relative context to non-digital media or non-media activities that children might otherwise engage in, we further ask:

RQ2: Do non-digital media or non-media play activities relate to EI, empathy, or emotional regulation skills?

### 1.3. Parental Media Use

Research on parental media use, and in particular mobile media use, has increased in recent years. Unfortunately,

such use has been shown to have a negative association with parent–child interaction quality, with parental phone use in particular associating with children’s externalizing and internalizing problems (for reviews, see Knitter & Zemp, 2020; McDaniel, 2019). Of note, no studies to date have associated parental digital media use with child EI, child empathy, or child emotion regulation. Yet, the potential effects are evident. Raudaskoski et al. (2017) argue that smartphones are unique relative to other media in drawing a parent’s visual attention away from the child while simultaneously offering few cues as to what is capturing the parent’s attention. This dynamic minimizes a child’s ability to learn about appropriate emotional responses. Further, parental phone use has been associated with “still face,” an expressionless face previously related to parental depression (Myruski et al., 2018). Frequent exposure to such expressions could impede a child’s emotional skill development as learning opportunities from parents’ emotional expressions are reduced. Further, parental disengagement and distraction while on mobile devices might limit their feedback to and regulation of their child’s emotional expressions. Indeed, a systematic review of 27 studies concluded that parents engaged with smartphones around their children were less verbally and nonverbally responsive to their child (Kildare & Middlemiss, 2017).

Despite the potential negative effects of parental mobile device use on their children’s emotional development, it is likely that any such effects would vary across different modes of media use and outcomes of interest (e.g., Modecki et al., 2020). As well, there is the potential for digital media to be a valuable parenting resource, helping parents regulate emotions and stress (e.g., Wolfers, 2021), and thus offer positive modeling for emotional regulation to their children. Therefore, it is an open question what effect parental use of digital media has on their child’s emotional skill development. This is especially true of the 5–12 age group, which has received limited attention in the extant research relative to infants and teens (Knitter & Zemp, 2020). As such, we ask the following:

RQ3: Does parental digital media use relate to child EI, empathy, or emotional regulation skills?

#### 1.4. Parental Mediation

Research on children’s EI development emphasizes the critical role of parenting behaviors centered around emotions. Most notably, longitudinal research on family talk with young children (three years old) about feeling states demonstrated that such talk (frequency, causal discussions, disputes) predicted greater emotional recognition and empathy in those children as six-year-olds (Dunn et al., 1991). As well, parenting style marked by emotional coaching, in which parents name and validate a child’s emotions, has been shown to encourage emotional and social intelligence development in chil-

dren (see Segrin & Flora, 2019). Perhaps not coincidental, research on parental mediation of a child’s media use has similarly shown that active mediation, or conversations and discussions around media content, as well as co-using media content, is beneficial for mitigating adverse effects of children’s media use (Nathanson, 1999, 2001). For example, active mediation has been shown to reduce the effect of news exposure to a violent event on younger children’s emotional reactions (Buijzen et al., 2007). Although some evidence suggests that interactive programming may aid emotion recognition among preschoolers (Peebles et al., 2018), research has yet to examine how parental mediation of media use affects a child’s emotional skills. Further, though evidence indicates that parents of 6–14-year-olds engage in a high degree of active mediation of their child’s online activities, which opens the door to both opportunities and risks online (Livingstone et al., 2017), the links to emotional experience and skill development are as yet unaddressed. Given that this is an area in which parents may have a positive effect on their children’s development through the use of media, this is a particularly valuable issue to explore. Thus, we consider how parental mediation of a child’s emotional experiences in response to media and amount of co-use between parents and children relate to that child’s emotional skills by asking the following:

RQ4: Does parent emotional mediation or media co-use relate to child EI, empathy, or emotional regulation skills?

In sum, there is minimal research investigating the potential link between children’s EI and their various forms of media use. Further, despite the strong links between parental behavior and child EI, the effect of parental media use or parental mediation of their child’s media use on child emotional skill development remains unexplored. This research aims to address these gaps in the extant knowledge base.

## 2. Method

### 2.1. Participants

Recruited through Amazon’s MTurk platform, 400 parents of children ages 5–12 (i.e., roughly middle childhood) completed a survey in which they reported on, among other variables, their child’s personality traits, EI, resilience, and media and non-media activities. Middle childhood was selected as it is the stage in which children become more responsible for their own behavior and develop foundational skills for building healthy social relationships (National Research Council, 1984). Of the parent respondents, 68% were mothers and 31% fathers. About one-third had one child (32%), 38% had two children, and 30% had three or more children. Regarding education, 17.8% had some high school education or

a high school degree, 38.6% had some college education, 33.8% had a college degree, and 9.9% had some post-college education. Each parent was asked to report on their child between the ages of 5–12 whose birthday was closest to the day the survey was being completed. Of the children reported on, 55% were boys and 45% girls, and their average age was 8.2 years ( $SD = 2.54$ ;  $Md = 8$ ). The vast majority lived with both parents (76%), 15% lived with only their mother, 7% shared time with each parent, and 2% lived with only their father.

## 2.2. Measures

### 2.2.1. Emotional Intelligence

Global assessments of both child and parental EI were assessed with scales derived from the conceptualization of EI outlined by Salovey and Mayer (1990). The EI scale for children (Sullivan, 1999;  $\alpha = 0.92$ ;  $M = 3.72$ ;  $SD = 0.67$ ) consisted of 14 items assessed with a five-point Likert scale. Sample items include “My child knows when s/he is happy,” “My child recognizes transitions between emotions in himself or herself,” and “My child exhibits emotional control by emphasizing positive and deemphasizing negative emotion.” Parental EI was assessed with Schutte et al.’s (1998) EI scale, which included 33 items assessed on a five-point Likert scale. Sample items include “I seek out activities that make me happy,” “I am aware of the non-verbal messages other people send,” and “I am aware of my emotions as I experience them” ( $\alpha = 0.92$ ;  $M = 3.90$ ;  $SD = 0.50$ ). As global measures, items for each scale were summed and averaged consistent with past use. As expected, the two measures correlated significantly:  $r(400) = 0.37$ ,  $p < 0.001$ .

### 2.2.2. Empathy

The seven-item empathic concern subscale of the Davis (1983) interpersonal reactivity index was adapted for parents to report on their child’s empathy ( $\alpha = 0.89$ ;  $M = 3.96$ ;  $SD = 0.83$ ). Sample items include “My child often has tender, concerned feelings for people less fortunate than him/her” and “I would describe my child as a pretty soft-hearted person,” and were assessed on a 1 (*does not describe my child well*) to 5 (*describes my child well*) scale.

### 2.2.3. Emotional Regulation

A subset of 11 items from Shields and Cicchetti (1997) emotion regulation checklist was used for parents to assess their child’s ability to regulate emotions. The original 24-item other-report scale included items linked to emotional perception and experience. We included the set of items that focused specifically on emotional expression that parents could observe (e.g., is prone to angry outbursts/tantrums easily; displays exuberance that others find intrusive or disrupting; is impulsive).

Items were assessed on a four-point scale (*never–almost always*) and recoded so higher scores indicate greater ability to emotionally regulate ( $\alpha = 0.88$ ;  $M = 2.90$ ;  $SD = 0.54$ ).

### 2.2.4. Child Media and Non-Media Activities

Consistent with Rideout (2013), we asked parents to report how much time (none, less than 30 minutes, 30 minutes to 1 hour, 1–2 hours, more than 2 hours) on both a typical week day and typical weekend day their child spends doing each of the following activities at home: watch TV or DVDs, computer use, reading, being read to, console video-game play (e.g., Xbox), handheld video-game play, touch screen device use (e.g., iPad, Kindle), smartphone use, music listening, social media use, outdoor play, and indoor non-media play. Daily time spent on each activity was calculated by multiplying each weekday use by five, each weekend day use by two, and dividing the total by seven (see Table 1).

### 2.2.5. Parent Co-Use and Emotional Mediation

Given the influence of parental behavior on their young children, we asked a set of questions about parents’ own media use. First, we asked how often on a four-point scale (*all or most of the time–never*) they were engaged with their child during their child’s media and non-media activities. We combined the 10 media use items into an index of co-use ( $\alpha = 0.80$ ;  $M = 2.24$ ;  $SD = 0.56$ ).

Next, to assess the effect of parental distraction from their child with digital devices, we asked how often parents use their mobile devices ( $M = 5.18$ ;  $SD = 1.26$ ) and their computers ( $M = 4.97$ ;  $SD = 1.54$ ) in the presence of their child on a seven-point scale from *never* to *very often*.

Finally, given the importance of emotional talk on child emotional development, parents were asked to report how often they discuss the emotions of characters in stories. This seven-item measure, developed for this study, adjusted items from the Sullivan scale to ask how often parents discussed a story or character feelings with their child. Sample items include: How often, if ever, do you initiate a conversation with your child about the emotions displayed by a story character? (e.g., “That girl doesn’t seem very happy anymore, does she?”); how often, if ever, do you ask your child what s/he is feeling while watching or reading a story? (e.g., “How does that make you feel?”). Items were assessed on a five-point scale, ranging from *never* to *always* ( $\alpha = 0.90$ ;  $M = 3.20$ ;  $SD = 0.78$ ).

### 2.2.6. Control Variables

In addition to child age, gender, parent gender, and parent EI levels, all of which can relate to child EI levels generally, or empathy and emotional regulation specifically, we assessed two other likely correlates of EI. First, we

**Table 1.** Descriptives and partial correlations of the study measures.

	<i>n</i>	<i>M</i>	<i>SD</i>	Correlations																			
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
<i>Media activities</i>																							
1. Watching TV <sup>1</sup>	393	2.48	1.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
2. Reading <sup>1</sup>	390	1.94	1.05	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
3. Computer <sup>1</sup>	396	1.69	1.28	0.13	0.23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
4. Touch-screen use <sup>1</sup>	393	1.68	1.24	0.11	0.02	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
5. Music listening <sup>1</sup>	384	1.45	0.98	0.11	0.27	0.31	0.08	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
6. Being read to <sup>1</sup>	384	1.24	1.02	0.09	0.27	-0.18	0.19	0.03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
7. Video-games <sup>1</sup>	392	1.16	1.28	0.12	0.04	0.33	0.13	0.16	-0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	
8. Smartphone use <sup>1</sup>	386	1.13	1.28	0.14	0.06	0.37	-0.03	0.31	-0.14	0.24	—	—	—	—	—	—	—	—	—	—	—	—	
9. Social media use <sup>1</sup>	380	0.87	0.83	0.12	0.21	0.39	0.05	0.74	-0.09	0.23	0.50	—	—	—	—	—	—	—	—	—	—	—	
10. Handheld game <sup>1</sup>	387	0.68	1.01	0.13	0.26	0.35	0.15	0.25	0.12	0.50	0.24	0.36	—	—	—	—	—	—	—	—	—	—	
<i>Non-media activities</i>																							
11. Outdoor play <sup>1</sup>	395	2.72	0.99	0.05	0.19	-0.12	0.13	0.11	0.34	0.06	-0.16	-0.07	0.08	—	—	—	—	—	—	—	—	—	
12. Indoor play <sup>1</sup>	391	2.27	1.19	0.12	0.15	-0.19	0.17	0.08	0.49	-0.09	-0.21	-0.06	0.06	-0.49	—	—	—	—	—	—	—	—	
<i>Parental media use</i>																							
13. Parent MM use <sup>2</sup>	399	5.18	1.26	0.11	-0.06	0.03	0.16	0.01	-0.02	-0.02	0.05	0.02	-0.06	-0.05	0.05	—	—	—	—	—	—	—	
14. Parent computer use <sup>2</sup>	400	4.97	1.54	0.07	-0.01	0.26	0.09	0.07	-0.08	0.07	0.08	0.03	-0.02	-0.10	-0.03	0.48	—	—	—	—	—	—	
<i>Parental mediation</i>																							
15. Emotional mediation	400	3.2	0.78	-0.03	0.10	-0.03	0.07	-0.03	0.32	-0.03	-0.09	-0.08	0.04	0.27	0.28	-0.07	-0.07	—	—	—	—	—	
16. Co-use	400	2.24	0.56	0.10	0.21	0.07	0.20	0.14	0.50	0.13	0.07	0.14	0.33	0.23	0.35	0.04	-0.01	0.36	—	—	—	—	
<i>Dependent variables</i>																							
17. Child EI	400	3.72	0.67	-0.01	0.14	0.05	0.03	0.03	0.12	0.00	-0.01	-0.01	0.06	0.10	0.09	-0.13	-0.01	0.36	0.10	—	—	—	
18. Child empathy	400	3.96	0.83	0.06	0.05	0.10	-0.03	0.00	0.05	0.00	-0.04	-0.04	0.00	0.12	0.09	0.09	0.12	0.23	0.08	0.37	—	—	
19. Child ER	400	2.90	0.54	-0.04	0.05	0.01	0.05	-0.02	0.03	-0.01	-0.08	-0.02	-0.04	0.12	0.03	-0.09	-0.05	0.13	0.07	0.53	0.42	—	
<i>Controls (Selection)</i>																							
20. Child age	400	8.2	2.54	-0.01	0.19	0.43	-0.10	0.25	-0.49	0.27	0.34	0.40	0.14	-0.26	-0.46	-0.02	0.12	-0.22	-0.30	-0.05	0.05	-0.02	

Notes: MM = mobile media; ER = emotional regulation; <sup>1</sup> Frequency of child activities; <sup>2</sup> on a scale from 1 (*never*) to 7 (*very often*); Missings based on “I don’t know” answers.

asked parents whether their child had been diagnosed with conditions that affect emotional perception or regulations, including autism and ADHD (16.8%). Second, given that peer interaction can both influence and be influenced by EI skills, we asked how many close friends the child has (ranging from zero to five or more). Parents typically reported their child having either two (32%) or three (25%) close friends.

### 3. Results

To answer the research questions posed, we ran three hierarchical regression models with child EI, child empathy, and child emotion regulation as the respective dependent variables. For each analysis, the control variables (child age, gender, diagnosed ADHD/autism, number of close friends, parent gender, and parent EI) were entered in Block 1, child media and non-media activities were entered in Block 2, and parental media use and mediation variables were entered in Block 3 (see Table 1 for variable descriptives and correlations and Table 2 for regression results). Given the exploratory nature of the

research questions posed, findings hovering around the standard significance level of  $p < 0.05$  will be acknowledged as worthy of discussion.

In response to RQ1, none of the child digital media consumption variables significantly related to child EI, empathy, or emotional regulation skills ( $\beta s < |0.10|$ ). In total, all child media activities explained 3% of the variance in each of the dependent variables. Thus, there is no evidence here that screen use (whether TV, computer, video games, mobile devices) is counterproductive to EI. Regarding RQ2, these analyses revealed no significant associations between outdoor or indoor play and child EI, child empathy, or child emotional regulation skills ( $\beta s < |0.10|$ ). However, reading was related to higher child EI ( $\beta = 0.11, p = 0.046$ ).

RQ3 asked whether parental digital media use relates to child EI, empathy, or emotional regulation skills. Children of parents who reported more phone use in the presence of their children were assessed as having lower EI ( $\beta = -0.14, p = 0.013$ ), though no significant relationship with empathy or emotional regulation emerged ( $\beta s < |0.09|$ ). Parental computer use did not relate to

**Table 2.** Linear regression analyses on child EI, child empathy, and child emotion regulation.

Dependent variable	Child EI				Child Empathy				Child Emotion Regulation			
	<i>b</i>	SE	$\beta$	<i>p</i>	<i>b</i>	SE	$\beta$	<i>p</i>	<i>b</i>	SE	$\beta$	<i>p</i>
<i>Parameters</i>												
<i>Control variables</i>	<i>Block 1: R<sup>2</sup> = 0.18; p &lt; 0.001</i>				<i>Block 1: R<sup>2</sup> = 0.22; p &lt; 0.001</i>				<i>Block 1: R<sup>2</sup> = 0.28; p &lt; 0.001</i>			
Child age	-0.02	0.02	-0.07	0.328	0.05	0.02	0.15	0.042	0.02	0.02	0.07	0.301
Child gender	0.15	0.07	0.11	0.032	0.06	0.09	0.03	0.528	0.08	0.05	0.07	0.168
Child ADHD/autism	-0.20	0.09	-0.11	0.025	-0.35	0.11	-0.16	0.002	-0.56	0.07	-0.39	<0.001
Child close friends	0.05	0.02	0.10	0.045	0.06	0.03	0.10	0.057	0.06	0.02	0.15	0.002
Parent gender	-0.01	0.07	-0.01	0.897	0.15	0.09	0.08	0.092	0.01	0.06	0.01	0.800
Parent EI	0.036	0.07	0.27	<0.001	0.54	0.08	0.32	<0.001	0.26	0.05	0.24	<0.001
<i>Child activities</i>	<i>Block 2: ΔR<sup>2</sup> = 0.03; p = 0.540</i>				<i>Block 2: ΔR<sup>2</sup> = 0.03; p = 0.349</i>				<i>Block 2: R<sup>2</sup> = 0.03; p = 0.407</i>			
Watch TV	-0.00	0.03	-0.01	0.915	0.05	0.04	0.05	0.268	-0.03	0.03	-0.06	0.207
Reading	0.07	0.04	0.11	0.046	-0.01	0.05	-0.01	0.863	0.03	0.03	0.05	0.342
Computer	0.01	0.03	0.01	0.854	0.06	0.04	0.08	0.160	0.00	0.02	0.00	0.982
Touch-screen use	0.00	0.03	0.01	0.873	-0.06	0.03	-0.08	0.094	0.02	0.02	0.04	0.357
Music listening	0.01	0.05	0.01	0.891	-0.04	0.06	-0.05	0.528	-0.06	0.04	-0.11	0.114
Being read to	-0.01	0.04	-0.01	0.829	-0.00	0.05	-0.01	0.863	-0.04	0.03	-0.08	0.213
Video-games	0.02	0.03	0.04	0.466	-0.01	0.04	-0.01	0.845	0.02	0.02	0.05	0.353
Smartphone use	0.01	0.03	0.02	0.722	-0.04	0.04	-0.07	0.239	-0.04	0.02	-0.09	0.098
Social media use	-0.01	0.07	-0.02	0.851	-0.03	0.08	-0.03	0.744	0.06	0.05	0.10	0.221
Handheld game	0.03	0.04	0.05	0.439	0.01	0.05	0.01	0.898	-0.04	0.03	-0.08	0.176
Outdoor play	-0.04	0.04	-0.05	0.355	0.05	0.05	0.06	0.279	0.04	0.03	0.07	0.234
Indoor play	-0.00	0.04	-0.00	0.976	0.02	0.04	0.03	0.601	-0.02	0.03	-0.04	0.483
<i>Parental variables</i>	<i>Block 3: ΔR<sup>2</sup> = 0.07; p &lt; 0.001</i>				<i>Block 3: ΔR<sup>2</sup> = 0.02; p = 0.033</i>				<i>Block 3: R<sup>2</sup> = 0.01; p = 0.229</i>			
Phone use	-0.07	0.03	-0.14	0.013	0.06	0.04	0.09	0.116	-0.03	0.02	-0.08	0.155
Computer use	0.03	0.02	0.06	0.253	0.03	0.03	0.06	0.315	0.00	0.02	0.00	0.970
Emotional mediation	0.24	0.05	0.28	<0.001	0.12	0.06	0.11	0.053	0.01	0.04	0.01	0.845
Co-use	-0.10	0.07	-0.08	0.176	0.05	0.09	0.03	0.606	0.10	0.06	0.10	0.094
<i>R<sup>2</sup></i>	0.28				0.26				0.32			

Notes: Pairwise deletion; 368 participants.



any of the three emotional skill variables of interest ( $\beta$ s < 0.07).

Finally, in response to RQ4, we examined the relationship between parental mediation behaviors, indicated by parental emotional mediation and parent-child media co-use, and child emotional skills. The association of parental emotional mediation with child EI was  $\beta = 0.24$  ( $p \leq 0.001$ ), and its association with child empathy was  $\beta = 0.11$  ( $p = 0.053$ ). No relationship with emotional regulation emerged ( $\beta = 0.01$ ,  $p = 0.845$ ). Parental co-use was not significantly related to any of the three child emotional skills ( $\beta$ s < |0.11|).

#### 4. Discussion

This research sought to illuminate how children's media use, as well as parental media-related behavior around their children, relate to children's exhibition of EI skills. These findings suggest that concerns about children's digital or screen media use are perhaps overblown in terms of impeding emotional skill development. In contrast to some previous findings that EI associated with some problematic media usage (Parker et al., 2008) and empathy associated with social media use (e.g., Guan et al., 2019), no screen or digital media use variable in this study related to child EI, empathy, or emotional regulation, though reading did associate with higher EI. Given the correlational nature of the data, we cannot know whether reading promotes EI or whether those high in EI enjoy reading. However, the fact that no associations with any other media emerged suggests that quantity of use alone may not be problematic for children in middle childhood. Of course, the quantity of time engaged in media use fails to capture the nature of the use, which may have important implications. That is, what content children are exposed to (e.g., educational programming or apps vs. cartoons or video games with excessive violence) may impact EI, empathy, and emotional regulation—both positively and negatively—in ways not captured in this study. As well, time spent on screens versus engaging in activities that could potentially enhance social skills, like having supportive interpersonal interactions, may limit enhancement of EI that might have occurred otherwise. As such, future research should investigate questions related to the impact of the nature of media content consumed on child EI levels as well as the potential displacement by media use of more emotion skill-sustaining activities.

Although child media use did not emerge as a factor in emotional skill development, parental behavior did. Parents' use of their mobile devices around their children was associated with having children they rated as lower in EI generally (though not lower in empathy or regulation). Given that parents have, at best, divided attention when using their phones in the presence of their children as well as the evidence that parents exhibit "still face" when on their mobile devices (Myruski et al., 2018), it is reasonable to imagine that children lose the bene-

fits of their parents' emotional responses to their words and deeds when their parents are occupied with their mobile devices. Although it is possible that parents may escape into their phones as a break from their children who have lower EI, the fact that parental engagement with children boosts EI (Segrin & Flora, 2019) suggests that parental mobile device behavior around their children is likely a meaningful impediment to their child's emotional skill development.

Finally, and perhaps most encouraging, parental emotional mediation of their children's media use is positively associated with both EI generally and empathy specifically. This finding aligns with previous research showing that parental socialization impacts how children react to media characters which, in turn, can increase a child's emotional expression (Scherr et al., 2018). If it is the case that when parents consume media with their children and they encourage discussion of emotional reactions of both themselves and the characters, media has the potential to become a vehicle by which parents can encourage the talk that has been documented to enhance children's emotional skills (Dunn et al., 1991), empathy in particular.

This study's findings must, of course, be considered in light of the limitations of the data collection. With correlational data, we can only note relationships that exist without presuming causal order. As well, the data are based on the parental perspective of their own child's media use and traits, rather than more objective assessments, such as media use logs or teacher or clinician assessments of child traits and behavior. Child self-assessments that are then used in conjunction with parental assessment would also be of value in examining the parent-child dynamic. Further, without assessments of the nature of the content consumed, the data can speak only to the time spent with media rather than the full media consumption experience. Finally, we included children across the range of middle childhood, who vary in their degree of individuation from their parents as well as the nature of media they consume. As this study was underpowered to examine differences across early and late middle childhood, future research would be well served by looking at these phenomena across childhood stages, with careful attention to time spent with parents as well as the nature of content consumed.

This research, however, still stands as a useful gateway into a line of inquiry in which the role of media in the development of children's emotional skill sets can be explored. Moving forward, longitudinal work in which children's EI skill development is tracked, ideally throughout middle childhood into adolescence, along with their diet of screen usage—time spent, type of media used, and content consumed—would be of tremendous value in understanding the ways in which media might aid or inhibit the development of this important life skill. Indeed, it is particularly important to recognize that media experiences have the potential to generate positive outcomes for children (Mares & Woodard, 2005).

Examining the boundary conditions around such positive effects—which children receive what benefits (or costs) under what circumstances and with what platform and content should be a priority for scholarly inquiry. Further, consideration of the subcomponent skills of empathy and regulation are also important to gauge the different pathways through which digital media use may affect the more global construct of EI. Indeed, future research might also consider how media use relates to the other subskills of emotion perception and integration.

## 5. Conclusion

Despite the documented multi-faceted benefits of EI across the lifespan, the scholarly community has overlooked the role that our modern-day saturated media environment plays in the development of this critical set of skills. Our findings suggest that when it comes to children's time spent with media, there is little concern that such behavior negatively affects children's emotional development in middle childhood. Instead, parents concerned about the negative effects of their child's screen use should be more mindful of their own mobile phone use around their children, which may impede their child's EI development. Further, should parents wish to enhance their children's emotional skill set, using media as an opportunity for emotional mediation, or to talk about emotions could have long-lasting benefits.

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## Conflict of Interests

The authors declare no conflict of interests.

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