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## Review

# Mindful Parenting and Parent Technology Use: Examining the Intersections and Outlining Future Research Directions

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**Abstract:** Popular media attention and scientific research in both mindful parenting and technology use in the context of parenting has expanded in the 21st century; however, these two streams of research have largely evolved separately from one another. Thus, in this conceptual paper, we integrate the research on mindful parenting with that on parents' technology use and parenting to examine how parent technology use may impact or be linked with aspects of mindful parenting. Mindful parenting theory outlines five key components: listening with full attention, self-regulation in the parent-child relationship, emotional awareness of self and child, nonjudgmental acceptance of self and child, and compassion for self and child. Parent technology use, in particular the use of mobile devices, has the potential to impact all five elements of mindful parenting. However, the relationship between mindful parenting and technology is complex, and there can be both positive and negative implications of parent technology use on mindful parenting. On the positive side, technology use might help parents regulate their emotions; access support; and develop more empathy, acceptance, and compassion for themselves and their children. Yet, parent technology use also has the potential to create distractions and disrupt parent-child interactions, which may make it more difficult for parents to listen with full attention, maintain awareness of their own and their child's emotions, and calmly respond to child behaviors with intentionality. Technology use may also create more opportunities for social comparisons and judgement, making it more difficult for parents to accept their children nonjudgmentally and have compassion for their children as they are. Future research is needed to understand the conditions under which technology use can hinder or promote mindful parenting and how interventions can promote mindful parenting skills and a positive uses of technology.

**Keywords:** mindful parenting; technofence; mindfulness; parenting; technology; smartphone



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## 1. Introduction

The 21st century is distinct in the proliferation of technology in our lives, especially due to the emergence of smartphones that allow individuals to have nearly constant access to information and continuous connection through texting, the internet, and social media. At the same time, and perhaps because of the proliferation of technology, there has been increased interest in mindfulness, and in ways that individuals can “be present” as the world becomes increasingly distracting. The ability of a parent to maintain awareness of the present moment, nonjudgmentally, has implications for how they interact with and respond to their children. Mindful parenting theory outlines five primary components (Duncan et al. 2009): listening with full attention, self-regulation in the parent-child relationship, emotional awareness of self and child, nonjudgmental acceptance of self and child, and compassion for self and child. Mindful parenting has been shown to be related to positive parent and child outcomes, including greater parent well-being, more positive parenting, and reductions in their child externalizing and internalizing problems (for reviews

see [Lippold and Duncan 2018](#); [Townshend et al. 2016b](#)). Yet, despite its linkages to parent and child well-being, little is known about predictors of mindful parenting in general and how the technology context, in particular, may help or hinder mindful parenting. On the positive side, parents' technology use can help parents regulate their emotions; access support; and develop more empathy, acceptance, and compassion for themselves and their children (e.g., [McDaniel 2020b](#); [Radesky et al. 2016](#); [Torres et al. 2021](#); [Wolfers 2021](#))—which are all key aspects of mindful parenting. Yet, parents' technology use also has the potential to create distractions and disrupt parent–child interactions (e.g., [McDaniel 2019, 2021](#); [McDaniel and Radesky 2018a, 2018b](#)), which may make it more difficult for parents to listen with full attention, maintain awareness of their and their child's emotions, and calmly respond to child behaviors with intentionality. Parents' technology use can also create more opportunities for social comparisons and judgement (e.g., [Coyne et al. 2017](#)), making it more difficult for parents to accept their children nonjudgmentally and have compassion for their children as they are.

The goals of this paper are (1) to briefly review the history and theory of mindful parenting, (2) examine how parent technology use may affect elements of mindful parenting, and (3) identify new research directions at the intersection of mindful parenting and parent technology use. Scientific research in both mindful parenting and technology use in the context of parenting has expanded in the 21st century. Yet, these two streams of research have evolved largely separately from one another. Thus, in this conceptual paper, we integrate the research on mindful parenting with that on technology use in the context of parenting to examine how parent technology use may predict mindful parenting. Although neither an exhaustive nor systematic review, we aim to shed light on the potential overlap between these two streams of research and identify new and exciting research directions. Given the small body of research on both mindful parenting and also parent technology use and parenting, no age restrictions were applied to the studies featured in this manuscript. The paper is structured in three parts. We begin by reviewing the history and definition of mindful parenting. Next, we describe the technology context that undergirds modern parenting and review research related to how technology, in particular the use of mobile devices (e.g., smartphones), might predict the five distinct elements of mindful parenting. We end with a discussion of promising future research directions on mindful parenting and technology.

## 2. Mindful Parenting

### 2.1. Mindful Parenting History, Definitions, and Theory

Mindfulness in its simplest terms captures an individual's affective and cognitive processes that increase awareness of the present moment. By noticing feelings, thoughts, and physical sensations as they arise in the present moment—and observing them nonjudgmentally ([Goldstein 2002](#); [Kabat-Zinn 2003](#))—mindfulness may help individuals experience more self-awareness and acceptance of themselves and their experiences. Furthermore, individuals often form appraisals and judgments of their experiences with little awareness, which can lead to bias in perceptions of reality. Mindfulness and increased awareness may help individuals more accurately perceive their environment and subsequently respond to their environment intentionally, rather than habitually or automatically ([Brown and Ryan 2003](#); [Brown et al. 2007](#); [Duncan et al. 2009](#)). Mindfulness might also help individuals lessen their identification with their thoughts and emotions. For example, individuals practicing mindfulness observe emotions as “just feelings” and thoughts as “just thoughts” without judgment, allowing themselves to notice them but not fully identify with them. Such de-identification and nonjudgmental acceptance can allow for increased comfort with difficult emotions and may also reduce emotional reactivity and make it less likely that individuals will perceive ambiguous experiences with others as hostile ([Brown and Ryan 2003](#); [Brown et al. 2007](#); [Duncan et al. 2009](#); [Goldstein 2002](#); [Heppner and Kernis 2007](#); [Kabat-Zinn 2003](#)).

Importantly, the majority of the research on mindfulness focuses on individual mindfulness skills and benefits. That is, studies focus on how a person's change in awareness and cognitions associated with mindfulness affects their individual well-being. Several studies have found mindfulness to be associated with improved individual physical and psychological health (for reviews see [Chiesa and Serretti 2009](#); [Goldberg et al. 2018](#); [Grossman et al. 2004](#); [Howarth et al. 2019](#); [Kabat-Zinn 2003](#); [Keng et al. 2011](#)). Research on mindfulness has evolved to also capture its effects on others. For example, research starting in the late 1990s focused on whether mindfulness has positive implications not only for the person practicing the skills, but also on other individuals in a relationship with that person—in particular for the person's children. If so, how might mindfulness in the context of parenting impact parenting behavior and child outcomes? These questions spurred a new body of research focusing specifically on mindful parenting. Research on mindful parenting has grown in the 21st century, especially since 2009 ([Parent and DiMarzio 2021](#)).

John Kabat-Zinn, a pioneer in individual-level mindfulness and stress reduction interventions, and his coauthor, wrote one of the first popular books on mindful parenting in the late 1990's entitled *Everyday blessings: The inner work of mindful parenting* ([Kabat-Zinn and Kabat-Zinn 1997](#)). [Kabat-Zinn and Kabat-Zinn \(1997\)](#) defined mindful parenting as “paying attention to your child and your parenting in a particular way: intentionally, here and now, and nonjudgmentally” (p. 71). They described the important role that mindful parenting may play in nurturing a positive parent–child relationship, especially in helping parents develop compassion and deep empathy for themselves and their children. Such compassion and empathy may help parents engage in more responsive parenting and improve parental well-being.

[Duncan et al. \(2009\)](#) further expanded the theory underlying mindful parenting. In their seminal work, she and her colleagues identified five main elements of mindful parenting: *listening with full attention, self-regulation in the parent–child relationship, emotional awareness of self and child, nonjudgmental acceptance of self and child, and compassion for self and child*. These five aspects of mindful parenting are central components of the Interpersonal Mindful Parenting Scale, which is widely used in research on mindful parenting, and has been adapted and translated for use in several countries including the United States (U.S.), Portugal, Spain, China, Korea, and the Netherlands ([Coatsworth et al. 2015](#); [Geurtzen et al. 2015](#); [Kim et al. 2019](#); [Lo et al. 2018](#); [Moreira and Canavarro 2017](#); [Pan et al. 2019](#)).

Although mindful parenting is related to individual dispositional mindfulness ([Kabat-Zinn 2003](#); [Parent and DiMarzio 2021](#)), it is theoretically distinct in that it captures intra- and inter-personal processes specific to the parent–child relationship ([Duncan et al. 2009](#)). These aspects of mindful parenting reflect parents' own internal states, such as parents' awareness and nonjudgmental acceptance of their own thoughts and emotions about parenting and their child, a parents' ability to regulate these emotions and related parenting behaviors, and parents' compassion towards themselves related to the challenges of parenting. Mindful parenting also encompasses how parents perceive and interact with their children, such as how parents listen to their children, parents' present-centered awareness, and parental nonjudgement and compassion for their children's experiences. Thus, as the theory of mindful parenting specifies, mindful parenting may have benefits for the parent (i.e., increased self-compassion, emotion regulation). Mindful parenting can also have benefits for children, as mindful parenting skills may help parents engage in more responsive parenting practices and have a closer, more authentic parent–child relationship ([Bögels et al. 2010](#); [Lippold and Duncan 2018](#)).

The research on mindful parenting has supported many of its conceptual connections and outcomes, although many research questions remain unanswered ([Greenberg and Harris 2012](#); [Townshend et al. 2016b](#)). Mindful parenting has been linked to positive parent outcomes, parenting behaviors, and child outcomes (for reviews see [Lippold and Duncan 2018](#); [Townshend et al. 2016b](#)). For example, mindful parenting is associated with lower parental anxiety, stress, and self-blame for parenting challenges ([Bazzano et al. 2015](#); [Beer et al. 2013](#); [Bögels et al. 2014](#); [Bögels et al. 2008](#); [Coatsworth et al. 2010](#); [Gouveia et al. 2018](#),

2019; Lippold et al. 2021; Minor et al. 2006; Vieten and Astin 2008) and higher levels of positive parenting strategies, including greater parental involvement, warmth, self-control, and anger management in parenting interactions (Bögels et al. 2008; Coatsworth et al. 2010; Duncan et al. 2009; Lippold et al. 2015; MacDonald and Hastings 2010; Medeiros et al. 2016; Parent et al. 2016; Turpyn and Chaplin 2016; Singh et al. 2007; Van der Oord et al. 2012; Yang et al. 2021). Mindful parenting has been associated with positive child outcomes including a lower risk for child internalizing and externalizing behaviors (Bögels et al. 2014; Van der Oord et al. 2012; Parent et al. 2016; Singh et al. 2006; Van de Weijer-Bergsma et al. 2012), unhealthy eating behavior (Gouveia et al. 2018, 2019), and child attention difficulties (Bögels et al. 2008; Van de Weijer-Bergsma et al. 2012) as well as greater child emotional regulation (Moreira et al. 2021), life satisfaction, and subjective well-being (Liu et al. 2021; Ljubetić and Ercegovic 2020).

Below, we discuss the theoretical elements of mindful parenting in more detail and summarize how they can affect parenting behavior and the parent–child relationship. It is critical to first understand these elements before linking them with parent technology use.

**Five elements of mindful parenting.** Mindful parents *listen with full attention*—that is, they are present-centered, paying attention to what their children are saying in the present moment and providing their children their undivided attention during interactions. According to mindful parenting theory (Duncan et al. 2009; Bögels et al. 2010; Townshend 2016a), such present-centered awareness may allow mindful parents to be more aware of their children’s needs and to correctly perceive and interpret their children’s behavior and communication. Importantly, mindful parents might be more likely to observe current, present-day needs of their child, rather than to rely on assumptions based on interactions in earlier time periods (Bögels et al. 2010; Duncan et al. 2009). Such present-focused, full attention is thought to reduce parents’ automatic thoughts and habits, allowing them to respond more effectively to their child’s needs and communication in the present moment (Duncan et al. 2009; Lippold and Duncan 2018).

Listening with full attention and present-centered awareness may help parents notice, gain a clearer understanding, and respond to changing children’s needs during developmental transitions. For example, during adolescence, there is an increased need for autonomy in adolescents’ thoughts, values, and behaviors, as well as an increased desire for independence and privacy (Deci and Ryan 2008) that markedly differs from earlier developmental periods. Assumptions of a child’s needs and desires based on earlier developmental periods (i.e., pre-adolescence) and a lack of autonomy support may lead to youth feelings of over-control and tensions in the parent–child relationship (Borelli et al. 2015; Grolnick and Pomerantz 2009; Miller et al. 2018). Mindful parenting marked by full, present-centered attention may engender deeper listening and observation by parents, and subsequently, parents may gain a clearer understanding of current autonomy needs during adolescence, thereby promoting more effective parenting and a closer parent–child relationship (Lippold and Duncan 2018; Lippold et al. 2015).

Second, mindful parents are *aware of their own emotions* and those of their child and further, they are better able to *self-regulate in the parent–child relationship* (Bögels et al. 2010; Duncan et al. 2009; Townshend 2016a). Mindful parents may be more likely to notice their own emotions when interacting with their children, and they also may be more likely to notice their child’s emotional states. Such emotional awareness can allow parents to be more attuned to their children and to more effectively read and interpret child emotional cues (Havighurst et al. 2013). Mindful parents may also be less dismissive of their child’s emotional states. Emotional awareness may also help parents observe their own emotional reactions to child behaviors as well as underlying automatic thoughts they may have about their children connected to these emotions. Because they have increased emotional awareness, parents may be able to avoid emotionally driven, habitual, automatic responses to children’s behavior. This interruption of automatic responses may allow parents to better regulate their behaviors and to pause and respond more calmly and intentionally to child behavior. Thus, parents who are mindful may be better able to calmly react to behavior



and less likely to respond based on strong negative emotions (Bögels et al. 2010; Duncan et al. 2009; Lippold and Duncan 2018; Townshend 2016a).

For example, parents of children who have behavioral challenges may engage in negative, hostile emotional cycles with their children (Bögels et al. 2010; Dumas 2005; Patterson et al. 1989). In these situations, when faced with difficult child behavior, parents may struggle to regulate their own emotions, and may emotionally react to negative child behavior out of anger, stress, or hurt. Mindful parenting might help parents notice their own emotions, which in turn, can help parents calm down when faced with challenging child behavior and more intentionally select their parenting response. In addition, by increasing emotional and present-centered awareness, mindful parenting may help parents identify the child emotions that likely underlie a child's behavior, such as anxiety, sadness, or anger (Havighurst et al. 2013). Parents' awareness of their child's underlying emotions may engender more empathy for what their children are experiencing and promote compassion and empathic understanding. Mindful parenting might also help parents better identify positive traits and attributes present in their children (Duncan et al. 2009; Lippold and Duncan 2018).

Lastly, mindful parents exhibit *nonjudgmental acceptance of both themselves and their child* and have *compassion for themselves and their children* (Duncan et al. 2009; Townshend 2016a). Mindful parents are aware of their own expectations for their children and attributes they wish their children to have. Instead of relying on their own perceptions of who they wish their child to be, mindful parents strive to accept the traits, attributes, and behaviors of their child without judgement. Importantly, as outlined in theoretical work by Duncan et al. (2009), such nonjudgment does not mean parents do not enact discipline or provide guidance to children as needed, yet such guidance is rooted in a deeper acceptance of the child. Nonjudgmental acceptance also applies to parents themselves, as mindful parents nonjudgmentally accept their own traits and attributes as parents, rather than relying on preconceived notions and expectations for themselves.

Relatedly, mindful parenting also includes compassion for the self and child. Compassion allows parents to understand that all humans face struggles and to frame the struggles of themselves and their children as part of a common human experience (Duncan et al. 2009; Neff et al. 2007; Neff 2011). By doing so, parents are less likely to judge themselves and their children negatively and critically, and more likely to show understanding, forgiveness, and genuine empathy towards themselves and their children. Such understanding and empathy may allow parents to provide more comfort when the child is upset and to interact less harshly with their children. Compassion might also allow parents to feel more efficacious in their parenting role, as they may be more likely to frame their parenting struggles as normative (Lippold et al. 2021). Mindful parents' compassion and nonjudgmental acceptance may help parents hold more realistic expectations for their children, improve parent and child well-being (Neff 2011), and facilitate a closer, more authentic parent-child relationship (Duncan et al. 2009; Lippold and Duncan 2018; Townshend 2016a).

## 2.2. Contextual Predictors of Mindful Parenting

According to Bronfenbrenner's seminal bioecological theory (Bronfenbrenner and Morris 1998), the environmental context, such as the technology context, plays a key role in a parents' ability to mindfully parent. Yet, prior studies have placed little attention on the individual and contextual predictors of *mindful parenting* specifically. The few studies that examine predictors of mindful parenting are limited in their focus on parent emotional states (i.e., anxiety, depression, self-critical rumination; Henrichs et al. 2019; Moreira et al. 2018), parental cognitions (i.e., parental competence; Lippold et al. 2021), dispositional mindfulness (Moreira and Canavarro 2018; Gouveia et al. 2016), or adolescent characteristics such as adolescent internalizing and externalizing problems (Kim and Gonzales 2021). No prior studies have examined the role of technology as a predictor of *mindful parenting*. Yet, technology is a key contextual influence in the 21st century.

### 3. Mindful Parenting in the Technology Context

Technology use in general, and mobile-device use in particular, may play a key role in whether or not a parent is able to mindfully parent. In this section, we discuss technology use as a fixture of the 21st century context, outlining how it has changed, with a particular emphasis on mobile devices. We also outline how technology may predict the five elements of mindful parenting (see Table 1).

**Table 1.** Negative and Positive Linkages Between Technology Use and Mindful Parenting.

Elements of Mindful Parenting	Negative Implications of Technology Use through Mobile Devices	Positive Implications of Technology Use through Mobile Devices
Listening with full attention	<ul style="list-style-type: none"> <li>- Device use can create distractions from parenting</li> <li>- Multitasking/split attention</li> <li>- Less responsive parenting</li> <li>- Recurring thoughts of/pull toward device use during time with child</li> </ul>	Unknown
Emotional awareness of self and child	<ul style="list-style-type: none"> <li>- Difficulty noticing and responding to children's emotions when distracted by device use</li> </ul>	<ul style="list-style-type: none"> <li>- Mobile interventions may help increase awareness of self and child emotions</li> </ul>
Self-regulation in the parent- child relationship	<ul style="list-style-type: none"> <li>- Phone use sometimes tied to reactive, harsh parenting</li> <li>- Passive/problematic device use tied to more parental depression, lower satisfaction, and lower feelings of competence—which may make it more difficult to self-regulate</li> </ul>	<ul style="list-style-type: none"> <li>- Phone use may help parents regulate their emotions and calm down</li> <li>- Device use may help parents stop from overreacting during stressful parenting moments</li> <li>- Social support via device may help with regulation</li> </ul>
Nonjudgmental acceptance of self and child	<ul style="list-style-type: none"> <li>- Social media use via the device may lead to social comparisons and unrealistic expectations of self and child</li> <li>- May be harder for parents to accept their children nonjudgmentally</li> </ul>	<ul style="list-style-type: none"> <li>- More knowledge about the struggles parents and children face may make parents more accepting and reduce judgement of self and child</li> </ul>
Compassion for self and child	<ul style="list-style-type: none"> <li>- Upward social comparisons on social media may lead to less compassion for self and child</li> </ul>	<ul style="list-style-type: none"> <li>- Connecting with others via the device may help parents understand all parents and children may face struggles</li> <li>- Social media may help with the development of empathy</li> </ul>

#### 3.1. Parent Technology Use in the 21st Century

The landscape of technology use among families in the 21st century no longer simply includes the family television, computer, and landline phone. For many families, there is now a plethora of family, parent, and child devices in the home ([Pew Research Center 2017](#)), such as TVs in various rooms such as bedrooms, smartphones, tablets, smart home speakers and screens, laptops, and more. In other words, much of our technology is now mobile, and many individuals express keeping their mobile devices (such as smartphones) with them for much of the day ([Rainie and Zickuhr 2015](#)). As of February 2021, 85% of

U.S. adults owned a smartphone, and if we look at those in the childbearing years (ages 18 to 49), 100% had a cellphone and 95% had a smartphone ([Pew Research Center 2021](#)). This is up from 35% of U.S. adults owning a smartphone in May 2011. In about the same time period, those who own a tablet has grown from 3% in May 2010 to 53% in February 2021. Recent objective smartphone usage data suggests that parents, on average, utilize their smartphone for almost four hours per day (ranging from 0.64 to 14.36 h per day) and pick up and check their device on average 67 times per day (ranging from 24 to 246 times per day; [Yuan et al. 2019](#)). The prevalence of smartphones and the ways in which these devices are embedded in individuals' lives and routines are distinct to the 21st century and, for this reason, are the primary focus of this article.

Mobile devices and associated technology can have important implications for parenting. Parents have expressed using their mobile devices during parenting and the time they spend with their child ([McDaniel and Coyne 2016](#); [McDaniel and Radesky 2018a, 2018b](#)), and these devices can be used by parents for a variety of purposes throughout the day, such as to seek parenting information, to connect with others or seek support, to relieve stress or boredom, and much more ([Radesky et al. 2016](#); [Torres et al. 2021](#); [Wolfers 2021](#)). Therefore, device use has the potential to influence parent well-being, their emotional state, and the quality of parenting in both positive and negative ways (e.g., [Abels et al. 2018](#); [Davidovitch et al. 2018](#); [Hiniker et al. 2015](#); [Kellershohn et al. 2018](#); [McDaniel 2021](#); [Radesky et al. 2014, 2015, 2016](#); [Reed et al. 2017](#); [Torres et al. 2021](#)).

Additionally, although parents have always experienced or engaged with distractors during parenting (e.g., TV use, getting a phone call on the landline, reading the newspaper, cleaning the house), the current technology landscape is unique in that “this is the first time in the history of humanity where we have devices that are connected to almost all parts of our lives and identities and that travel with us (often in our pocket or hand) everywhere we go, from private to public spaces and from individual time to family time” ([McDaniel 2019](#)). For instance, many parents express a growing attachment to their devices, with some going as far as to say they could not live without their phone ([Smith 2015](#)) or expressing anxiety if they have to disconnect or put away their device (e.g., [Cheever et al. 2014](#); [Clayton et al. 2015](#); [King et al. 2013](#)). Some parents also state that they spend too much time on their smartphone ([Jiang 2018](#)), and some research shows that our attention may at times be more absorbed by our mobile devices as compared with other sorts of distractors (e.g., [Abels et al. 2018](#); [Hiniker et al. 2015](#)). This may be due to the affordances offered by the device, which can at times deeply connect to human needs such as the need for connection, fear of missing out, etc. (e.g., [Przybylski et al. 2013](#); [Sbarra et al. 2019](#)), but is also likely due to the persuasive design features which are incorporated into mobile devices as well as their apps ([Eyal 2014](#)). Sometimes, these mobile devices and apps have been designed with the intent to keep our attention or draw us back to more use with notifications and so forth. Additionally, addiction-like tendencies, or at least strong habits and problematic use, may at times form with smartphones and Internet use ([Kwon et al. 2013](#); [Panova and Carbonell 2018](#)). Addiction is not necessary for impacts on parenting to be felt though, as the everyday beeps, buzzes, and notifications of a smartphone—that are often present across the entire day—can easily and unintentionally draw the attention of the parent and interrupt parenting in small ways throughout the day ([McDaniel and Coyne 2016](#); [McDaniel 2019](#)), especially if the parent is not being mindful of their use.

Indeed, parent technology use may be an important determinant of mindful parenting with implications for all five elements, including a parents' ability to listen with full attention; self-regulate their emotions and behaviors; and demonstrate emotional awareness, nonjudgmental acceptance, and compassion of self and child. Yet, although no prior studies have specifically examined technology as a predictor of mindful parenting as assessed by the Interpersonal Mindful Parenting Scale, research on technology and parenting sheds light on some potential associations.



### 3.2. Theory on Technology Use and Mindful Parenting

Belsky's theoretical work on the determinants of parenting (1984) suggests that contextual factors, such as technology, may impact parents' internal resources (e.g., psychological resources) and external resources (e.g., environmental stress and support). Technology may affect parents' internal psychological resources such as their attention, awareness, and psychological well-being; and parents with fewer psychological resources might find it more challenging to mindfully parent. In addition, technology use may affect parents' external resources by facilitating connections with others via social media or other internet sites. Technology may both enhance or deplete parents' resources. Thus, on the one hand, technology use through mobile devices might help parents improve their internal and external resources (Belsky 1984) by helping them regulate their emotions, obtain support, and gain information that may help them develop acceptance and compassion for self and child (e.g., McDaniel 2020b; Radesky et al. 2016; Torres et al. 2021; Wolfers 2021). On the other hand, technology use through mobile devices might deplete parents' resources by creating distractions, limiting attention, and might create stress due to increased levels of social comparison, making it harder to maintain nonjudgement and compassion (e.g., Coyne et al. 2017; McDaniel 2019, 2021; McDaniel and Radesky 2018b). Thus, technology use has the potential to both help and hinder mindful parenting, with positive and negative implications for parents and their children. Below, we discuss how the use of mobile devices may help and/or hinder each of the five elements of mindful parenting.

### 3.3. Listening with Full Attention

Distractions from device use—often referred to as “technoference” (McDaniel and Coyne 2016; McDaniel and Radesky 2018a)—might reduce parents' internal resources by inhibiting a parents' ability to maintain awareness of the present moment and listen to their child with full attention. The research is clear on parent device-use during parent–child interactions or time spent with their child. When the device is used during parent–child time, parents are at least partially distracted, the resulting quality of that interaction is often lower, and child cues and bids for attention are sometimes missed (McDaniel 2019). For example, in a recent experiment, researchers found that when mothers used smartphones during mother–child play they responded to their child less frequently than when they are not on a smartphone; they also engaged in fewer verbalizations and less instructing behaviors (Konrad et al. 2021). Other studies have also shown that infants of parents who are more absorbed in media are less likely to be securely attached (Linder et al. 2021), perhaps because parents on devices have been found to resemble a “still face” with moments of little emotional responsiveness to child cues (Myruski et al. 2018; Stockdale et al. 2020). Some parents express that device-use can make them miss parenting moments and not be as sensitive or responsive to their child (McDaniel 2020b). Indeed, in interviews, parents have expressed finding it difficult to multitask between their phone and their child (Radesky et al. 2016). In other words, device-use can cause a parent's attention to be divided between the device and the child instead of giving their full attention to their child. If this divided attention occurs occasionally, this is less worrisome than if the parents' attention is often absorbed by the device during parent–child time. Research with children and adolescents suggests that adolescents feel more negatively toward interactions they have with their parent when their parent uses a phone, at times even perceiving the parent to be less warm and loving (Kushlev and Dunn 2019; Steiner-Adair and Barker 2013; Stockdale et al. 2018). Thus, parent device use during parent–child time may present a challenge to listening with full attention, making it more likely that a parent would not be as aware of or able to utilize all aspects of the interaction (e.g., tone of voice, facial expression, body language) to mindfully engage with their child and notice and meet their child's current needs. Because they are less present-centered, technology distractions may make parents more likely to rely on past behavior or preconceived ideas about their children.

### 3.4. Emotional Awareness of Self and Child

Not only can device-use during parenting impact parents' ability to listen with full attention, but it also has the potential to affect the awareness parents have regarding their own and their child's emotions. From one perspective, distraction by mobile-phone use may reduce parents' internal cognitive resources and make it more difficult for them to maintain emotional awareness. No research has specifically examined whether parents are less likely to engage in good parenting practices surrounding their child's emotions (e.g., talking about feelings, labeling emotions, validation) specifically in moments they are using a device versus times when they are not using a device. However, a recent study found that mothers' use of mobile devices during a structured eating task was associated with lower levels of caretaker sensitivity, including reductions in a caregiver's ability to recognize and respond to the child's emotional (and physical) needs and experiences (Konrad et al. 2021; Radesky et al. 2018). Social media use and high media absorption has also been associated with more neglectful parenting approaches (e.g., low levels of responsiveness and involvement) as well as less secure attachment in infants, suggesting that it might also impede a parent's ability to be emotionally aware and responsive to their children (Linder et al. 2021; Richter 2018).

From a different perspective, there is the potential for technology to be used as part of parenting programs or interventions to positively impact parents and their emotional awareness. McIsaac (2021) had fathers use their phones to take photos of their child. Then, fathers captioned the photos as if in the child's voice, and results suggested that this intervention assisted fathers with empathy and emotional understanding regarding their child. Although this intervention did not assess mindful parenting per se, its use of a digital device as a means for parent reflection and empathy shows potential for technology to assist parents in heightening their awareness of their child's experiences and emotions. Mobile interventions for mental health services also have the potential to increase the emotional awareness of parents (Donker et al. 2013). Thus, technology has the potential to influence parents' emotional awareness of self and the child in both negative and positive ways.

### 3.5. Self-Regulation in the Parent-Child Relationship

Device use may have mixed impacts on a parent's ability to mindfully self-regulate. On the one hand, device use may help parents improve regulation. For instance, parents express turning to device use when they are feeling down, stressed, and bored (Radesky et al. 2016; Torres et al. 2021; Wolfers 2021)—which, in a sense, indicates its use for the regulation of their emotions. When parents turn to device use during stressful parenting moments, some express that it helps them to calm down so that they do not overreact or yell at their child as well as to see the positives in their child and parenting again (McDaniel 2020b; Torres et al. 2021). Active social media use (e.g., directly connecting with others) may assist the individual (Deters and Mehl 2013; Escobar-Viera et al. 2018) with regulation. Indeed, parents express using their device at times to seek support from others (McDaniel et al. 2012; Radesky et al. 2016; Torres et al. 2021; Wolfers 2021). If used in this way, it is possible that the use could assist the parent with the regulation of their emotions during a stressful parenting situation (McDaniel 2020a)—at least if they receive helpful support from others (Frison and Eggermont 2015).

Yet, there is some evidence that device use may lead to more reactive parenting, making it more difficult for parents to regulate their emotional and behavioral responses to child behavior. As mentioned previously, parental over-absorption in device use or difficulty disconnecting one's thoughts from the device at times leads to distraction and a deterioration in parenting (Konrad et al. 2021; McDaniel 2019, 2021). Some research even suggests that parents can at times struggle with responding more harshly to their child when the parent is on a device (Radesky et al. 2014), likely due to the stretching of their cognitive resources and feelings of being torn from the task they may have been engaged in on their device (e.g., work-related task, reading or composing an email or text message). McDaniel (2021) found that parents who express more difficulty with thinking

about and staying away from device use during parent–child time are also more likely to show overreactive parenting. Furthermore, passive social media use (e.g., scrolling with no real purpose or direct interaction with others) and avoidance of stress via device use has sometimes been linked to experiencing greater depressive symptoms, lower life satisfaction, and less parental competence (Escobar-Viera et al. 2018; Van Ingen et al. 2016; Verduyn et al. 2015, 2017)—thus, passive use may make it more difficult for parents to regulate their emotions and behaviors. Furthermore, while on the device (regardless of type of use), parents might be exposed to social comparisons, negative information, or a lack of response or negative responses to their social media posts or pleas, all of which can lead to further negative emotions (Coyne et al. 2017; Moujaes and Verrier 2021; Sidani et al. 2020; Strange et al. 2018). Clearly, device use can be a double-edged sword when it comes to the self-regulation element of mindful parenting.

### *3.6. Nonjudgmental Acceptance of and Compassion for Self and Child*

Device use does not always influence the judgments parents make about themselves and their child. However, there are times that it can. Exposure to other parents' posts on social media may lead to comparisons between themselves and their child with what is posted by other parents on social media. These social comparisons may lead them to feel worse about themselves, their parenting, or their child, as they are not measuring up to the happy lives they see online or that other parents are posting (Coyne et al. 2017; Damkjaer 2018; Moujaes and Verrier 2021; Sidani et al. 2020; Strange et al. 2018). In other words, their device use can influence the attributions, expectations, and subconscious judgments they have concerning their child. These expectations, especially if made through comparison to others, might inhibit nonjudgmental acceptance of the self and child.

On the contrary, if parents use the internet to gain information about their child or an experience their child is having, parents may become more understanding and accepting of their child (Moon et al. 2019). Additionally, if parents are part of accepting, nonjudgmental, and supportive groups or sites online, parents can feel supported, understood, empowered, and perhaps more accepting of themselves and their child (Amaro et al. 2019; Coyne et al. 2022; Damkjaer 2018). Connecting with others via internet groups may also help parents realize that all parents and children experience struggles. Such social connections via their devices may help parents to develop compassion and empathy towards themselves and their children, as they realize they are part of a broader human experience (Neff 2003). Although studies have not specifically examined whether device use affects parents' empathy and compassion, studies on adolescents have found some evidence that social media use can be associated with greater affective empathy (sharing feelings with others) and, to a lesser extent, cognitive empathy (understanding others; Guan et al. 2019; Errasti et al. 2017; Frison and Eggermont 2015; Alloway et al. 2014; Vossen and Valkenburg 2016). A recent study found that mothers who use social media during breastfeeding report that it helps them to connect with others and cope with difficulties in feeding (Coyne et al. 2022). Additionally, talking with a friend, family member, or therapist via technology (e.g., text, phone call, video call) could help the parent to become more compassionate and forgiving of themselves.

## **4. Conclusions and Future Directions for Exploring the Intersection of Mindful Parenting and Technology**

As family researchers continue their work in the 21st century, it is critical to examine how emergent technological contexts might intersect with and shape parenting. Interestingly, as technology has become more embedded in our lives, there has been growing interest in understanding how it impacts ourselves, our relationships, and our parenting. In parallel, perhaps related to this increase in technology and mobile-device use, there has been a surge of interest in mindfulness and in mindful parenting. Although neither a systematic nor exhaustive review, this conceptual paper examined how technology might impact mindful parenting. Given the distractions and pressures technology use can produce, how can

parents stay fully engaged and attentive in the present moment with their children? With a world full of stimulation, how can we use tenants of mindful parenting—increased awareness of thoughts and feelings, compassion, self-regulation in the parent-child relationship, nonjudgmental acceptance—to consciously and intentionally parent?

Mindful parenting research has yielded growing evidence of promoting parent and child well-being. The extent to which parents are able to listen with full attention, self-regulate, and demonstrate emotional awareness, nonjudgmental acceptance, and compassion of self and child, the more likely parents and their children will experience well-being (Duncan et al. 2009; Lippold and Duncan 2018; Townshend 2016a; Townshend et al. 2016b). Yet, mobile-device use has the potential to both inhibit and help parents engage in mindful parenting. On the one hand, device use may deplete parents' psychological resources (Belsky 1984), create distractions, reduce responsiveness, and reduce parental awareness of emotions, acceptance, and compassion (e.g., Coyne et al. 2017; McDaniel 2019, 2021; McDaniel and Radesky 2018b; Myruski et al. 2018; Stockdale et al. 2020). On the other hand, device use has the potential to help parents self-regulate their emotions and to connect with others who might help them develop empathy and compassion and realize that all parents and children face challenges (e.g., McDaniel 2020b; Radesky et al. 2016; Torres et al. 2021; Wolfers 2021). Thus, technology use has the potential to operate as both a positive and negative force with respect to mindful parenting—at times, technology use might even exert both types of forces simultaneously.

Moving forward, more studies are needed to understand the complex relationships between technology and mindful parenting and identify the conditions under which it promotes or hinders mindful parenting. Such investigation would be aided through the use of daily and momentary assessments that can examine how technology use affects parent emotions, cognitions, and awareness (i.e., mindful parenting) “in the moment”. Whereas studies reviewed here suggest that technology use may positively or negatively affect many aspects of mindful parenting, extant studies do not have the fine-grained measures needed to assess the underlying cognitive and affective processes central to theories undergirding mindful parenting. For example, theory on mindful parenting suggests that regulation may help parents pause, interrupt automatic thoughts and cognitions, and respond intentionally to child behavior (Duncan et al. 2009). Studies that integrate technology use, behaviors indicative of mindful parenting, and underlying affective and cognitive processes would enhance our understanding of how technology use and mindful parenting may affect one another. Importantly, the relationship between technology use and mindful parenting is likely bidirectional and dynamic and it may differ developmentally based on the age of the child.

Additional studies are needed to identify specific smartphone uses and their relationships with mindful parenting. For example, parents use their smartphone for many things, such as to gather information, to socially connect, and to search for information, among other uses. Which of these uses promotes mindful parenting? How? In what contexts does it do so and in what contexts does it hinder mindful parenting? For example, night-time device use may lead to more exhaustion and reduce parent cognitive and psychological resources, making it more difficult to mindfully parent the next day (McDaniel et al. 2021), whereas device use during specific times, such as during infant feeding, may have positive benefits for parenting at other times throughout the day (Coyne et al. 2022). Studies that examine the specific uses and contexts of device use will help the field identify ways that technology use may be positive, and also identify when technology use may hinder one's ability to engage in mindful parenting. This knowledge is critical for developing interventions that teach parents the most effective ways to utilize technology in a positive way, as well as understanding the ways that interventions can help parents interrupt negative technology use. Such studies would also provide guidance to parents about when and how to best use technology that enhances, rather than detracts from, mindful parenting.

Additionally, technology may create platforms and opportunities for parents to learn mindful parenting. Are there ways that mobile devices can help parents become more



self-aware, present, and mindful in their parenting? Can mobile device applications and interventions help parents gain skills and provide parents guidance to enhance mindful parenting? Technology use has the potential to help parents in the moment become more aware of their thoughts and emotions. Perhaps technology can even be used to cultivate key aspects of mindful parenting, such as increasing regulation and present-centered awareness of self and child as well as compassion and acceptance. Interventions may also assist parents in becoming more aware of when and how they are using their smartphones, and to more consciously and intentionally use technology to assist them in parenting. Although numerous mindful parenting apps are available, it is unclear how many of them are based in research on mindful parenting. For example, studies have found that many commercial individual mindfulness apps do not include training and education in mindfulness, few are evidence-based, and little is known about their effectiveness (Mani et al. 2015; Schultchen et al. 2020). Studies are needed that more closely examine existing mindful parenting apps, that study how they map onto mindful parenting research and whether they have demonstrable impacts on parent and child well-being. Adapting existing mindful parenting interventions to real-time interventions or creating new in-the-moment mindful parenting interventions have the potential to expand mindful parenting skills, with positive implications for parents and their children.

Furthermore, prior studies on technology use and mindful parenting have been limited in their focus on parenting and the parents' experiences. Yet, parents are in dynamic relationships with their children, and transactional processes are at play (Sameroff 2010). For example, parents may withdraw into their own device use and have their children use devices more often when parents are stressed (McDaniel and Radesky 2018b, 2020; Nabi and Krcmar 2016; Nikken and Schols 2015; Pempek and McDaniel 2016), negative child behavior can lead to parenting stress (McDaniel and Radesky 2020), and greater device use by children and by parents can sometimes lead to worse child behavior and greater conflict and parenting stress over time (Beyens and Beullens 2017; Domoff et al. 2019; Matthes et al. 2021; McDaniel and Radesky 2018b, 2020). It is likely a complex bidirectional and transactional process. Children themselves, especially adolescents, also engage with their own devices (e.g., Jiang 2018; Matthes et al. 2021; Stockdale et al. 2018). For example, a recent report indicated that 54% of teens feel they spend too much time on their smartphones (Jiang 2018). Children's device use can also impact parent and child feelings and experiences in the moment (e.g., Hiniker et al. 2016; Jiang 2018; Stockdale et al. 2018). More studies are needed that integrate the child's experiences into the intersection of technology use and mindful parenting.

#### *4.1. Implications for Parenting in the 21st Century*

Growing evidence suggests that mindful parenting can have positive benefits for children and parents. Yet, how can parents engage more mindfully with their children in the presence of increased technological distractions? Although the research in this area is still evolving, existing studies offer guidance. First, it may be important to create periods of time away from mobile devices, where parents can engage with their child with fewer distractions. Even small amounts of time away from phones may help parents listen with full attention and more mindfully connect with their children. Time away from phones may allow parents to develop a greater awareness of their child's experiences and to engender deeper empathy, understanding and compassion. Second, when parents are using their phone, it may be helpful to periodically pause to assess why they are using their phone and whether phone use is enhancing or detracting from their well-being and ability to mindfully parent. As reviewed, mobile device use can have both positive and negative effects on mindful parenting. Increased parental awareness may help parents identify times when technology is beneficial versus times it might hinder effective parenting. For example, parental awareness can help parents notice when phone use helps them calm down and feel less stressed versus times when it increases frustration, guilt, and stress. Similarly, awareness can help parents discern when phone use helps them to obtain social support and



connection versus times when it leads to more social comparisons and reduces feelings of competence. Parents' own awareness is an important step in knowing when—and how—to use their phone to improve their well-being and engage in more mindful parenting.

#### 4.2. Conclusions

As we consider the unique processes of parenting in the 21st century, the study of both mindful parenting and technology use are relatively new developments. Studies have shown that technology has the potential to both enhance and hinder mindful parenting. On the positive side, parent technology use may help parents gain empathy and develop compassion for themselves and their child, regulate their emotions, and connect to supportive individuals via social media and other internet sites. On the negative side, parent technology use may create distractions that make it challenging to be present-centered, listen with full attention, and calmly and intentionally respond to child behavior. Furthermore, technology use can lead to social comparisons that can inhibit compassion and acceptance. Studies that expand on both of these areas separately—and that examine their overlap—have the potential to increase our knowledge about how to effectively parent and promote child well-being in an increasingly technology filled world. By doing so, we can build interventions and strategies to help parents use technology in ways that may make them more mindful parents.

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