

What Motivates Parents to Mediate Children's Use of Smartphones? An Application of the Theory of Planned Behavior

Wonsun Shin and Hye Kyung Kim

Applying the Theory of Planned Behavior (TPB), this study examines parents' attitudes, social norms, self-efficacy, and intentions regarding parental mediation of children's smartphone use. A survey conducted with parents of young smartphone users aged 10–17 shows that parents tend to perceive discussion-based active mediation to be more desirable, as compared to rule-making restrictive mediation. Findings also indicate that the extent to which parents believe that they have control over their parental mediation practices plays an important role in forming positive intentions to practice parental mediation, regardless of the mediation domain.

Today's children are active smartphone users. In the U.S., 73% of children aged 13–17 have access to a smartphone (Pew Research Center, 2015). Children aged 8–12 spend 48 minutes per day on smartphones, and the amount of time spent on smartphones increases to 2 hours and 42 minutes when they reach adolescence (Common Sense Media, 2015). According to Nielsen (2017), the top mobile activities among children aged 6–12 are text messaging (81%) and app downloading (59%), followed by pre-installed game playing (53%), Internet use (53%), and video calling (46%).

Smartphones are personal and portable devices. Children can use smartphones anywhere and at any time, which increases the challenges that parents face when supervising their children's use of smartphones, compared to other types of media. Heavy use of smartphones can expose children to various risks, including accidental or intentional exposure to child-inappropriate content, cyberbullying, and privacy invasion (Stald et al., 2014). For this reasons, some parents are highly concerned about their children's use of smartphones (Ofcom, 2017);

Wonsun Shin (Ph.D. University of Minnesota) is a senior lecturer at the School of Culture and Communication, The University of Melbourne. Her research interests include digital media and youth, parental mediation, consumer socialization, and marketing communications.

Hye Kyung Kim (Ph.D. Cornell University) is an assistant professor at the Wee Kim Wee School of Communication and Information, Nanyang Technological University. Her research interests include health and risk communication and persuasion theory.

they discuss smartphone-related issues with their children (Dudley-Nicholson, 2018) or regulate children's smartphone use (Lim, 2016).

Research suggests that children's exposure to media can influence their attitudes and behaviors, but that these media effects can be mediated by the degree to which parents engage in media supervision and regulation (Collier et al., 2016). Prior studies on parental mediation of children's smartphone use have focused heavily on smartphone addiction (e.g., Hwang, Choi, Yum, & Jeong, 2017; Hwang & Jeong, 2015; Lee, Lee, & Lee, 2016). This study focuses on parental mediation of the risks associated with children's smartphone use. Specifically, the study investigates psychological factors that motivate parents to engage in parental mediation of children's smartphone use.

Parental Mediation

Parental mediation refers to a set of strategies that parents employ to control, monitor, and supervise their children's media use (Warren, 2001). This study focuses on two general approaches to studying mediation of children's media use: active mediation and restrictive mediation. *Active mediation* refers to parents discussing appropriate media consumption behavior with their children. *Restrictive mediation* refers to parents setting rules to control or limit children's media usage. Our study does not examine co-use mediation (i.e., parents sharing media with their children) because shared media experience is less likely to take place with personal media like smartphones (Hwang & Jeong, 2015).

Although both active and restrictive mediation can reduce negative media influence on children (Collier et al., 2016), research suggests that not all parents implement the same levels and types of parental mediation (Shin & Li, 2017). Thus, scholars have examined various determinants of different parental mediation strategies (e.g., Hoffner & Buchanan, 2002; Warren, 2003; Youn, 2008). Prior research, however, has predominantly focused on background (e.g., demographic characteristics or family communication patterns) and media-related perception factors (e.g., perceived influence of media on children). Still missing from this stream of research is a careful examination of the role that psychological and motivational factors play, despite their potential utility in designing effective intervention strategies to promote appropriate parental mediation behaviors.

Hwang and Jeong (2015) discovered that parents' smartphone addiction levels, risk perceptions, and several Big Five personality traits (i.e., openness, neuroticism, and agreeableness) predicted parental mediation regarding children's smartphone addiction. Another study conducted by Hwang et al. (2017) found that parents' engagement in smartphone mediation was predicted by their perceptions of the severity of smartphone addiction and efficacy. The present study examines parental mediation of a broader range of risks encompassing safety, content, and privacy, guided by one of the most widely used behavioral prediction models—the Theory of Planned Behavior (TPB).

Theory of Planned Behavior

The Theory of Planned Behavior (TPB) is an extension of the Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980), which theorizes an intention to perform a behavior as the most proximal predictor of the actual performance of that behavior. The TPB has been one of the most influential theories for identifying key beliefs underlying behaviors across different contexts. According to TPB, three major psychological factors determine intentions to perform a behavior: attitude toward the behavior, injunctive norms related to the behavior, and self-efficacy (or perceived behavioral control) to perform the behavior (Ajzen, 1991).

Attitude refers to the extent to which an individual has a favorable or unfavorable evaluation of a behavior. When individuals evaluate a behavior positively, they are more likely to intend to engage in the behavior because people prefer to maintain consistency between their beliefs and behaviors (Fishbein & Ajzen, 2011). In this sense, intentions to engage in a parental mediation are likely to increase to the extent a parent has a positive attitude toward the behavior.

Injunctive norms refer to social pressures that an individual perceives from significant referents—or key individuals—regarding the performance of a behavior. This involves perceptions about whether those figures morally approve or disapprove of an individual's behavioral choices. On the other hand, *descriptive norms* refer to perceptions of what is deemed typical or normal among others. Because theorists of TRA/TPB have added descriptive norms to their recent models (Fishbein & Ajzen, 2011), we address both injunctive and descriptive norms in this study and broadly refer to them as *social norms*. As people tend to fear being rejected by their social groups (Prentice & Miller, 1993), supportive social norms are likely to increase parents' intentions to engage in parental mediations. In the context of children's smartphone use, important referents could include a spouse or friends who have children, or even the parent's own child. Children's approval of parental mediation is likely to have a different influence on parents' intentions to engage in mediation, compared to those of a spouse or friends. We thus treat the former (children's approval) and the latter (spouse and friends' approval) separately and compare their roles in predicting intentions to engage in parental mediation.

Self-efficacy refers to perceptions about one's own capability to exercise control over behavioral performance (Bandura, 1997); it has been used interchangeably with perceived behavioral control (PBC) in TPB (Ajzen, 1991). The more control parents perceive themselves to have over parental mediation, the more likely it is that they will intend to engage in parental mediation.

A few studies have examined TPB variables in the context of children's media use and parental mediation. Cingel and Krcmar (2013) found that parents' beliefs about the benefits and injunctive norms regarding their children's media use were positively associated with their decision to expose their children to media. Focusing particularly on parents' attitudes toward active and restrictive mediation, Rasmussen, White, King, Holiday, and Densley (2016) demonstrated that parents

with positive attitudes toward active and restrictive mediation of children's media use in general were more likely to implement active and restrictive mediation of television viewing. In the context of children's social media use, Krcmar and Cingel (2016) showed that parents' attitudes, injunctive norms, and perceived behavioral control regarding the regulation of children's social media use were positively associated with their involvement in active, restrictive, and co-use mediation of their children's social media use.

These prior studies demonstrate the utility of TPB as a theoretical framework for parental mediation research. The application of the TPB model is somewhat limited in those studies, however, especially in terms of the inclusiveness of theoretical constructs and the consistency of behavior targets across measures, both of which are critical to the theory's application (Fishbein & Ajzen, 2011). Specifically, Cingel and Krcmar's (2013) study did not assess parents' attitudes or perceptions regarding their parental mediation *behaviors* in predicting parents' engagement in parental mediation. Rasmussen et al. (2016) did not include perceived norms and self-efficacy as predictors of parental mediation. Krcmar and Cingel (2016) examined parents' attitudes, perceived norms, and self-efficacy regarding restrictive mediation (i.e., controlling children's social media use) to gauge their impact on both active and co-use mediation. Addressing the limitations of their research, Krcmar and Cingel (2016) argued that future research should examine "the entirety of the TPB model as it relates to mediation" (p. 259). Our study aims to address those shortcomings by investigating all of the components of TPB and by keeping the behavior target consistent across measures regarding both active and restrictive mediation.

Studies have shown active mediation to be more effective than other forms of mediation, notably in inducing critical orientations toward media messages and mitigating negative media influences on children (Lee et al., 2016; Youn, 2008). Much less is known, however, regarding parents' attitudes toward, perceptions of, and engagement in different types of parental mediation. One possibility is that parents deem active mediation to be more desirable than restrictive mediation, because the former involves parent-child reciprocal discussions without restricting children's freedom to use media (Shin, 2015).

Similarly, parents may be more likely to believe that their significant referents, particularly their own children, would approve of their engagement in active mediation and that active mediation is more typical than restrictive mediation among other parents. Because children can use their personal devices any time and anywhere without parents' presence, restrictive mediation may be a less viable option for the parents in dealing with their children's smartphone use. If active mediation is considered more desirable, normative, and viable—as compared to restrictive mediation—parents should report more positive attitudes toward, supportive social norms about, and greater self-efficacy in active mediation. This would collectively lead to greater intentions to engage in active mediation (Fishbein & Ajzen, 2011). Thus, we predict that:

H₁: The levels of parental mediation attitude, social norms, self-efficacy, and intention will be greater for active mediation than for restrictive mediation.

The TPB has been tested for its predictive utility in a variety of contexts, from health-related behaviors (Andrews, Silk, & Eneli, 2010) to pro-social behaviors (van der Linden, 2011) and to environmental behaviors (Koger & Winter, 2010), to name a few. In meta-analytic studies, 27% to 39% of the variance in behavioral intentions is explained by attitude, injunctive norms, and self-efficacy (PBC), while descriptive norms account for an additional 5% (Armitage & Conner, 2001; Ravis & Sheeran, 2003).

The relative strength of the TPB components as predictors of behavioral intention is thought to differ by the behavior and the population under investigation (Fishbein & Yzer, 2003). Scholars have thus emphasized the need to understand the nature of the behavior of interest in order to understand the relative importance of psychosocial factors in predicting intentions (Johnston & Dixon, 2008; Kim, Kim, & Niederdeppe, 2015). In a recent study, the relative strength of the TPB components differed across the types of parental mediation (Krcmar & Cingel, 2016). Notably, this study found that American parents' active mediation was determined primarily by self-efficacy in and attitude toward parent control of children's social media use, whereas an injunctive norm about control was the only factor associated with restrictive mediation. Building on this line of work, we attempt to identify psychological factors that motivate engagement in active and restrictive mediation, using measures more compatible with the behavior target. Based on the premise of the TPB (Ajzen, 1991), we expect that positive attitude, supportive social norms, and higher self-efficacy would collectively lead to greater intentions to engage in parental mediation, although the strength of the associations may vary by the type of parental mediation.

H₂: Parents' attitude, social norms, and self-efficacy regarding active and restrictive parental mediation will be positively associated with their intention to engage in each corresponding mediation.

Method

Sample and Procedure

An online survey was conducted with parents of young smartphone users in the United States. The sample of parents was drawn from Qualtrics' online panel of adults identified as parents who were at least 30 years old and resided in the United States. Qualtrics invited selected panelists to participate in our survey via an email invitation that included the URL to the survey questionnaire and instructions. A total of 509 individuals accessed the survey site to participate and answered two screening questions: (1) whether the participant is a parent of at least one child aged 10 to 17, and (2) whether the participant's child uses a smartphone. They were then randomly

asked to think about either their youngest or oldest child—when answering the survey questions—if they had more than one child who used a smartphone and whose age was 10–17. Out of 509 individuals who accessed the survey site, 60% ($N = 304$) were eligible to participate, and 303 participants completed the survey.

The pool of respondents was 69.6% female, 76.2% Caucasian/White, with an average age of 41 ($SD = 8.79$). 42.2% had at least a Bachelor's degree, and the median annual household income fell in the \$50,000–\$74,999 range. Ninety-five percent of respondents reported that their child uses his or her own smartphone, while 5% stated that their child borrows and uses a family member's smartphone. Using the U.S. Census data as a reference (<http://www.census.gov>), the profile of our parent sample is similar to that of the U.S. population in terms of ethnicity (White = 76.9%) and income (median household income = \$55,322), though our respondents had a higher average level of education than the general population (Bachelor's degree or higher = 30.3%). Table 1 presents demographic characteristics of the survey respondents.

Measures

This study examined parental mediation of a broad range of risks, guided by the TPB. We measured six categories of parental mediation practices, focusing on two types of parental mediation (active and restrictive) encompassing three types of risks (safety, content, and privacy). Specifically, three categories addressed active mediation, on safety ("explain to the child how to use a smartphone safely"), on content ("explain to the child why some mobile apps and contents are suitable or unsuitable for his/her age"), and on privacy ("explain to the child how to protect personal information s/he can share or give out on a smartphone"). The other three assessed restrictive mediation regarding safety ("prevent the child from talking to or chatting with strangers on a smartphone"), content ("limit the types of mobile apps that the child can use or websites s/he can visit on a smartphone"), and privacy ("limit the types of personal information that the child can share or give out on a smartphone").

For each type of parental mediation across three types of risks (safety, content, and privacy), five TPB variables were measured, following procedures and question wordings recommended by the theoreticians of TPB (Fishbein & Ajzen, 2011). Intention to engage in parental mediation was measured by asking how likely the respondents were to implement each of the six parental mediation practices (e.g., "In the next few years, how likely is that you will explain to your child why some mobile apps and contents are suitable or unsuitable for his/her age?"), on 5-point scales anchored on *extremely unlikely* (1) to *extremely likely* (5). Attitude was measured by asking how respondents feel about each of the six parental mediation practices (e.g., "How do you feel about explaining to your child why some mobile apps and contents are suitable or unsuitable for his/her age?"), on 5-point scales, anchored on *negative* (1) to *positive* (5).

Table 1
Sample Characteristics (N = 303)

		n	%
Gender	Male	90	29.7
	Female	211	69.6
	Other	2	0.7
Ethnicity	African American/Black	27	8.9
	Asian/Pacific Islander	13	4.3
	Caucasian/White	231	76.2
	Hispanic/Latino	20	6.6
	Native American/American Indian	2	0.7
	Other	10	3.3
Education	Did not complete high school	4	1.3
	High school/GED	67	22.4
	Some college	103	34.0
	Bachelor's degree	94	31.0
	Master's degree	24	7.9
	Advanced graduate work or PhD	10	3.3
	Prefer not to answer	1	0.3
Annual household income	Under \$25,000	31	10.2
	\$25,000–\$49,999	78	25.7
	\$50,000–\$74,999	84	27.7
	\$75,000–\$99,999	56	18.5
	\$100,000–\$124,999	22	7.3
	\$125,000–\$149,000	12	4.0
	\$150,000 and over	12	4.0
	Prefer not to answer	8	2.6

Injunctive norm was measured by asking how three different referent groups (child, spouse/partner, and close friends) would feel about their engagement in each of the six parental mediation practices. The items used 5-point scales, with 1 being *strongly disapprove* and 5 being *strongly approve*. Descriptive norm was measured by asking how often the respondents think “a typical parent of an individual your child’s age” engages in each of the six parental mediation practices. Each item was measured on a 5-point scale, anchored on *never* (1) to *all the time* (5). Finally, self-efficacy was measured by asking how much control the respondents believed they had over each of the six parental mediation practices. The items used 5-point scales with responses ranging from *no control* (1) to *complete control* (5).

Injunctive norms regarding spouses and friends were combined, as they were highly correlated (active, $r = .65$; restrictive, $r = .64$, both $p < .001$) and the results did not differ between the two referents. Further, the results did not change between the combined and separated variables. Table 2 displays the descriptive statistics for the measurements used in this study.

Table 2
Descriptive Statistics of Parental Mediation Behaviors

	Active mediation				Restrictive mediation			
	Composite	Safety	Content	Privacy	Composite	Safety	Content	Privacy
Intention	4.08*** (1.06)	4.05 (1.14)	4.03 (1.17)	4.16 (1.04)	3.91 (1.18)	3.98 (1.21)	3.84 (1.25)	3.92 (1.21)
Attitude	4.52* (0.66)	4.55 (0.69)	4.45 (0.76)	4.55 (0.71)	4.43 (0.80)	4.48 (0.83)	4.36 (0.89)	4.46 (0.86)
Injunctive norm (your child)	4.03*** (0.93)	4.00 (1.00)	3.93 (1.03)	4.15 (0.98)	3.65 (1.12)	3.83 (1.17)	3.47 (1.29)	3.66 (1.19)
Injunctive norm (spouse + friend)	4.48 (0.72)	4.46 (0.73)	4.46 (0.77)	4.52 (0.75)	4.43 (0.75)	4.49 (0.81)	4.40 (0.81)	4.41 (0.79)
Descriptive norm (typical parents)	3.59* (1.12)	3.59 (1.09)	3.51 (1.09)	3.66 (1.10)	3.71 (0.99)	3.80 (1.08)	3.59 (1.04)	3.74 (1.05)
Self-efficacy	4.25*** (0.84)	4.32 (0.85)	4.19 (0.96)	4.25 (0.89)	4.02 (0.96)	3.99 (1.07)	4.05 (1.02)	4.05 (1.02)

Note. All measures are based on a 5-point scale. Cells represent the mean value and standard deviation.

* $p < .05$, *** $p < .001$ for the t-test results comparing between active and restrictive mediation.

Results

Mean Comparison between Types of Parental Mediation

Scholars have emphasized the importance of understanding the nature of similarities and differences amongst behaviors by grouping them into higher-level categories (Johnston & Dixon, 2008). Active versus restrictive parental mediation is likely to be an important category, as they differ critically by the extent to which parents accommodate children's opinions in mediating their smartphone usage. Thus, to examine whether parents have different levels of attitudes, social norms, self-efficacy patterns, and intentions—depending on the type of mediation behaviors, we created composite scores of active and restrictive mediation for TPB constructs. These composite scores ($\alpha > .90$ for all) were generated by averaging three risk items (safety, content, and privacy) for each construct under active and restrictive mediation, after assessing each construct's internal reliability (using a Cronbach's alpha) and ensuring that the measures tapped on the same central concept. We then compared the composite scores of TPB constructs between active and restrictive parental mediation.

A series of paired-samples *t*-tests show that respondents were significantly more intending to engage in active mediation ($M = 4.08$, $SD = 1.06$, $\alpha = .94$) than restrictive mediation ($M = 3.91$, $SD = 1.18$, $\alpha = .96$), $t(302) = 3.88$, $p < .001$. Consistent patterns were found on attitude and self-efficacy, $t(302) = 2.08$, $p = .04$; $t(302) = 4.98$, $p < .001$, respectively: (a) attitude toward active mediation was more positive ($M = 4.52$, $SD = .66$, $\alpha = .90$) than restrictive mediation ($M = 4.43$, $SD = .80$, $\alpha = .92$) and (b) respondents were more confident in performing active mediation ($M = 4.25$, $SD = .84$, $\alpha = .92$) than restrictive mediation ($M = 4.02$, $SD = .96$, $\alpha = .92$).

However, in regards to perceived descriptive norm, parents believed that other parents were significantly more engaged in restrictive mediation ($M = 3.71$, $SD = .99$, $\alpha = .93$) than active mediation ($M = 3.59$, $SD = 1.12$, $\alpha = .93$), $t(302) = -2.47$, $p < .05$. In terms of perceived injunctive norm, parents also perceived that their children were more supportive of active mediation ($M = 4.03$, $SD = .93$, $\alpha = .92$) than restrictive mediation ($M = 3.65$, $SD = 1.12$, $\alpha = .91$), $t(302) = 8.11$, $p < .001$. Perceived injunctive norms of spouses and friends did not differ between the two types of mediation styles.

Taken together, the findings provided partial support for H_1 . As predicted, the levels of attitudes, self-efficacy, and intentions regarding parental mediation of children's smartphone use were greater for active mediation than for restrictive mediation. However, the data revealed mixed results for perceived social norms.

Predictive Utility of TPB by the Type of Parental Mediation

To investigate how the TPB components predict parents' intentions to engage in parental mediation, we used stepwise ordinary least squares (OLS) regressions. At Step

1, we entered demographic factors (parent and child's age, parent education level, and parent ethnicity). At Step 2, we entered TPB constructs, including attitude, injunctive norms (separately by referents), descriptive norms, and self-efficacy. Consistent with the analytic approach of H_1 , we ran separate models with the composite scores of active and restrictive mediation. Table 3 reports these results. To statistically test the relative strength of the TPB predictors, we estimated their corresponding 95% confidence intervals with bias corrected bootstrap (1,000 re-samples). The standardized beta weights would be statistically different from each other ($p < .05$) when the confidence intervals overlap by less than 50% (Cumming, 2009).

At Step 1, parent's age ($\beta_{\text{active}} = -.15, p < .05$; $\beta_{\text{restrictive}} = -.23, p < .001$) and child's age ($\beta_{\text{active}} = -.23, \beta_{\text{restrictive}} = -.26$, both $p < .001$) were significant predictors of both active and restrictive mediations. Demographic factors explained 11% of the variance in active mediation and 17% in restrictive mediation.

Step 2 of the active mediation model explained an additional 31% of the variance in intentions to engage in active mediation. For active mediation, self-efficacy ($\beta = .29, p < .001$) and descriptive norm ($\beta = .11, p < .05$) as well as injunctive norm with reference to one's own child ($\beta = .17, p < .01$) and a spouse and friends ($\beta = .12, p < .05$) were significant predictors of mediation intentions, but their relative strength did not statistically differ. Attitude was not a significant predictor of intentions to actively mediate risks ($\beta = .11, p > .05$). Additional analysis indicates significant interactions between ethnicity and attitudes toward both active and restrictive mediation ($B = .49, p < .05$; $B = -.46, p < .05$, respectively). For active

Table 3
Hierarchical Regressions to Predict Parental Mediation Intentions

	Active mediation	Restrictive mediation
Step 1: Demographic factors		
Parent age	-.15*	-.23***
Parent education	.04	-.02
Parent ethnicity (1 = White; 2 = Others)	-.02	-.02
Child age	-.23***	-.26***
Step 2: TPB factors		
Attitude	.11	.19**
Injunctive norm (your child)	.17**	.09
Injunctive norm (spouse + friend)	.12*	.08
Descriptive norm (typical parents)	.11*	.11*
Self-efficacy	.29***	.36***
Step1 R^2	.11	.17
Step 2 R^2 change	.31	.36

Note. Standardized coefficients.

All Model F and F change significant at $p < .001$ level. * $p < .05$, ** $p < .01$, *** $p < .001$.

mediation, the attitude-intention relationship was stronger among non-White respondents; the opposite pattern was found for restrictive mediation. The lack of the effect of attitude on active mediation intention may be attributed to this ethnic difference as the majority of our respondents were White Americans.

TPB constructs explained 36% of the variance in intentions to engage in restrictive mediation. Self-efficacy ($\beta = .36, p < .001$), attitude ($\beta = .19, p < .01$) and descriptive norm ($\beta = .11, p < .05$) emerged as significant predictors of restrictive mediation intentions. Self-efficacy was a statistically stronger predictor than descriptive norm, but not in comparison to attitude. The upper bound estimate of descriptive norm (.22) was smaller than half of the average of the overlapping CIs added to the self-efficacy's lower bound estimate (.33) ($p < .05$). Injunctive norm was not a significant predictor of intentions in reference to either one's own child ($\beta = .09, p = .052$) or a spouse and friends ($\beta = .08, p = .11$).

Collectively, we found partial support for H₂. Self-efficacy was a significant predictor for both active and restrictive mediation intentions. Self-efficacy was a statistically stronger predictor of restrictive mediation intention than was descriptive norm. Active mediation was not predicted by attitude, and restrictive mediation was not driven by injunctive norms, both of which represent departures from the TPB predictions.

Discussion

This study set out to offer a better understanding of the psychosocial and motivational factors that guide the intention to employ active and restrictive parental mediations to mitigate risks related to children's use of smartphones. We first investigated whether parents' attitudes, social norms, self-efficacy, and intentions differ by the types of mediation behaviors in which they engage. We further investigated the extent to which the TPB components explain parents' intentions to engage in different forms of parental mediation.

Our findings suggest that parents perceive active mediation to be more desirable than restrictive mediation. In keeping with a greater intention to engage in active mediation (vs. restrictive), parents had a more favorable attitude toward active mediation than restrictive mediation. They also tended to believe that they had greater control over active mediation and that their children were more supportive of their engagement in active mediation, compared to restrictive mediation.

According to the theory of psychological reactance (Brehm, 1966), one rejects or moves away from a persuasive message if s/he feels that the message threatens or attempts to reduce personal freedom. Smartphone use is often considered a personal domain and smartphones have become indispensable parts of children's lives. Thus, children may view restrictive mediation—which centers around rules to control children's smartphone use—as a threat to their personal freedom, resulting

in resistance to parent's interventions. Even for less personal media like television, restrictive mediation can cause negative feelings toward parents. For instance, Nathanson (2002) found a negative association between parents' restriction of objectionable content on television and adolescents' favorable attitudes toward their parents. Parents in our sample seem to acknowledge that, believing that their children would be more approving of active mediation than of restrictive mediation. Due to possible conflicts with their children, parents may evaluate active mediation more positively than restrictive mediation.

Interestingly, parents in our study estimated that other parents were more likely to engage in restrictive mediation than active mediation. Considering that parents showed more favorable attitudes toward active mediation than restrictive mediation, the result may imply that parents think that other parents tend to engage in a less desirable form of parental intervention (i.e., restrictive mediation). The observed pattern could be attributable in part to third-person perceptions (Davison, 1983), as parents may believe that smartphone use has a more negative impact on others' children than on their own, thereby implying that other parents require more strict interventions like restrictive mediation. People tend to view both themselves and close others (like their own children) in a more positive light than distant others (Regan, Snyder, & Kassir, 1995). Moreover, prior research has shown that the tendency toward self-enhancement applies to parents' beliefs about negative media influences on their own children compared to the children of others (Hoffner & Buchanan, 2002).

To identify key motivational factors, we also examined the relationships between the TPB components and parents' intentions to engage in active and restrictive mediation. Self-efficacy emerged as a consistent predictor of both domains of parental mediation. In other words, the extent to which parents believe that they have control over their parental mediation practices to reduce smartphone-related risks plays the most important role in forming positive intentions to practice parental mediation, regardless of the mediation domain. This is in keeping with meta-analytic studies that document self-efficacy (or perceived behavioral control) as one of the strongest predictors of intentions, contributing 6% unique variance above and beyond attitude and injunctive norms (Armitage & Conner, 2001), particularly for detection and risk behaviors (Robin, McEachan, Conner, Taylor, & Lawton, 2010).

Our results also demonstrate that attitude is a significant and positive predictor of restrictive mediation intention, but not of active mediation. Setting aside self-efficacy, active mediation intention appears to be more a function of social norms than of attitude. For restrictive mediation, however, the injunctive norms with reference to parents' own children as well as a spouse or friends played no significant role in explaining parents' intention to engage in the same type of mediation; among social norms, only descriptive norm appeared as a significant predictor of restrictive mediation intention.

Active mediation involves parent-child conversations on media-related issues; such reciprocal interactions require a person to consider the other person's perspective.

Therefore, in active mediation, perceived approval or acceptance of the other person, in this case the child (i.e., an injunctive norm), would be more important than one's own evaluation of the behavior (i.e., attitude). On the other hand, restrictive mediation is a parent-oriented, one-way system of rulemaking imposed on children without entailing much deliberate discussion between parents and children. This form of parental intervention is less likely to incorporate the child's perspective, and thus, parents' perception of the behavior itself (i.e., attitude) becomes more important than their perception of how their children would respond to it.

Injunctive norms with reference to a spouse and friends mattered only for active mediation, but not for restrictive mediation. Parents may rely more on important referents' opinions in deciding to engage in conversation-based active mediation than rule-based restrictive mediation because the former requires greater effort to engage in interpersonal communication with children (Shin, 2015). In fact, parents tend to consider setting rules regarding media use more straightforward than engaging in conversation with their children to explain and discuss media-related issues (Shin, 2015). Because it is not an easy task to discuss and develop a consensus regarding the use of smartphones with tech-savvy digital natives, parents may want to seek support and encouragement from their spouse and close friends who are or have been in similar situations.

Descriptive norms were a predictor of both active and restrictive mediation intentions, although weaker than the impact of other significant components. Several scholars have suggested that descriptive norms serve as the most useful heuristic in decision-making when the situation is novel or ambiguous (Cialdini & Trost, 1998; Kim et al., 2015). In uncertain situations, people tend to observe another person's behavior to determine an appropriate and typical behavior for that situation ("social proof," Cialdini & Trost, 1998, p. 156). In this sense, parents may rely on other parents' mediation behaviors, because they are uncertain about what is an appropriate practice in mediating their children's smartphone use. It would thus be beneficial to educate parents about effective mediation practices to minimize the risks associated with children's smartphone use.

Conclusion

This study provides meaningful contributions to the parental mediation and TPB literature. First, the study advances prior research on parental mediation by examining an important but underexplored research area—how and why parents engage in parental mediation concerning children's use of smartphones. Second, we adopted the TPB as a theoretical framework to identify important motivational factors associated with parental mediation, moving beyond prior research that has typically been limited to examining demographic or individual difference factors. More importantly, by examining the entire range of TPB model components and utilizing comparable measures for each of the behavioral domains, this study

responded to the call for future research on parental mediation using TPB as a theoretical framework (Krcmar & Cingel, 2016).

Findings from the study offer important insights for both educators and policy makers. Our findings show that parents' intention to engage in active mediation increases when they believe that their children approve of their mediation (an injunctive norm) and when they perceive greater control over their mediation behaviors (self-efficacy). Research also suggests that parents with greater knowledge of new technologies are more confident about their ability to engage in discussion-based active mediation (Shin, 2015). Thus, in order to encourage parents' involvement in active mediation of children's smartphone use, it may be useful to develop educational materials and guidelines that enhance the quality of parent-child relationships as well as parents' understanding of mobile technologies.

Future research should examine how parents implement various tactics to tackle problems related to children's smartphone use and how those tactics influence children's smartphone usage and exposure to various risks. In addition, future research might explore whether parents have different presumptions regarding different forms of parental mediation, and how such presumptions may influence their attitudes toward their own mediation styles. Parents' self-serving bias or third-person perceptions could also be examined to determine what parents consider to be typical of other parents' mediation behaviors. Further research could also evaluate the impact of parents' knowledge of smartphones and new technology on parental mediation self-efficacy.

This study focused only on how parents try to mitigate the negative aspects of children's smartphone use, without looking at their roles in promoting the positive sides of smartphone use. In addition, current research only examined parental mediation of children's smartphone use motivated by perceptions of risks associated with safety, content, and privacy, leaving unanswered the possibility of mediating smartphone use due to other concerns including the potential of smartphones to displace other experiences and opportunities through the sheer devotion of time. Another limitation of this study is the overrepresentation of mothers, with 69% female participants in the sample. Lastly, some of our measurement items (e.g., explain how to use a smartphone safely) are too generic to capture specific risk domains. In particular, we did not examine what kinds of specific tools and tactics parents utilize to negate different types of risks. Future research might investigate the role of parental mediation in both the positive and negative aspects of smartphone use, and it may examine a wider range of parent perceptions, concerns and barriers, using a gender-balanced sample of parents and more specific measurement items.

Disclosure statement

No potential conflict of interest was reported by the authors.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. doi:10.1016/0749-5978(91)90020-T
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice-Hall.
- Andrews, K. R., Silk, K. S., & Eneli, I. U. (2010). Parents as health promoters: A theory of planned behavior perspective on the prevention of child obesity. *Journal of Health Communication*, 15, 95–107. doi:10.1080/10810730903460567
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, 40(4), 471–499.
- Bandura, A. (1997). *Self-efficacy: The exercise of self-control*. New York, NY: Freeman.
- Brehm, J. W. (1966). *A theory of psychological reactance*. New York, NY: Academic Press.
- Cialdini, R. B., & Trost, M. R. (1998). Social influence: Social norms, conformity and compliance. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (Vol. 2, pp. 151–192). New York, NY: McGraw-Hill.
- Cingel, D. P., & Krcmar, M. (2013). Predicting media use in very young children: The role of demographics and parent attitudes. *Communication Studies*, 64(4), 374–394. doi:10.1080/10510974.2013.770408
- Collier, K., Coyne, S., Rasmunssen, E. E., Hawkins, A. J., Padilla-Walker, L. M., Erickson, S. E., & Memmott-Elison, M. K. (2016). Does parental mediation of media influence child outcomes? A meta-analysis on media time, aggression, substance use, and sexual behavior. *Developmental Psychology*, 52, 798–812. doi:10.1037/dev0000108
- Common Sense Media. (2015). The common sense census: Media use by tweens and teens. Retrieved November 1, 2017, from https://www.commonsensemedia.org/sites/default/files/uploads/research/census_researchreport.pdf
- Cumming, G. (2009). Inference by eye: Reading the overlap of independent confidence intervals. *Statistics in Medicine*, 28(2), 205–220. doi:10.1002/sim.3471
- Davison, W. P. (1983). The third-person effect in communication. *Public Opinion Quarterly*, 47(1), 1–15. doi:10.1086/268763
- Dudley-Nicholson, J. (2018). Australian parents struggling to set smartphone rules and lobbyists say Apple should help them. Retrieved April 8, 2018, from <http://www.news.com.au/technology/gadgets/mobile-phones/australian-parents-struggling-to-set-smartphone-rules-and-lobbyists-say-apple-should-help-them/news-story/98341d98cefd178f8954f84c7561b88f>
- Fishbein, M., & Ajzen, I. (2011). *Predicting and changing behavior: The reasoned action approach*. New York, NY: Taylor & Francis.
- Fishbein, M., & Yzer, M. C. (2003). Using theory to design effective health behavior interventions. *Communication Theory*, 13(2), 164–183. doi:10.1111/comt.2003.13.issue-2
- Hoffner, C., & Buchanan, M. (2002). Parents' responses to television violence: The third-person perception, parental mediation, and support for censorship. *Media Psychology*, 4(3), 231–252. doi:10.1207/S1532785XMEP0403_02
- Hwang, Y., Choi, I., Yum, J.-Y., & Jeong, S.-H. (2017). Parental mediation regarding children's smartphone use: Role of protection motivation and parenting style. *Cyberpsychology, Behavior, and Social Networking*, 20(6), 362–368. doi:10.1089/cyber.2016.0555
- Hwang, Y., & Jeong, S.-H. (2015). Predictors of parental mediation regarding children's smartphone use. *Cyberpsychology, Behavior, and Social Networking*, 18(12), 737–743. doi:10.1089/cyber.2015.0286
- Johnston, M., & Dixon, D. (2008). Current issues and new directions in psychology and health: What happened to behaviour in the decade of behaviour? *Psychology and Health*, 23(5), 509–513. doi:10.1080/08870440701816728
- Kim, H. K., Kim, S., & Niederdeppe, J. (2015). Scientific uncertainty as a moderator of the relationship between descriptive norm and intentions to engage in cancer risk-reducing behaviors. *Journal of Health Communication*, 20(4), 387–395. doi:10.1080/10810730.2014.977465

- Koger, S., & Winter, D. N. N. (2010). *The psychology of environmental problems*. New York, NY: Psychology Press.
- Krcmar, M., & Cingel, D. P. (2016). Examining two theoretical models predicting American and Dutch parents' mediation of adolescent social media use. *Journal of Family Communication*, 16(3), 247–262. doi:10.1080/15267431.2016.1181632
- Lee, S.-J., Lee, C., & Lee, C. (2016). Smartphone addiction and application usage in Korean adolescents: Effects of mediation strategies. *Social Behavior and Personality*, 44(9), 1525–1534. doi:10.2224/sbp.2016.44.9.1525
- Lim, S. S. (2016). Through the tablet glass: Transcendent parenting in an era of mobile media and cloud computing. *Journal of Children and Media*, 10(1), 21–29. doi:10.1080/17482798.2015.1121896
- Nathanson, A. I. (2002). The unintended effects of parental mediation of television on adolescents. *Media Psychology*, 4, 207–230. doi:10.1207/S1532785XMEP0403_01
- Nielsen. (2017). Mobile kids: The parent, the child and the smartphone. Retrieved December 12, 2017, from <http://www.nielsen.com/us/en/insights/news/2017/mobile-kids-the-parent-the-child-and-the-smartphone.html>
- Ofcom. (2017). Children and parents: Media use and attitudes report. Retrieved April 10, 2018, from https://www.ofcom.org.uk/__data/assets/pdf_file/0020/108182/children-parents-media-use-attitudes-2017.pdf
- Pew Research Center. (2015). Teens, social media & technology overview 2015. Retrieved April 6, 2017, from http://www.pewinternet.org/files/2015/04/PI_TeensandTech_Update2015_0409151.pdf
- Prentice, D. A., & Miller, D. T. (1993). Pluralistic ignorance and alcohol use on campus: Some consequences of misperceiving the social norm. *Journal of Personality and Social Psychology*, 64, 243–256.
- Rasmussen, E. C., White, S. R., King, A. J., Holiday, S., & Densley, R. L. (2016). Predicting parental mediation behaviors: The direct and indirect influence of parents' critical thinking about media and attitudes about parent-child interactions. *Journal of Media Literacy Education*, 8(2), 1–21.
- Regan, P. C., Snyder, M., & Kassir, S. M. (1995). Unrealistic optimism: Self-enhancement or person positivity? *Personality and Social Psychology Bulletin*, 21, 1073–1082. doi:10.1177/01461672952110008
- Rivis, A., & Sheeran, P. (2003). Descriptive norms as an additional predictor in the theory of planned behaviour: A meta-analysis. *Current Psychology*, 22(3), 218–233. doi:10.1007/s12144-003-1018-2
- Robin, R., McEachan, C., Conner, M., Taylor, N. J., & Lawton, R. J. (2010). Prospective prediction of health related behaviors with the theory of planned behavior: A meta-analysis. *Health Psychology Review*, 5, 97–144.
- Shin, W. (2015). Parental socialization of children's Internet use: A qualitative approach. *New Media & Society*, 17(5), 649–665. doi:10.1177/1461444813516833
- Shin, W., & Li, B. (2017). Parental mediation of children's digital technology use in Singapore. *Journal of Children and Media*, 11(1), 1–19. doi:10.1080/17482798.2016.1203807
- Stald, G., Green, L., Barbovski, M., Haddon, L., Mascheroni, G., Sagvari, B., ... Tsaliki, L. (2014). Online on the mobile: Internet use on smartphones and associated risks among youth in Europe. Retrieved January 2, 2018, from <http://eprints.lse.ac.uk/59960/>
- van der Linden, S. (2011). Charitable intent: A moral or social construct? A revised theory of planned behavior model. *Current Psychology*, 30(4), 355–374. doi:10.1007/s12144-011-9122-1
- Warren, R. (2001). In words and deeds: Parental involvement and mediation of children's television viewing. *The Journal of Family Communication*, 1(4), 211–231. doi:10.1207/S15327698JFC0104_01
- Warren, R. (2003). Parental mediation of preschool children's television viewing. *Journal of Broadcasting & Electronic Media*, 47(3), 394–417. doi:10.1207/s15506878jobem4703_5
- Youn, S. (2008). Parental influence and teens' attitude toward online privacy protection. *The Journal of Consumer Affairs*, 42(3), 362–388. doi:10.1111/j.1745-6606.2008.00113.x

Copyright of Journal of Broadcasting & Electronic Media is the property of Broadcast Education Association and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.