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# Active and restrictive parental mediation over time: Effects on youths' self-regulatory competencies and impulsivity



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## ABSTRACT

This study investigates patterns of parental mediation on children's online activities and the effects of active and restrictive parental mediation on the self-regulatory competencies and impulsivity of youths with both cross-sectional and longitudinal data. A stratified two-stage cluster sampling method was used to randomly select 14 primary and 14 secondary schools to participate in an online survey for 3 consecutive years. Students' age range from 8 to 11 years old in the first year. The sample size started with 3079 in the first year and ended with 1086 in the third year. The analyses revealed that child-reported measures of parental use of active and restrictive mediation decreased over the three years. Initial levels of active and restrictive mediation were found to share a positive correlation. A significant positive correlation was also found between the decreasing rates of change in active and restrictive mediation across the three years. Additionally, the results showed that higher active mediation practiced by parents at time point 1 is correlated with a quicker decrease of restrictive mediation across time. However, initial level of restrictive mediation practiced at time point 1 did not affect the rate of decrease in active mediation over time. Both active and restrictive mediation were found to be positively predictive of youths' online self-regulation and emotion regulation at time point 3 while negatively predictive of impulsivity levels. Results also showed that a slower decrease in both parental mediation strategies is associated with higher self-regulation and lower impulsivity at time point 3. Research implications are discussed.

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## 1. Introduction

Parental mediation theory postulates that parents use a variety of direct and indirect social and/or technical strategies in guiding children's online use and access (Clark, 2011; Livingstone & Bober, 2006). Parental practices mediate the extent to which online information is received, processed and acted on by children. Amongst the various media-related parental strategies in the literature, two major forms of parental mediation (active and restrictive) received most scholarly attention.

Active mediation refers broadly to the guidance and advice that parents provide through active discussions over children's online activities. It is a bidirectional process whereby active communication over online issues can shape children to be more critical of online content (Padilla-Walker & Coyne, 2011) and to be more conscious of Internet safety (Fleming, Greentree,

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Cocotti-Muller, Elias, & Morrison, 2006). Active mediation can also extend to parents staying nearby or sitting with children when they go online and parents in exploring and sharing online activities with their children (Duerager & Livingstone, 2012). Padilla-Walker, Coyne, Fraser, Dyer, and Yorgason (2012) found that the levels of active monitoring were generally high during adolescence, whereby parents tackle topics by discussing them when they are portrayed in the media. This strategy may also reduce the likelihood of undesirable and damaging behaviours or attitudes (Nathanson, 1999). Active mediation has been found to be a preventive factor for adolescents from developing Internet addiction (van Den Eijnden, Spijkerman, Vermulst, van Rooij, & Engels, 2010). It also reduces children's exposure to online risks without reducing online opportunities and reduces harm caused to children when they do encounter risks (Duerager & Livingstone, 2012). Active mediation has been found to increase when children experience something upsetting online (Duerager & Livingstone, 2012).

Restrictive mediation, on the other hand, refers to the regulation of children's online activities through the use of rules. These rules generally pertain to the time children spend online, the points of access that children have to the Internet, the online content that children view, and the activities that they may engage in such as the downloading of files or their engagement with social networking sites. Restrictive strategies have been reported to be chosen when parents are primarily worried about children's excessive, uncontrolled and obsessive use of the Internet and the negative consequences this may have in terms of academic performance and interpersonal relationships (Lee, 2012). Restrictive mediation has been found to decrease children's frequency of Internet use (Valcke, Bonte, De Wever, & Rots, 2010; Yen, Ko, Yen, Chang, & Cheng, 2009), to weaken the positive relation between higher online participation and risks (Lee & Chae, 2012), and to reduce children's exposure to online risks and harm (Duerager & Livingstone, 2012). However, some studies found no impact of restrictive mediation on level of unsafe Internet behaviours (Valcke, De Wever, Van Keer, & Schellens, 2011) and it being less effective as the child gets older (Nathanson, 2002).

Research findings on the effectiveness of parental mediation has been mixed. Cross-sectional studies have shown that parental mediation is more frequent in younger than older children (Lwin, Stanaland, & Miyazaki, 2008; Rosen, Cheever, & Carrier, 2008; Valcke et al., 2010). There are empirical studies found that the use of parental mediation do not translate into the reduction of online risks (Liau, Khoo, & Ang, 2005; Livingstone & Helsper, 2010; Mitchell, Finkelhor, & Wolak, 2003; van Den Eijnden, Spijkerman, Vermulst, & van Rooij Engels, 2010). Both active and restrictive mediation may reduce online risks but restrictive mediation has also been found to reduce children's online opportunities and skills (Duerager & Livingstone, 2012). Restrictive mediation has been found to vary in effectiveness depending on the degree of restriction applied (Nathanson, Eveland, Park, & Paul, 2002). As children enter into adolescence, they take actions to evade parents' attempts to monitor or control their Internet use (Livingstone & Bober, 2006). Furthermore, restrictive measures convey biased parental values in contrast to inculcating the critical thinking skills of children (Mendoza, 2009).

There is much less research done based on longitudinal samples than cross-sectional samples. In a longitudinal study, Liau et al. (2015) found that parent-child closeness was related to a reduction in symptoms of pathological video gaming but parent restriction of children's video gaming did not have any main effect. One study has investigated changes in parental mediation strategies in a longitudinal sample found that parental use of both active and restrictive mediation decrease over time (Padilla-Walker et al., 2012). Padilla-Walker et al. (2012) postulated that based on family developmental theory, family goals vary depending on the stage the family is at. When children reach adolescence, family goals shift to providing greater autonomy and promoting responsibility for the developing family member. Prior research in reactance theory reveals that teens tend to show greater reactance and less compliance as they approach adulthood. Therefore, during adolescence, parental online mediation may decrease in order to fulfil the goals of greater autonomy and responsibility (Padilla-Walker et al., 2012). Restrictions may not be as consistently implemented as children get older, as parents perceive their adolescents to have more mature cognitions and therefore view them as more able to self-regulate and to handle online content and interactions.

Thus, the first objective of this study was to replicate Padilla-Walker and colleagues' (2012) findings in an Asian context to examine changes in active and restrictive mediation through longitudinal growth curve models. We hypothesize that involved and interested parents who set limits on their children's online activities would also be more inclined to communicate guidance and advice. The second objective was to examine the longitudinal changes in active and restrictive mediation together in the same model.

**H1: Both active and restrictive mediation decrease over time as children get older.**

**H2: Both active and restrictive mediation decrease over time as children get older.**

Further, this study investigated the effects of active and restrictive mediation on the self-regulatory competencies and impulsivity of youths. Positive parenting, consisting of warmth and positive expressivity, is found to predict effortful control in children 2 years after, which in turn predicts low levels of externalizing problems another 2 years later (Eisenberg et al., 2005). Lower levels of self-regulation and higher levels of impulsivity have also been found to be associated with online risky behaviours, such as pathological gaming (Liau et al., 2015) and cyber-bullying (Kokkinos, Antoniadou, & Markos, 2014; Vazsonyi, Machackova, Sevcikova, Smahel, & Cerna, 2012). The following hypotheses were proposed.

**H3: Active and Restrictive mediation increase youths' online self-regulation and emotion regulation.**

**H4: Active and Restrictive mediation reduce youths' impulsivity.**

## 2. Research methods

### 2.1. Procedure

A stratified two-stage cluster sampling method was used in order to obtain a nationally representative sample based on the types of school cyber wellness programs. 30 schools were randomly sampled but 2 schools dropped out in the first year of study. The final sample consisted of 14 primary and 14 secondary schools. Due to the limited computer lab facilities at each school, the schools were further randomly sampled from the lower or upper school levels according to a stratified percentage. 8 primary schools were asked for lower primary classes and 7 primary schools for their upper primary. Likewise, 8 secondary schools were asked for their lower secondary classes while 7 secondary schools were asked for their upper secondary. Informed consents were sought from the parents through the schools. A liaison teacher from each school collated the information and excluded the students whose parents refused consent from the study. Consent was obtained from the students. The online questionnaires were administered by teachers to participants during school sessions with a set of standardized instructions. Participants responded on school computers and confidentiality was assured by the online response format.

### 2.2. Participants

The participants were taken from the first three time points of the longitudinal study in the years 2010 ( $N = 3079$ ), 2011 ( $N = 2200$ ) and 2012 ( $N = 1086$ ) respectively; 35% of whom had complete data at T3. Participants started out at T1 between the ages of 8–17 years ( $N = 3079$ ,  $M = 12.98$ ,  $SD = 2.36$ ). Each time point was approximately one year apart. At T3 ( $N = 1086$ ,  $M$  age = 13.66,  $SD = 2.19$ , 49% girls), 541 students were in upper primary and 545 were in upper secondary.

### 2.3. Measures

*Active mediation* (AM) referred to parental guidance and advice on Internet activities. The scale was adapted from the EU Kids Online Project Questionnaire (Livingstone & Haddon, 2009). An example item is “Have you ever been told by your parents how to search for information?” Responses were made in dichotomous categories (Yes/No). There were 5 items and the Cronbach's  $\alpha$  were 0.81 (at T1), 0.92 (at T2) and 0.94 (at T3).

*Restrictive mediation* (RM) referred to parental restrictions for children's online activities. The scale was also adapted from the EU Kids Online Project Questionnaire (Livingstone & Haddon, 2009). It was concerned with parental monitoring of the online content and activities that children were involved in, such as “Do your parents allow you to view sexual content/porn?” and “Do your parents allow you to go online to chat/talk to people you don't know?” Parental rules in regulating the amount of time and money children spent online were also measured, such as “Do your parents set rules for you in how much time you spend on the internet?” The scale consisted of 9 items for content monitoring and 6 items for restrictions on time and money. Responses were made in dichotomous categories (Yes/No) and the Cronbach's  $\alpha$  were 0.71 (at T1), 0.87 (at T2) and 0.79 (at T3).

*Self-regulation* (SR) consisted of a 10-item scale based on key constructs of self-regulation such as metacognition, personal agency and self-efficacy with regard to online use. The scale was adapted from a SR measure used in a video-gaming study (Liau et al., 2015). Example items are “When I go online, I have an idea of when I'm going to stop playing” and “If I have a test the next day, I will spend less time going online”. Responses were made on a four-point Likert scale ranging from “Not true at all” to “Really true”. Cronbach's  $\alpha$  was 0.96 at T3.

*Emotion regulation* (ER) represents the use of self-regulatory strategies as a means of coping amidst distressing emotions. This scale was taken from the Personal Strengths Inventory-2 (Liau, Tan, Li, & Khoo, 2012). Students rated each item on a four-point scale ranging from strongly disagree (1) to strongly agree (4). An example item would be “I calm myself down when I get angry”. Cronbach's  $\alpha$  was good at 0.88 at T3.

*Impulsivity* (IMP) was measured using 10 items adapted from the Barratt Impulsiveness Scale (Patton & Stanford, 1995). Students rated each item on a four-point scale ranging from strongly disagree (1) to strongly agree (4). A higher score indicated a higher level of impulsivity. This scale yielded a Cronbach's  $\alpha$  of 0.88 at T3.

## 3. Results

### 3.1. Descriptive statistics and correlations

Means, standard deviation and correlations for both types of parental mediation at each time point are presented in Table 1. The stability coefficients were significant and positive for restrictive mediation ( $r$ 's = 0.46, 0.36) and active mediation ( $r$ 's = 0.34, 0.31). Restrictive and active mediation showed a positive correlation ranging from  $r = 0.19$  to 0.32 across the three time points. Online self-regulation and emotion regulation at T3 had positive correlations with both active and restrictive mediation, while impulsivity at T3 had negative correlations with both mediation strategies. Impulsivity was negative correlated with online self-regulation ( $r = -0.16$ ) and emotion regulation ( $r = -0.11$ ).

**Table 1**  
Means, standard deviations and correlations of all variables.

	1	2	3	4	5	6	7	8	9
1. Restrictive T1	–								
2. Restrictive T2	0.46**	–							
3. Restrictive T3	0.36**	0.45**	–						
4. Active T1	0.19**	0.15**	0.11**	–					
5. Active T2	0.22**	0.30**	0.27**	0.34**	–				
6. Active T3	0.22**	0.27**	0.32**	0.31**	0.48**	–			
7. Online Self-regulation	0.13**	0.12**	0.15**	0.15**	0.20**	0.23**	–		
8. Emotion Regulation T3	0.08**	0.05	0.06*	0.16**	0.08*	0.16**	0.58**	–	
9. Impulsivity T3	-0.07*	-0.10**	-0.19**	-0.12**	-0.13**	-0.20**	-0.16**	-0.11**	–
Mean	9.29	9.06	8.68	2.56	2.50	2.25	2.87	2.78	2.18
SD	2.68	2.93	2.60	1.86	1.89	1.99	0.85	0.84	0.53

Note: \* $p < .05$ , \*\* $p < 0.01$ , T1 = Time 1, T2 = Time 2, T3 = Time 3.

### 3.2. Latent growth analysis

Latent growth analyses were carried out with Mplus Version 7 to examine the changes in parental mediation strategies and the effects of these mediation strategies on child psychosocial outcomes. As there were only three time points, non-linear change was not estimated. Each growth model was tested with an intercept (i.e., initial level of mediation) and a linear slope (i.e., the rate of change of mediation over time). First, two separate growth curves were tested for active and restrictive mediation. A parallel growth model was tested after to examine the relations between changes in these strategies. Lastly, separate growth curves were tested with child psychosocial factors at T3 as outcomes of the parental mediation strategies.

A growth model was fit to determine the intercept and slope of active mediation and this revealed good model fit  $\chi^2(1) = 1.71$ ,  $p > 0.05$ , RMSEA = 0.03 (0.00–0.09), CFI = 1.00, SRMR = 0.01. Analyses suggest that the intercept ( $M = 2.58$ ,  $p < .01$ ) and slope ( $M = -0.15$ ,  $p < 0.01$ ) both differed from zero (see Fig. 1). A second growth model was fit to determine the intercept and slope of restrictive mediation and this also revealed good model fit  $\chi^2(1) = 0.51$ ,  $p > 0.05$ , RMSEA = 0.00, CFI = 1.00, SRMR = 0.01. Analyses suggest that both the intercept ( $M = 9.30$ ,  $p < .01$ ) and slope ( $M = -0.29$ ,  $p < 0.01$ ) differed from zero (see Fig. 2).

A parallel growth model of both active and restrictive mediation was tested to analyse the relations between their initial levels and their mean rates of change across time (see Fig. 3). Educational level was controlled for in this model. The fit indices were revealed to be good  $\chi^2(9) = 26.39$ ,  $p < .01$ , RMSEA = 0.04 (0.02–0.06), CFI = 0.99, SRMR = 0.03. The analysis revealed that the initial levels of active and restrictive mediation were found to share a positive correlation ( $r = .36$ ,  $p < .01$ ). A significant positive correlation ( $r = .52$ ,  $p < .01$ ) was also found between the slopes of active and restrictive mediation. This implies that as the mean rate of active mediation reduces over time, the mean rate of restrictive mediation also reduces. The initial level of restrictive mediation and its slope have a negative correlation ( $r = -0.56$ ,  $p < .01$ ): the higher the initial level of restrictive mediation at time point 1, the slower the rate of decrease in restrictive mediation over the three time points. Lastly, the initial level of active mediation was negatively correlated with the rate of change in restrictive mediation ( $r = -0.21$ ,  $p < .05$ ) but there was no significant correlation between the initial level of restrictive mediation and the rate of change in active mediation. This indicates that the higher the active mediation used at time point 1, the greater the decrease in restrictive mediation over time.

Lastly, the latent growth models of active and restrictive mediation were conducted with youths' online self-regulation, emotion regulation and impulsivity at T3 as outcomes. For active mediation, the model showed good fit  $X^2(4) = 17.08$ ,

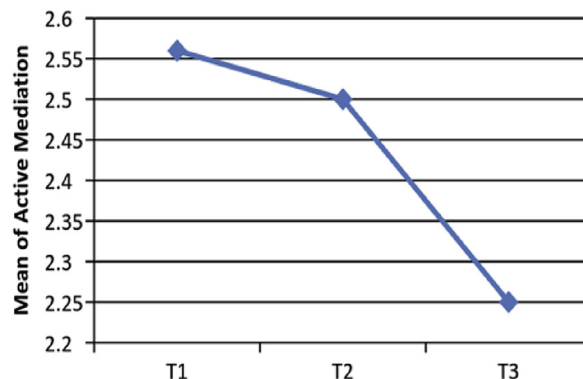


Fig. 1. Decrease in active mediation across 3 time points.

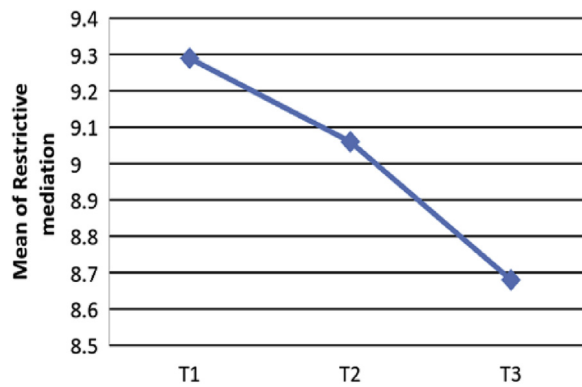


Fig. 2. Decrease in restrictive mediation across 3 time points. Note: AM = Active Mediation, RM = Restrictive Mediation.

$p < .01$ , RMSEA = 0.05 (0.03–0.08), CFI = 0.99, SRMR = 0.02. Analyses revealed that the intercept of active mediation significantly predicted online self-regulation ( $\beta = 0.27, p < .01$ ), emotion regulation ( $\beta = 0.22, p < .01$ ), and impulsivity ( $\beta = -0.20, p < .01$ ) at T3. The slope of active mediation was also found to predict self-regulation ( $\beta = 0.17, p < .01$ ) and impulsivity ( $\beta = -0.17, p < .01$ ), but not emotion regulation. For restrictive mediation, the model showed a very good fit  $X^2(4) = 1.47, p > 0.05$ , RMSEA = 0.00 (0.00–0.03), CFI = 1.00, SRMR = 0.01. Analyses revealed that the intercept of restrictive mediation significantly predicted online self-regulation ( $\beta = 0.23, p < .01$ ), emotion regulation ( $\beta = 0.11, p < .01$ ) and impulsivity ( $\beta = -0.21, p < .01$ ) at T3. The slope of restrictive mediation also predicted self-regulation ( $\beta = 0.14, p < .05$ ) and impulsivity ( $\beta = -0.26, p < .01$ ).

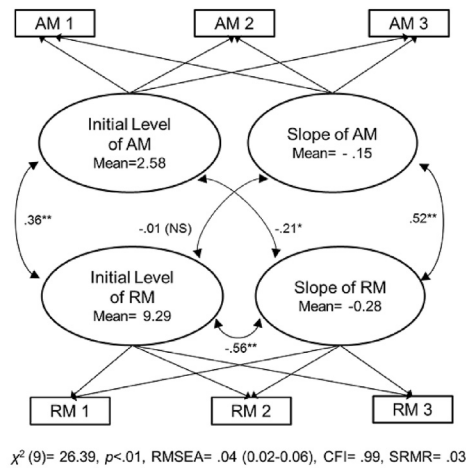
#### 4. Discussion

The analyses revealed that child-reported measures of parental use of active and restrictive mediation decreased over the three years. These results are consistent with the longitudinal results of Padilla-Walker et al. (2012) and the cross-sectional results of Valcke et al. (2010), Lwin, et al. (2008) and Rosen et al. (2008). As adolescents begin to assert their autonomy, parents change their mediation strategies in response to changing developmental needs. Instead of limiting and controlling choices, Padilla-Walker et al. (2012) found that as children grow older, parents learn to defer to their children's choices as a display of active trust in order to provide greater autonomy. As children get older, the perceived need for parental mediation may also decrease due to the perception that family rules and values are understood and there is less need for regulation (Padilla-Walker & Coyne, 2011).

Initial levels of active and restrictive mediation were found to share a positive correlation, indicating that active and restrictive mediation are often practiced together. Parents' awareness of online risks may be heightened as a result of knowing their children's online experiences through active mediation. As a result, parents monitor and set rules for children's online activities. A significant positive correlation was also found between the decreasing rates of change in active and restrictive mediation across the three years. These results provide evidence that parents do not tend to use active and restrictive mediation strategies independently of each other. Rather, parents who exercise limit setting to monitor their children's online activities also tend to have discussions with children over online issues. This provides a new perspective to consider parental mediation. Past studies tend to differentiate active and restrictive mediation as two separate practices. It could be one of the reasons that the results of the effectiveness of either restricted or active mediation over children's mediated behaviors are inconclusive. Involved parents who are motivated to play an active part in their children's online activities tend to implement monitoring and guidance through a variety of channels. It is recommended that future research should not analyse various parental mediation strategies independently.

Additionally, the results revealed that higher active mediation practiced by parents at time point 1 is correlated with a quicker decrease of restrictive mediation across time. A high initial level of active mediation requires a great deal of parent-child communication and might be an indicator of parental involvement in a child's activities from a young age. Parents who are more communicative and involved when the child is young may be more confident in their child's maturity to handle online content, thus their tendency for a quicker reduction of online restrictions as the child gets older. However, initial levels of restrictive mediation practiced at time point 1 does not affect the rate of decrease in active mediation over time.

Moreover, both active and restrictive mediation were found to be positively predictive of youths' online self-regulation and emotion regulation at T3 while negatively predictive of impulsivity levels. This explains the benefits of practicing both mediation strategies on the holistic development of children's psychological well-being and safe practices and values in the online world. Results also showed that a slower decrease in both parental mediation strategies is associated with higher self-regulation and lower impulsivity at T3. These results imply that parental mediation strategies do play a significant role in shaping youths' self-regulatory competencies, which are mediators of effective parenting and deviant behaviours (Eisenberg



Note: AM= Active mediation, RM= Restrictive mediation

Fig. 3. Parallel growth model of active and restrictive mediation.

et al., 2005). This suggests that active involvement in children's online activities at early age, whether it's active or restrictive mediation, serves as protective factors for a child's well-being. Another valuable lesson is that involved parents who adjust the frequency of different mediation strategies to allow room for children to develop self-regulation and emotion regulation skills over time. These suggestions need to be further examined to understand the nuances of how children develop regulation skills over time under the guidance of parents.

## 5. Limitation and conclusion

The longitudinal data in the current study was solely based on self-reports from one source of informants and could benefit from more sources and methods of data collection. Triangulation with qualitative data from interviews and observations will be valuable for a clearer understanding of the parental mediation strategies. Additionally, practice effects are also present in longitudinal data. Students' past experiences in the previous year may influence their responses in the test taken in the present year. However, the interval between the data collection points was around a year for this study, which may also diminish this effect.

Despite these limitations, this study provides evidence with longitudinal data for the decline of active and restrictive mediation over time. Active and restrictive mediation are found to be practiced together when parents are involved in the monitoring of their youths' online behaviours. Additionally, these mediation strategies are found to be positively predictive of youths' self-regulation and emotion regulation competencies, and negatively predictive of impulsivity; factors that are critical to reducing online risk and harm.

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