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Title

How Does “Talking about the Internet with Others” Affect Teenagers’ Experience of Online Risks? The Role of Active Mediation by Parents, Peers, and School Teachers [NMS4125]

Abstract

This study investigated how active mediation employed by three key socialization agents—parents, peers, and school teachers—is associated with teenagers’ engagement in online risks. A survey with 746 students aged 12-18 found that different socialization agents focus on different aspects of the Internet when they engage in active mediation. Parents and teachers focus more on making instructive remarks whereas peers are more likely to engage in neutral facets of active mediation (e.g. helping or recommending). However, parental mediation tends to diminish whereas peer mediation tends to escalate with age amongst teens. The findings also suggest that school teachers’ Internet-related discussions can reduce teens’ potential exposure to online risks while peer interactions may increase teens’ vulnerability to online risks.

Keywords

Socialization theory, teenagers’ Internet use, online risks, parental mediation, peer influence, school influence, adolescents

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Introduction

The Internet presents youths with both opportunities and risks. Although it can be a useful tool for learning, self-expression, and relationship management, Internet use can also entail undesirable consequences such as inappropriate contact and privacy invasion. According to Pew Internet (2013), one third of Facebook users aged 12-17 make friends with someone they have never met in person. McAfee (2010) reported that 51% of US teens aged 13-17 disclose personal information online to someone they do not know personally. In Singapore, 73% of youths aged 10-17 have had negative online experiences such as encountering online strangers who tried to add them as friends on social networking sites or meet them in real life (Norton Online Family Report, 2010).

Studies have begun to concentrate on parental mediation of teenagers' new media use and cyber safety (see Lwin et al., 2008; Sasson and Mesch, 2014; Youn, 2008). Still missing from this research is a careful examination of the roles that various external socialization agents, such as peers and school teachers, play in teens' use of new media, and in the risks associated with it. Teenagers today spend much of their time communicating with peers using various online and mobile devices, making peers a potentially important, but often overlooked, source of influence on teens' media-related attitudes and behaviors. In addition, since much of the Internet education that teens receive is offered in school (Livingstone et al., 2011), the role that schools and school teachers play in shaping teens' Internet behavior demands conceptual and empirical scrutiny. Young people's social learning is a multi-faceted process involving multiple socialization agents (Maccoby, 2007); as such, it is important to examine the influence of these diverse socialization agents.

Socialization agents transmit social norms, knowledge, attitudes, and behaviors to young

learners (i.e. children and teenagers) through modeling, reinforcement, and social interaction (Moschis, 1978). Modeling entails a learner's imitation of an agent's behavior in an effort to be similar to the agent. Reinforcement hinges on agent-oriented reward and punishment mechanisms imposed by the socialization agent. The final facet, social interaction, involves inductive communication between a socialization agent and a learner. In media mediation research, the socialization processes outlined earlier are termed co-using (i.e. sharing media experiences), restrictive mediation (i.e. setting rules to control children's media use), and active mediation (i.e. talking to children about media), respectively (Livingstone et al., 2011). The current study focuses on *active mediation*—the communication-based social interaction between teenagers and socialization agents regarding online behaviors—for several reasons.

First, as teenagers tend to be Internet-savvy and their knowledge of the Internet often surpasses that of older generations, co-use is less likely to occur between teenagers and adult socialization agents (e.g. parents and teachers). Second, although reinforcement-based restrictive mediation is known to be effective in managing and controlling young children's media use, its effectiveness tends to wane as children become teenagers (Valkenburg et al., 2013). Moreover, peers and teachers are less likely to restrict or regulate teens' Internet activities (Nathanson, 2001). On the other hand, communication-based mediation can take place between teenagers and any of the socialization agents.

Studies on parental mediation have demonstrated the superiority of active mediation over other forms of media intervention (e.g. Lwin et al., 2008; Youn, 2008). Less well understood is the degree to which active mediation remains effective when imposed by other socialization agents such as peers and school teachers. Research suggests that while interactions with socialization agents entail various socialization outcomes (de la Ville and Tartas, 2010; John,

1999), those outcomes are not always rational or pro-social. They might conform normatively to socially prescribed behaviors, or they may be associated with cognitions and behaviors that enable youths to play a given social role, regardless of whether the role conforms to the normative standards prescribed in a social system (Bukowski et al., 2007). To address this shortcoming in the literature, our study focuses specifically on the role of socialization agents in conducting active mediation of Internet use among youth, and the influence of that mediation on youth's online behaviors.

From the array of online behaviors teenagers might engage in, this research examines teenagers' involvement in risky online behaviors. This focus is particularly important as the types of risky behavior available on the Internet differ starkly from those available through traditional media. In traditional media, one may view age-inappropriate content, consume unhealthy amounts of media material, or develop over-dependency on media. The use of new media exposes users not only to these risks but also to unique ones, such as generating and sharing inappropriate content and reciprocating contact with potentially dangerous persons online (Lee and Chae, 2012). There is also considerably more sharing of new media by teenagers with their peers (McAfee, 2010). Its very usage thus exposes teenagers to potentially potent influences and immediate reinforcements in terms of new media capacities, norms, and the very behavior itself. By addressing this important issue that many societies now face, the findings of this study contribute to an understanding of teens' risky online behavior as a function of the influence of their interactions with different socialization agents. Insights gained from the study will inform policy making and potentially mitigate problems related to teens' online risk-taking.

While any number of risky behaviors might be considered, recent surveys conducted in the USA (e.g. Pew Internet, 2013), Europe (e.g. Livingston et al., 2011), and Asia (e.g. Norton

Online Family Report, 2010) report that teenagers are particularly vulnerable to contact (e.g. making friends online) and privacy risks (e.g. disclosing personal information online). These risks are also considered unique ones, prevalent in the new media environment but not in traditional media. Thus, our measurement for online risks specifically focuses on online contact and privacy.

In the following sections, we present a literature review on three types of socialization agents (parents, peers and school teachers), particularly focusing on their engagement in active mediation and its effects on teens' media-related socialization outcomes. Subsequent sections cover our research question and hypotheses and elaborate on our survey of 746 teenagers in Singapore and findings from the survey.

Active parental mediation

In parental mediation research, active mediation refers to parents' discussing with and explaining to their children about media (Clark, 2011). In traditional media research, active parental mediation has been found to be associated with positive socialization outcomes such as children's enhanced understanding of television (Desmond et al., 1985) and lower levels of television-induced aggression (Cantor and Wilson, 2003). In regard to the role of active parental mediation in teens' Internet usage, Youn (2008) found a positive association between parent-teen conversation on Internet-related issues and high school students' concerns about online privacy. Shin and Ismail (2014) found a negative association between parents' talking about the Internet issues with young adolescents (aged 13-14) and the adolescents' adding strangers to their social networking sites. Lwin et al. (2008) found that active mediation predicted the intention to disclose personal information among children aged 10-14.

Researchers have also demonstrated that active parental mediation is more effective than

other forms of parental mediation in reducing negative media influences on youths in both traditional and new media for both young and old children, including teenagers (e.g. Buijzen and Valkenburg, 2005; Lwin et al., 2008; Youn, 2008). Regarding the superiority of active parental mediation over other forms of parental mediation, scholars explain that parental mediation based on conversation and critical discussion between parents and children likely provides opportunities for children to ask questions about their parents' comments on media as well as chances for parents to fully explain the reasoning behind their instructive remarks. Active mediation can cultivate critical thinking skills and help children learn about parents' perspectives and needs (Fujioka and Austin, 2003; Youn, 2008).

However, studies have indicated that the occurrence and the degree of parental mediation tend to decrease as children grow older (e. g. Opgenhaffen et al., 2012; Warren et al., 2002). The importance of different socialization agents in a young learner's acquisition and development of social attitudes and behaviors thus tends to change across learners' age categories (Grusec and Davidov, 2007). Specifically, parents play an important role in younger children's social learning as those children spend substantial time with their parents; in doing so, they absorb lessons from their parents in how to deal with various social demands and expectations. As children grow older and spend more time outside of their home environment, external socialization agents such as peers and school teachers become increasingly influential, while parental influence tends to wane (John, 1999). Moreover, as youths grow older, they become more competent in their own exploitation of media (Opgenhaffen et al., 2012). Consequently, parents of older teens are less likely than parents of younger teens to see the need for active engagement in parental mediation. This makes it especially important to investigate the changing roles of various socialization agents in terms of how they affect children's and teenagers' media consumption behaviors.

Active peer mediation

Research suggests that peers play a significant role in young people's social learning and development (Bukowski et al., 2007). As children grow older, they tend to spend more time with peers and less with parents, and not surprisingly, peer influence tends to increase when communication and interactions between parents and children decline (John, 1999). Online media add additional potency in this regard, since it is through these very media that teens and peers interact and potentially influence one another.

Nathanson (2001) argues that peer mediation would work differently from parental mediation. Peers are less likely than parents to check, closely monitor, or set specific rules about each other's Internet activities. That is, peers are more likely to engage in active mediation and less likely to engage in restrictive mediation. Second, "peers are not charged with the duty of socializing one another into proper moral conduct" (Nathanson, 2001: p. 257). Thus, compared to parental discussion, peer discussion on media may be less likely to include critical discussion (Nathanson, 2001), and consequently may be less likely to promote desirable socialization outcomes. In other words, although both parents and peers may talk about Internet-related issues, engaging in "active mediation," the content of talk is likely to differ, and therefore, different outcomes result.

The EU Kids Online Survey (Livingstone et al., 2011) validates Nathanson's argument regarding the differing nature of active mediation employed by parents and peers in the Internet context. The survey conducted on children aged 9-16 in Europe found that parents tend to focus more on "instructions" when they engage in active mediation—explaining why some websites are good or bad and suggesting how to use the Internet safely. However, peers are less likely to engage in such instructive behaviors.

When it comes to the *effects* of active peer mediation—how teens' talking about media-related issues with their friends affects their media-related behaviors—our knowledge is limited, as little empirical research exists, especially regarding new media contexts. Nevertheless, research on peer influence more generally suggests that teens are prone to risky behaviors and that this is fueled by peer norms (Gardner and Steinberg, 2005). In the online communication context, Hinduja and Patchin (2013) found that teens who reported that their friends had engaged in cyberbullying were more likely to engage in cyberbullying themselves. Sasson and Mesch (2014) demonstrated that the injunctive norms of peers (i.e. beliefs about the approval of a certain behavior by peers) had a significant impact on teens' involvement in risky online behaviors. Specifically, teens who believed that their peers used the Internet imprudently were more likely to send insulting messages, post personal details, and meet face-to-face with a stranger whom they had originally met online.

Active school teacher mediation

Schools and school teachers play particularly important roles in school-age children's socialization processes and outcomes, because of the significant amount of time children spend in school. There, young people learn social norms and skills crucial to functioning as competent members of society (Wentzel and Looney, 2007). Many schools offer a wide range of intervention programs to promote healthier lifestyles, such as anti-smoking, healthier eating, and cyber safety (Paek, 2008). In the realm of cyber safety, the majority of teachers (80%) and parents (70%) worldwide believe that schools should provide more online safety education (Norton Online Family Report, 2012). Scholars also argue that school teachers should educate students about responsible Internet use and promote a positive school climate to reduce online/offline bullying (Patchin and Hinduja, 2012).

In fact, many schools currently run cyber safety programs. Singapore developed and implemented cyber wellness programs to help students at all school levels learn responsible technology use at school (Ministry of Education Singapore, 2012). In the USA, school districts in many states are required to implement cyber safety programs and have policies to prevent cyberbullying (National Conference of State Legislatures, n.d.). In Europe, 58% of youths aged 9-16 reported that their school teachers had explained why some websites were good or bad (Livingstone et al., 2011).

School education and intervention programs of the sort outlined above are known to be effective in promoting pro-social behaviors in teens and protecting teens against risky behaviors. Paek (2008) found that schools' anti-smoking intervention programs strengthened the link between teens' exposure to anti-smoking messages and their intention not to smoke. Warren and Wick (2011) reported that school activities about politics were positively associated with teens' civic engagement. Hinduja and Patchin (2013) demonstrated that teenagers who reported that their school took cyberbullying seriously were less likely to engage in cyberbullying.

As school teachers are less likely to monitor or set rules on teens' everyday Internet use (other than disallowing Internet use during classes), active mediation seems to be more relevant. However, given the lack of empirical evidence to this point, it remains unclear how school teachers' active mediation affects various domains of teenagers' online behaviors and associated risks.

Hypotheses and Research Question

In view of the fact that teens interact with various socialization agents daily, and that such social interactions can have important influences on their social learning and behavior, this research focuses on communication-based active mediation implemented by parents, peers, and

school teachers by testing one research question and four hypotheses on the *nature*, *antecedent*, and *outcome* of active mediation.

Research suggests that teens will talk about the Internet with various socialization agents but that the nature and content of active mediation can be different across different types of socialization agents (Livingstone et al., 2011; Nathanson, 2001). For example, active peer mediation is less likely to be instructive because teens are not likely to be typically motivated to socialize one another into proper moral conduct. On the other hand, the nature of school teachers' mediation should be comparable to parental mediation, as both try to educate youths to acquire socially desirable attitudes and skills. Except for EU Kids Online (Livingstone et al., 2011), however, no study, to the best of our knowledge, examines and compares the nature and content of active mediation implemented by different types of socialization agents. To address the shortcoming in evidence, we test the proposition with the following research question.

RQ1. Do active parental mediation (APM), active peer mediation (APRM), and active school teacher mediation (ASTM) focus on different aspects of teens' Internet usage?

As discussed earlier, research suggests that the degree to which youths engage in social interactions with different socialization agents differs by their age. For younger children, parents are the primary socialization agents, transmitting social norms and teaching social skills. However, older children tend to spend more time with external socialization agents such as peers and school teachers. Thus, it is expected that older teenagers are more likely than younger teenagers to receive active mediation from their peers and teachers and less from their parents.

H1. The age of teenagers will be associated with the degree to which teenagers receive active mediation from parents, peers, and school teachers.

H1a. The age of teenagers will be negatively associated with active parental

mediation (APM).

H1b. The age of teenagers will be positively associated with active peer mediation (APRM).

H1c. The age of teenagers will be positively associated with active school teacher mediation (ASTM).

Regarding the effects of mediation, literature suggests that active parental mediation based on communication and parent-child mutual discussion tends to result in desirable socialization outcomes in both traditional and new media contexts across different age groups (Fujioka and Austin, 2003; Lwin et al., 2008; Youn, 2008). Following existing research, we thus predict:

H2. Active parental mediation (APM) will be *negatively* associated with teenagers' involvement in risky online behavior.

Research also suggests that peer mediation may result in outcomes substantially different from those of parental mediation (Nathanson, 2001). Because young people may have their own norms within a circle of friends, these peer norms may not conform to a set of standards prescribed in a larger social system. According to differential association theory (Sutherland, 1947) and social learning theory (Akers, 1998), such peer norms that deviate from a set of pro-social norms can be learned and reinforced through frequent social interactions with peers who share similar norms, and this, in turn, can lead teens to be more prone to risky behaviors. Research pertaining to risky behaviors found that adolescents are more inclined toward risky behavior than are adults, and that peer norms play an important role in explaining risky behavior during adolescence (Gardner and Steinberg, 2005). Thus:

H3. Active peer mediation (APRM) will be *positively* associated with teenagers'

involvement in risky online behavior.

Research on general learning establishes the role of instruction from teachers as a primary driver of socialization for students (Friebus, 1977). It can also be expected that school influence based on educational programs would function similarly to parental mediation, especially active mediation, in that both emphasize pro-social behaviors that conform to social values and norms (Wentzel and Looney, 2007) and both try to instill social values through instruction and discussion (Paek, 2008). Thus:

H4. Active school teacher mediation (ASTM) will be *negatively* associated with teenagers' involvement in risky online behavior.

Method

Sample and Procedure

Data were collected from teenagers (aged 12-18) at four public secondary schools located in different parts of Singapore. Those selected schools are the public neighborhood schools in four separate geographic zones, situated in the Eastern, Central, Northern and South-western parts of the country. Each of the schools has been designated by the Ministry of Education as a "neighborhood" school, which refers to government schools within a town (housing) precinct. Such schools cater to the majority of the Singaporean school-going population, representing a wide demographic profile with a generally representative mix of racial profiles and social strata in each school. None of the schools had special features or targeted enrollment, such as an association with a religious organization or single-gender admissions.

In Singapore, teenagers' use of the Internet is extremely prevalent. Almost all school-aged children in the country have access to the Internet (Infocomm Development Authority of Singapore, 2011). Internet use is encouraged both at home and school. Parents believe that

Internet literacy and skills are imperative for children (Shin, 2013), and schools at all levels require students to complete assignments or do research using the Internet (Lim, 2009). More importantly, as in many other countries, young people's active use of the Internet has raised concerns of privacy invasion, cyber safety, and cyberbullying (Cyber Wellness@SG, 2013).

A total of 847 teenagers were invited to take part in a paper-and-pencil survey through their schools. Parents of the teenagers were informed of the survey's objective and procedure, and they provided parental permission prior to the teenagers' participation. On the scheduled survey date, students at each school filled out a questionnaire either in their classrooms or school hall under close supervision. The survey sessions took between 20 and 30 minutes. 746 students completed the survey, resulting in a response rate of 88%. Each participant was given an equivalent of US\$4 gift voucher upon completion of the survey as a token of appreciation.

As English is the official language used in education, business, and government in Singapore, all survey instruments were in English. Prior to conducting the survey, the survey instruments were reviewed and approved for use by the Institutional Review Board of the investigators' institution and by each participating secondary school.

Measures

Online risk was measured by asking participants to rate how often they engaged in contact and privacy risks. Scales employed four 5-interval items anchored on "never" (1) to "always" (5). As previously mentioned, our choice of the types of risk was guided by research studies on teenagers' online risk taking (e.g. Lee and Chae, 2012; Livingstone and Helsper, 2008), as well as recent surveys (e.g. Norton Online Family Report, 2012; Pew Internet, 2013) which highlighted that today's teenagers are exposed to both contact and privacy risks. Internal reliability of the four-item measurement (Cronbach's alpha = .62) was relatively low but still

considered acceptable (George and Mallery, 2003). A post-hoc exploratory factor analysis (EFA) with maximum likelihood estimation yielded a single factor, indicating that the online risk scale was unidimensional. Thus, the four item scores were averaged to create a composite scale.

Active mediation by parents, peers, and school teachers (APM, APRM, and ASTM) was assessed by asking participants to indicate whether their parents/guardians who spent the most time with them at home, their close friends, and teachers at school talked/explained to them about the Internet, using six binary scale items (1 = "yes", 0 = "no"). The items were derived from prior research on active mediation and teenagers' Internet use (Lee and Chae, 2012; Livingstone et al., 2011; Youn, 2008). The number of "yes" indications (1) for each type of socialization agent was summed to form composite scales for active parental mediation (APM), active peer mediation (APRM), and active school teacher communication (ASTM).

Respondents also reported their age, gender, the amount of time they spent on the Internet per day, and perceived Internet skills. Age and the amount of time spent on the Internet were measured in open-ended responses. Participants reported whether they were male (coded as 1) or female (coded as 2). Perceived Internet skills were measured by five Likert scales (1 = "strongly disagree" to 5 = "strongly agree") derived from Cho and Cheon (2005).

Table 1 presents the measured items and descriptive statistics for the measurements.

<Table 1>

Results

The final sample ($N = 746$) consisted of 52% boys and 48% girls, and 60% were age 12-14 while 40% were age 15-18 ($M = 14.3$, $SD = 1.32$). The average time spent on the Internet was 216.25 minutes per day ($SD = 164.05$). They tended to feel confident about their own Internet skills ($M = 3.85$, $SD = .58$).

RQ1 asked whether active parental mediation (APM), active peer mediation (APRM), and active school teacher mediation (ASTM) focus on different aspects of Internet use. As presented in Table 1, the levels of active mediation the participants reported receiving were similar across different socialization agents ($M = 2.19$ for APM, $M = 2.09$ for APRM, $M = 2.07$ for ASTM). However, as Figure 1 shows, each of the socialization agents tended to focus on different aspects of Internet use in implementing active mediation. Specifically, parents were more likely to talk about types of information to be or not to be shared online (48.1%) but less likely to recommend websites for their teen children (23.8%). Recommendations were more likely to come from peers (47.4%) than from adult socialization agents. In addition, teens tended to rely more on peers than on any other socialization agents to get help on Internet-related issues. Majority of teens (63.1%) reported that their friends helped them when difficulties surfaced regarding the Internet. Compared to peers, parents (34.9%) and school teachers (10.6%) were less likely to help teens on Internet-related issues. School teachers as socialization agents were more focused on taking on instructional roles—talking about types of information to be or not to be disclosed on the Internet (47.5%) and suggesting ways to use the Internet safely (48.2%), rather than making recommendations (27.4%) or helping on the Internet (10.6%). Chi-Square tests indicated that the three agents showed significant differences for each of the six activities at $p < .05$.

<Figure 1>

We predicted that teenagers' age would be negatively associated with APM (H1a) and positively associated with APRM (H1b) and ASTM (H1c). To test these hypotheses, we performed a correlation analysis between teen respondents' age and active mediation implemented by parents, peers, and school teachers. As expected, age was negatively associated

with APM ($r = -.11, p < .01$) and positively associated with APRM ($r = .09, p < .05$), supporting H1a and H1b, respectively. However, the relationship between the age and ASTM was only marginally significant ($r = .07, p = .058$). Thus, H1c was not supported.

With regard to the effects of active mediation on teens' engagement in online risks, we predicted that online risk would be negatively associated with APM (H2) and ASTM (H4) and positively associated with APRM (H3). To test these hypotheses, a hierarchical linear regression was performed with the summated online risk as the dependent variable and APM (H2), APRM (H3), and ASTM (H4) as predictor variables, while controlling for teens' demographic and Internet variables. Control variables were entered into the first block and the main effect variables (APM, APRM, and ASTM) into the second block using an enter method. Our choice of the control variables was guided by prior studies on teenagers' online risk taking and the role of parental mediation (e.g. Lee and Chae, 2012; Livingstone and Helsper, 2008). Those studies suggest that age (older), gender (boys), Internet use (more), and perceived Internet skills (higher) can contribute to young people's experience of (greater) online risks.

Before conducting the regression analysis, we carried out a Mahalanobis Distance test to detect multivariate outliers. Three cases were removed based on the results. The examination of residual normality and multicollinearity indicated that the data met the key assumptions required for regression analysis (i.e. linearity, homoscedasticity, normality). Table 2 presents the results of the regression analysis.

<Table 2>

APM did not emerge as a significant predictor of online risk in the regression analysis ($\beta = -.06, p = .09$). Thus, H2 was not supported. APRM was found to be a positive predictor of online risk ($\beta = .14, p < .001$). H3 was thus confirmed. ASTP was a negative predictor of online

risk ($\beta = -.10, p < .01$), thus supporting H4.

The model fit improvement and the significant R^2 increment from step 1 to step 2 in the regression model indicates that the examined socialization agent variables play important roles, even after demographic and Internet usage variables are counted. The final model explains 15% of the total variance in teens' engagement in online risks.

Discussion

While the Internet has become an integral part of teens' lives, various concerns and risks associated with teens' Internet use have been raised. This research set out to examine active mediation and teenagers' involvement in online risk taking, specifically focusing on the types of active mediation implemented by different socialization agents to influence teens' Internet use, the relationship between teens' age and active mediation that teens receive, and the effects of active mediation on teens' engagement in risky online behaviors.

Regarding the types of active mediation employed by the three socialization agents, our findings revealed that various socialization agents focus on different aspects of the Internet when they engage in active mediation. Specifically, while parents and teachers tended to focus more on making instructive remarks (e.g. talking about information management), peers were more likely to engage in neutral types of active mediation (e.g. helping or recommending). This seems to confirm our initial proposition that the nature of peer-to-teen interaction is different from the nature of adult-to-teen interaction, and the findings are also in keeping with Nathanson's argument (2001) and the results from EU Kids Online (Livingstone et al., 2011). Another observation is that parents were less likely to engage in more pro-active types of active mediation such as "helping" or "recommending." Even compared to teachers, who were found to be similar to parents in terms of the focus of active mediation, parents were less likely to make

suggestions regarding safe Internet use.

Regarding the relationship between the age of teens and the degree to which they receive active mediation from different socialization agents, we found age to be negatively associated with parental mediation but positively associated with peer mediation. This finding corroborates previous studies conducted in both traditional (Nathanson, 2001; Warren et al., 2002) and new media contexts (Livingstone et al., 2011; Shin and Huh, 2011), as well as what socialization research suggests (Maccoby, 2007). As they grow older and spend more time with friends, teens are more likely to talk about various issues, including Internet-related issues, with their friends, and less likely to do so with parents. As older teens spend an increasing amount of time on online social media undertaking peer communication through their own digital devices, they are less likely to discuss Internet issues with their parents. Parents of older teens may also believe that their teenage children know enough about the Internet and thus have less need for discussion. Future research could examine whether the age of teens influences the “effectiveness” of active mediation, in addition to the level of active mediation imposed by parents.

Regarding the effects of active mediation on teens' engagement in risky online behavior, we found that active peer mediation and active school teacher mediation were significantly associated with teen's online risk behavior. However, active parental mediation was not found to be significantly associated with teens' involvement in online risk taking. The findings appear to be in line with socialization theory: external socialization agents (peers and school teachers) play more important roles than internal socialization agents (parents) in teenagers' socialization processes and outcomes (Grusec and Davidov, 2007). Although prior studies suggest that active parental mediation is more effective than other types of parental mediation in influencing teens'

media consumption attitudes and behaviors, parents alone are an insufficient force to safeguard teenagers from various online risks.

The finding may also be explained by the types of mediation that parents tend to employ. As mentioned earlier, parents were less likely to engage in active prevention or instructions (e.g. helping or suggesting), and this might have resulted in no significant association between active parental mediation and teenagers' online risk taking. For today's tech-savvy teens, more specific and focused discussion of Internet-related issues may thus result in better outcomes. However, parents, who tend to be digital immigrants, may experience difficulties implementing more focused and direct active mediation on their digital native teen children. We encourage future research to identify factors determining the types of active mediation that parents practice with their children and the outcomes of those practices on children's online behaviors.

Our findings indicate that school education can play an important role in fostering safer online experiences for teenagers. Given the lack of research on the impact of school education on teenagers' Internet behaviors, more attention is warranted. Encouraging findings are that teachers play an important role in influencing teen online behaviors and that they are more pro-active in suggesting ways to use the Internet safely as compared to parents. Schools should thus consider taking the lead in developing educational programs for both parents and teenagers and should work closely with parents to implement effective intervention programs. On an individual level, teachers can inform and caution students about online safety risks and can serve as a sounding board for students who may have questions about what to do and not do online. Just as open communication within family promotes more productive and pro-social behaviors (Clark, 2011), open communication at school may also engender positive socialization outcomes. Thus, future research should explore communication and education styles adopted by school teachers and

their effects on teens' online attitudes and behaviors.

Perhaps one of the most important findings of this study is that, unlike active mediation implemented by parents and school teachers, peer mediation was found to be positively associated with teens' involvement in risky online behaviors. This may be due in part to peer comments leading to teens being influenced by the injunctive norms of their peers (by believing that everyone else must be involved in these types of behaviors) (Sasson and Mesch, 2014). As mentioned earlier, our analysis of the *types* of active mediation revealed that the nature of peer-to-peer interaction is different from the nature of adult-to-teen interaction. Those differences may explain the dissimilar outcomes found in this study, echoing previous research suggesting that peer influence can result in counter-productive socialization outcomes (e.g. Nathanson, 2001; Paek, 2008; Sasson and Mesch, 2014). Such an outcome is of particular concern, since teens today spend substantial amounts of time with peers both online and offline.

It may be unrealistic or even counter-productive to restrain teens from peer communication, as peer interactions are a crucial component in shaping teens' self-identity, friendship networks, and sense of belonging. Perhaps a more reasonable approach would be to understand the nature of peer-to-peer communication and interaction and to examine the effects of peer influence from a different perspective. While peer mediation in this study was found to be positively related to teens' online risk taking, it may also increase their awareness of various online risks, and eventually, such awareness and online experiences may hone the teens' Internet proficiency. Future research is needed to examine both the short- and long-term effects of peer mediation, focusing on the positive as well as negative aspects in various research contexts. Indeed, research on socialization suggests that peer influence does not always entail negative consequences. For instance, research reports that teens' interpersonal communication with peers

about product consumption is positively associated with marketplace knowledge (Moschis, 1978) and price-conscious decision making (Kamaruddin and Mokhlis, 2003). We suggest that future research explore various possibilities of peer influence and its pro- and anti-social effects with regard to Internet use, as well.

This study is limited in that it was conducted in only one country. Although we had a valid reason to choose Singapore as a research site, we also acknowledge that parenting values and practices are bound to culture (John, 1999), and thus, we call for caution when interpreting and projecting the findings of the present study to other culturally different research contexts. Furthermore, although we tried to recruit teenagers with diverse background from different regions, the sample is still a non-probability sample. While we do not consider the use of a non-probability sample a critical threat to the validity of the study findings about inter-variable relationships, we call for caution for readers not to overgeneralize our findings to the general teen population. Future research should include representative populations both similar to and beyond this demographic group.

Another limitation of this study is that the data reflects the teenagers' point of view only, without accounting for the perspective of socialization agents. Thus, what we measured was "perceived" active mediation. Research has suggested that parents tend to underestimate their children's engagement in negative social behaviors, such as inappropriate Internet use, and overestimate their control over their children (Liau et al., 2008). The literature also indicates that the wider the gap between parents' and children's perceptions about the levels of parental mediation imposed on children, the less likely parental mediation is to be effective (Buijzen et al., 2008). Future research should investigate how each socialization agent perceives his/her influence on youths and to what extent the discrepancy between adolescent and socialization

agent perspectives can account for media socialization practices and outcomes. Furthermore, as one socialization agent can affect a child's relationship with other agents (e.g. parents preventing children from making deviant friends), future research should also consider relationships and interactions among different socialization agents as factors affecting youth media socialization.

Our choice of measurements for active mediation was guided by prior studies (e.g. Lee and Chae, 2012; Livingstone et al., 2011; Youn, 2008). Recently, Valkenburg et al. (2013) have noted that active mediation can be conducted in either autonomy-supportive or controlling manners and that autonomy-supportive active mediation is expected to be more effective than controlling active mediation. Our study did not assess whether children perceived each type of active mediation as autonomy-supportive or controlling. We thus encourage future research to consider examining the *style* of different types of mediation and its outcomes.

While our study focused specifically on the role of active mediation, we suggest that future research examine a wider variety of factors as potential antecedents of teenagers' experience of online risks. For example, one could examine whether the contexts of Internet usage, such as private computing (i.e. surfing the Internet in their own rooms) and peer-to-peer communication activities (i.e. social networking), influence teenagers' exposure to online risks. Recent research has also pointed to cognitive and personality factors such as narcissism (Liu et al., 2013) as potential factors to consider when examining adolescent behavior online. Such factors might henceforth be explored in studies of teenage Internet use.

Despite these limitations, this study adds meaningful knowledge to the literature on socialization by examining multiple types of socialization agents and their influences on teenagers' online risk taking. Research examining the role of socialization agents in young people's media use has focused almost exclusively on parents, yet the roles of external

socialization agents in youth socialization may be just as important as the roles of internal socialization agents, especially when it comes to interactive media. Despite the fact that teens rely heavily on the Internet for various aspects of their lives, little is known regarding the social factors affecting teens' Internet behaviors. This research issue is timely and important but underexplored, with significant potential contributions to the body of parental mediation and socialization literature. Findings from this study provide parents and educators with opportunities to re-evaluate their current mediation strategies and to explore the issue from various angles. Socialization agents should understand that young people's socialization is a function of multiple socialization agents, and that knowledge and understanding of the nature of child development is crucial in implementing effective mediation strategies. Based on our findings, parents and educators may wish to implement different types of parental mediation for teens in different age groups. Understanding the role of peers in teens' media socialization will also help educators and policy makers to develop effective guidelines for teenagers and their parents.

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Appendix

Table 1. Measurement items and statistics ($N = 746$)

Constructs and Items	Mean	SD	α
Control variables			
Age	14.3	1.32	-
Gender (Male = 51.7%)	-	-	-
Time spent on the Internet per day (minutes)	216.25	164.05	-
Perceived Internet skills	3.85	.58	.74
I am skilled at using the Internet	3.64	.81	-
I consider myself knowledgeable about the Internet	3.62	.80	-
I know how to find what I am looking for on the Internet.	4.18	.68	-
I can compare different websites to decide whether the information is true	3.80	.86	-
I am better than my parents/caregivers when it comes to Internet knowledge and skills	4.01	.94	-
Main effect variables: Socialization Agent Influence*			
Active parental mediation (APM)			
<i>My parents/guardians spending most time with me at home...</i>			
Explains why some websites are good or bad			
Suggests ways to use the Internet safely	2.19	2.11	.83
Talks to me about what kinds of things should or should not be shared online			
Talks to me about what I would do if someone on the Internet ever bothered me			
Recommends good websites for me or people of my age			
Helps me when something is difficult to do or find on the Internet			
Active peer mediation (APRM)	2.09	1.79	.74
<i>My close/best friends...(Same six items were listed)</i>			
Active school teacher Mediation (ASTM)	2.07	1.97	.82
<i>My teachers at school...(Same six items were listed)</i>			
Dependent variable			
Online risks	1.65	.57	.62
I make new friends on the Internet.	2.64	1.13	-
I send personal information (e.g., many name, address, phone number) to someone that I have never met face-to-face.	1.31	.69	-
I send a photo or video of myself to someone that I have never met face-to-face.	1.23	.68	-
I share my Internet password with my friends.	1.41	.75	-

* Dichotomous measurements (1 = Yes, 0 = No): The number of "Yes" (1) was counted to form the score for the measurements.

Figure 1. Types of Active Mediation Taking Place between Teenagers and Socialization Agents

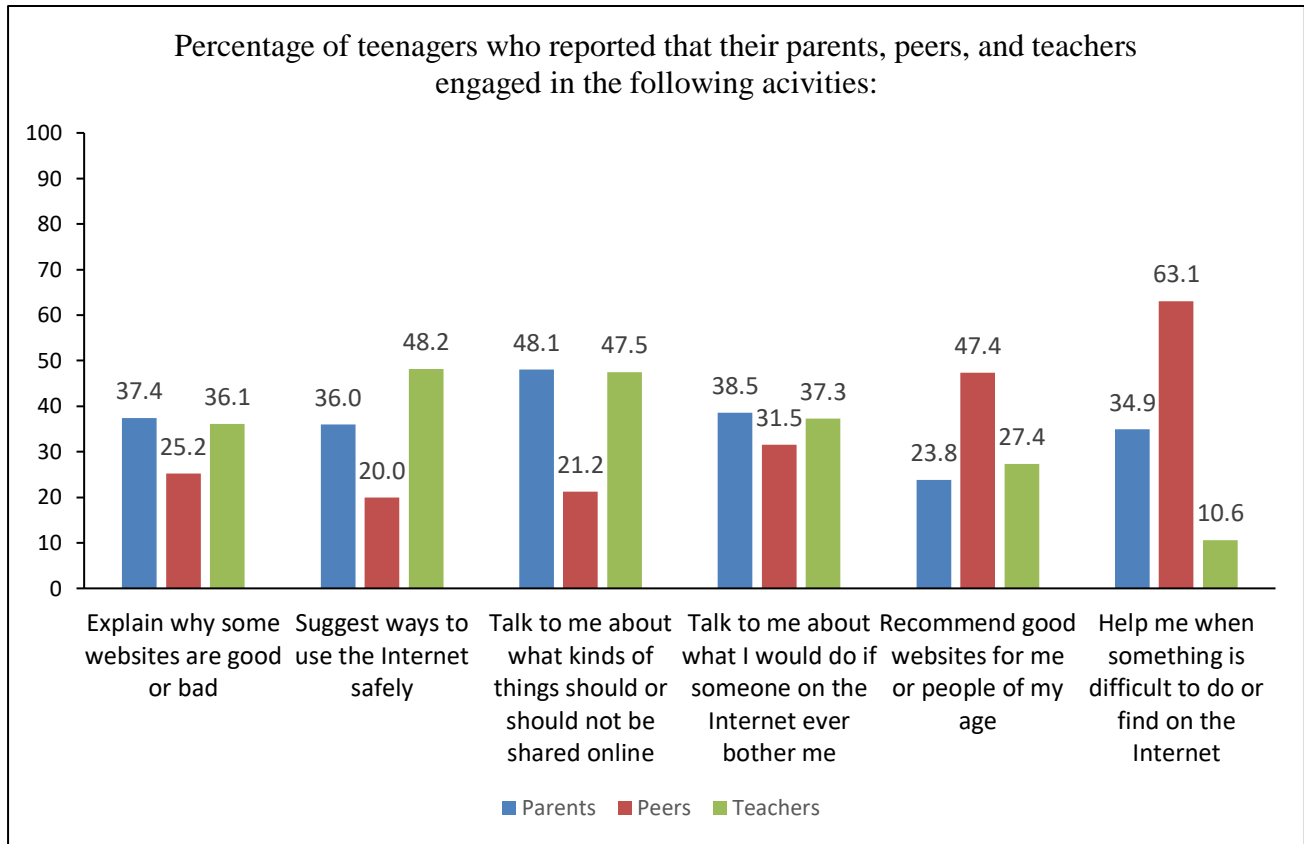


Table 2. Hierarchical Linear Regression Analysis for Predicting Online Risk

	<i>B</i>	<i>SE(B)</i>	β
Block 1: Control variables			
Age	.02	.02	.05
Gender (1= male, 2 = female)	-.11	.04	-.10**
Time spent on the Internet	.00	.00	.19***
Perceived Internet skills	.16	.04	.17***
$R^2 = .11$ ($Adj R^2 = .11$), $\Delta R^2 = .11$, F for change in $R^2 = 20.50$ ***			
Block 2: Main effect variables			
Active parental mediation (APM)	-.02	.01	-.06
Active peer mediation (APRM)	.04	.01	.14***
Active school teacher mediation (ASTM)	-.03	.01	-.10**
$R^2 = .15$ ($Adj R^2 = .14$), $\Delta R^2 = .04$, F for change in $R^2 = 9.44$ ***			

* $p < .05$, ** $p < .01$, *** $p < .001$

Note: *B*, *SE(B)*, β are from the final regression equation with all blocks of variables in the model.