Exploring the Influence of Parental Involvement and Socioeconomic Status on Teen Digital Citizenship: A Path Modeling Approach

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ABSTRACT

One important aspect of digital citizenship, defined as "the norms of appropriate, responsible behavior with regard to technology use," is to reinforce ethical online behavior and discourage risky conduct. The purpose of this study was to examine the effects of parental involvement and socioeconomic status on teens digital citizenship, which includes: digital access, digital etiquette, and digital safety. A research–based path model was developed to explain causal relationships between these factors. This model was tested based on data gathered from 270 teens and their parents. The results provided significant evidence in support of the following hypothesized model: teens whose parents were more involved in their technology usage and online activities have higher reported levels of digital etiquette and digital safety; teens whose parents have better socioeconomic status have higher level of digital access, digital etiquette and digital safety. Overall, parental involvement and socioeconomic status was found to positively predict teen digital citizenship. The study findings have the potential for guiding future model development and to further influence positive social change by supporting parents and educators to promote online safety and digital citizenship development.

Keywords

Digital citizenship, Parental involvement, Socioeconomic factors

Introduction

With the emerging picture of youth and technology usage including cellphones, instant messaging, social networking sites, and online virtual communities, youth are more than ever in need of support to develop socially responsible citizenship in the internet age (Choi, 2016; Clark, 2009; Ito et al., 2009a; Khurana, Bleakley, Jordan, & Romer, 2015). Digital citizenship was defined by Ribble and Bailey (2007) as "the norms of appropriate, responsible behavior with regard to technology use" (p. 10). Instead of focusing on what technology can do, the aim is to think about how technology should be used (Ribble, 2009, p. 13). According to Ribble (2004), digital citizenship represents a more comprehensive view of appropriate technology usage. In addition, it would include considerations for youth safety and security, educational enhancement, ethical and legal behaviors, and becoming an effective member of digital communities (Hollandsworth, Dowdy, & Donovan, 2011). Teaching teen digital citizenship requires effort from schools, educators, technology professionals and parents (Hollandsworth et al., 2011). Parents are the child's first and most influential teachers of civic values and attitude. "Parents need to be involved in the process of raising their children to be good digital citizens" (Ribble, 2009, p. 11). Three core elements of teen digital citizenship discussed in this study are: digital access, digital etiquette and digital safety.

One aspect of teenagers using digital technologies is using social media or social networking sites. Ahn (2011) analyzed survey results of social media usage related questions from parents and their teenage children and found that teenagers' use of online social networking sites is positively influenced by parental internet use. The findings also reported that teenagers who access the internet primarily from home (versus other locations, such as, school, library, public services facility, etc.) are more likely to use social network sites (Ahn, 2011). Ahn's (2011) study reported initial findings of parental influence on teenagers' use of social media sites. On one hand, teenagers gain benefits such as social development and technical skills (Clark, 2009) from using digital and mobile technologies; On the other hand, the online risks that teenagers may encounter make parents concern about their children's safety. According to the Pew Internet & American Life Project survey 2012, 72% of parents of online teens are concerned about how their child interacts online with people they do not know, with some 53% of parents being "very" concerned (Madden, Cortesi, Gasser, Lenhart, & Duggan, 2012). Parental involvement and monitoring has been found to mitigate online risks for teens. Khurana et al. (2014) reported that parental monitoring and efforts to regulate specific forms of internet use were associated with reduced rates of online harassment for adolescents. However, Rosen et al. (2008) found that parents with older children were more likely to have neglectful or indulgent parenting styles and less likely to set limits on online behavior. Furthermore, parents' high estimates of online dangers were not matched by their low rates of setting limits and monitoring teens.

One of the explanations for these phenomena may be that parents have difficulties guiding teenagers' technology use. With rapid development of new digital technologies, studies have revealed the digital gap between teenagers and their parents: parents may use digital technologies differently, or are even less experienced or knowledgeable about digital technologies than their teenage children (Clark, 2009; Norris, 2001; Yardi & Bruckman, 2011). As a result, parents lack confidence in guiding teens on using technologies that they are less familiar with. This is especially the case for teenagers in economically disadvantaged families (Clark, 2009; Duerager & Livingstone, 2012). We need to further understand parental involvement and home socioeconomic status' influence on teen digital citizenship, in order to guide parents and the society on helping teenagers to use technologies appropriately and become better digital citizens.

Prior studies on influence of parental and socioeconomic status on teen online behavior focused mainly on specific aspects of teen digital citizenship, such as internet/social network sites access (Ahn, 2011), or online risks/harassment (Khurana, Bleakley, Jordan, & Romer, 2015; Rosen et al., 2008; Youn, 2008). There are conceptually oriented and non-experimental research on the matter too (Choi, 2016). But there is lack of quantitative research examining the parental involvement and home socioeconomic status on the multi-dimensional aspects of teen digital citizenship. The purpose of this study is to explore the influence of parental involvement and socioeconomic status on the three elements of teen digital citizenship: digital access, digital etiquette and digital safety.

In the next section we reviewed prior studies and proposed our research model. Then followed the method section with measurements and data analysis details. The results section presented the findings, with discussion and conclusion section further elaborated and discussed those findings.

Literature review

Digital citizenship

Digital citizenship is a comprehensive construct and was identified as including a set of elements. Choi (2016) identified 4 major categories that construct digital citizenship: digital ethics, digital media and information literacy, digital participation/engagement, and critical resistance based on concept analysis. Choi argues that "digital citizenship needs to be understood as a multidimensional and complex concept in connection with an interrelated but non-linear relationship with offline (place-based) civic lives" (Choi, 2016). Ribble and Bailey (2004) have defined nine general behaviors of digital citizenship: "(a) digital access, (b) digital commerce, (c) digital communication, (d) digital literacy, (e) digital etiquette, (f) digital law, (g) digital rights and responsibilities, (h) digital health and wellness, and (i) digital security." As Ribble and Bailey also pointed out, topics within digital citizenship are wide and varied, researchers will need to use these topics as "buffet" and take what related to the research interests of one's own. Because of parental involvement and socio-economic status are the studied constructs, this research specifically focuses on three most related elements that Ribble and Bailey (2007) and Choi (2016) both stressed: digital access, digital etiquette, and digital safety.

Parental influence on teens' digital citizenship development

Livingstone's EU Kids Online survey presented a detailed picture of online interactions experienced by 25,000 European youth from 25 countries. Results varied widely by country indicating societal norms and values influence youth behavior. The report (Livingstone et al., 2011) established five key policy recommendations: (a) parental awareness, (b) focus on younger users, (c) industry support for internet safety, (d) digital citizenship, and (e) positive content (pp. 145–147). Parental awareness as the first policy recommendation has grown increasingly important to teen digital citizenship (Livingstone, Mascheroni, & Staksrud, 2015).

Parents hope that their children will be able to learn what they need and differentiate what is right and what is wrong. However, without the basic knowledge of digital citizenship, children may not think of the consequences of their actions online (Khurana et al., 2015; Robinson, 2013). Fortunately, more parents than ever are trying to understand what their children are doing with technology (Ribble, 2009). However, parents are facing challenges in getting involved in mediating teen digital citizenship. Yardi and Bruckman (2011) conducted an interview study with 16 parents from suburban neighborhoods in Atlanta, GA to examine challenges in "techno-parenting," which means parenting teens' technology use. Parents said that they wanted more transparency in their teens' use

of cell phones and the internet and they struggled with their own unfamiliarity with technology (Yardi & Bruckman, 2011).

Families with lower socioeconomic status were found to have even more difficulties in getting involved in teens use of digital technologies. Clark's (2009) study conducted narrative-in-interaction analysis on interviews with 55 parents and 125 young people. The article described the generation gap between parents and youth with regard to digital technologies usage and considers how parents attempt to articulate authority in relation to digital media use among their teenage children as well as the ways in which teens interpret those parental attempts to express authority influence the strategies they themselves embrace regarding digital media (Clark, 2009). Clark's (2009) research further revealed that parents of youth from economically disadvantaged homes experience deeper knowledge gap as regard to use of digital technologies. Teens in these families experienced frustration at their parents' lack of experience.

To further explore the effect of parental involvement and socioeconomic status on teen digital access, digital etiquette, and digital safety, the following sections examine each of these aspects and reviewed relevant literature.

Digital access

Research concerning teens' digital access found that access to technology was highly unequal. The term "digital divide" describes the concern about unequal access and participation in new technologies (Norris, 2001). Benefits from using these technologies were reported by many studies. For example, Clark (2009) argued that youth participation in online social network communities may signal the development of important technical skills and social development. Youth negotiate identity, learn social skills and become subject matter experts in topics of their interest through online interactions (Bennett, 2008; Boyd, Ghosh, Prabhakar, & Shah, 2006; Ito et al., 2009b). Web-based social networking sites and other online communication tools allow youth across the globe to get connected. Technology-mediated connections within and among teen virtual communities prompt teens to look beyond their own group and widen their horizons, which is referred as "bridging social capital" by Robert Putnam (2000). Youth that are systematically excluded from technology-mediated networking may also lose out on opportunities to develop technical skills, social interactions, and relationship networks (Ahn, 2011).

Studies have reported that ethnic minority groups were less likely to use technology (d'Haenens, Koeman, & Saeys, 2007). Those from lower socioeconomic backgrounds also had fewer opportunities to use media tools (Zillien & Hargittai, 2009).

Ahn (2011) utilizes a nationally representative survey from the Pew Internet & American Life Project to investigate whether access and participation divides persist in teens' use of online social networking sites (SNS). The results suggest that parents' use of Internet is positively related to teenagers' use of SNS. The findings also report that teenagers who access the internet primarily from home (versus other locations, such as, school, library, public services facility, etc.) will be more likely to use social networking sites. However, the research also discovered that traditional socio-economic indicators such as internet access or parent education are not significant predictors of SNS use. Youth appear to find a way to get connected (Ahn, 2011).

Parental involvement such as giving informative advices for teenagers on using various types of technologies/digital resources, and suggesting solutions for technical/social problems may help teens getting better chance of using new technologies. However, parents' lack of experience of technology use and parental restriction because of misconceptions toward certain technologies may reduce the opportunities for teenagers to get connected and use new digital technologies (Clark 2009). In addition, many of the young people in Clark's (2009) study of lower income families made comparatively little use of the Internet, particularly when compared with young people from higher income families.

Conclude from the studies reviewed, parental involvement, such as parental technology usage, parental monitoring, and attitude/awareness toward teens' digital technology access, etc., need to be explicitly examined as predictor of teens' digital access in prior research. Whether parents' socioeconomic status affects teen digital access also has contradicting findings. Therefore, the author proposes the following hypothesis concerning digital access:
H1: Active parental involvement of teens' use of digital and mobile technologies will have a positive effect on teens' digital access.
H2: Parents' socioeconomic status will have a significant relationship to teens' digital access.

Digital etiquette

Adolescence is marked by the desire for autonomy and independence. The Internet generally, and online social networking opportunities in particular, help adolescents feel autonomous. The Internet and other instant communication tools offers adolescents social, moral, recreational, and intellectual experiences that are not mediated by adults (Bradley, 2005). Digital etiquette defined electronic standards of conduct or procedure (Ribble, Bailey, & Ross, 2004). Ribble and colleagues (2004) argue that when the young generation saw adults using technologies inappropriately, they would assume it is the norm. This leads to inappropriate technology behavior on the part of youth.

Flores and James (2013) explored the extent to which youth's approaches to online life include moral or ethical considerations drawing on interviews with 61 teenagers. The researchers reported the prevalence of three ways of thinking about use of social networks, massive multi-player games, Wikipedia, and file downloading. The finding revealed that individualistic thinking (focusing on consequences for oneself) dominated participants' thinking; moral thinking (considering known others) was somewhat prevalent; and ethical thinking (acknowledging unknown others and communities) was least prevalent (Flores & James, 2013).

The moral development theory by Kohlberg (1973) and the domain theory by Turiel (1983) viewed morality as "entailing judgments, [and being] based on the proposition that children construct ways of thinking about welfare, justice and rights through a variety of social experiences. (p. 17)" The internet can be treated as a social context that both frees young people from adult control and forces them into conflict and disequilibrium as they interact with others online (Bradley, 2005; Carlo, Fabes, Laible, & Kupanoff, 1999). According to Kohlberg (1973), interpersonal relationships with family and friends are key to forming societal values and norms during adolescence. For general advice and influence, parents are still the top source for teen internet and cell phone users (86%) (Lenhart et al., 2011).

88% of teens who use social media witnessed other people be mean or cruel on social network sites, 15% of teens who use social media say they have been the target of online meanness (Lenhart et al., 2011). Digital etiquette was defined as electronic standards of conduct or procedure (Ribble et al., 2004). People recognize inappropriate behavior when they see it, but before using technology, they do not learn digital etiquette.

Parental involvement such as setting limits, have conversations to address digital etiquette early and modeling appropriate digital technology usage/online behavior was suggested by America Academy of Pediatrics (2015) as effective means to help teenagers build digital etiquette. However, there is still lack of quantitative research on examining influence of parental involvement and socio-economic status on teen's digital etiquette. Prior research offered theoretical and conceptual recommendations for parental role in the development of teens' digital etiquette. Based upon discussed studies, hypotheses of this study are as follows:
H3: Active parental involvement of teens' use of digital and mobile technologies will have a positive effect on teens' digital etiquette.
H4: Parents' socioeconomic status will have a significant relationship on teens' digital etiquette.

Digital safety

Digital safety is an issue of high concern in teenagers' use of technology. For teenagers, the online realm may be adopted enthusiastically because it represents "their" space, visible to the peer group more than to adult surveillance, an exciting yet relatively safe opportunity to conduct the social psychological task of adolescence: to construct, experiment with and present a reflexive project of the self in a social context (Livingstone, 2008). Despite the benefits of online networking technologies for teenagers' social development, it has also facilitated certain forms of negative behavior such as cyber bullying, personal data misuse, and exposure to possible harmful content such as hate, violence, drugs, and suicide (Oksanen et al., 2014; Cole & Griffiths, 2007; Livingstone, Mascheroni, & Staksrud, 2015; Robinson, 2013)

Studies conducted in Europe and the United States indicated adolescents' online risks in the digital age. According to the Net Children Go Mobile survey conducted by Livingstone and colleagues with 3500 European youth internet users in 7 countries in 2013/14, around half of all 11-16 year olds have encountered one or more of the 10 risks that researchers asked (Livingstone, Mascheroni, Ólafsson, & Haddon, 2014). The misuse of personal data is another growing policy issue, especially for children. Livingstone et al. (2011) noted "9% of surveyed children recently had a misuse of their personal data" (p. 101). The researchers also pointed out that

risks to children will evolve as the role of the Internet develops. Hundley and Shyles (2010) investigated adolescents' uses of digital media devices by conducting focus groups with 80 middle- and high-school teenagers in United States. Four themes emerged from 11 focus group interviews: (1) an awareness of digital devices; (2) a sense of temporal displacement; (3) social functions; and (4) a palpable sense of risk associated with using them. Livingstone et al. (2011), and Hundley and Shyles (2010) have revealed the awareness of the safety issue when teenagers use online networking sites, gaming, instant messaging, etc. Livingstone et al.'s (2011) survey also included parental input, allowing researchers to correlate online youth risk with parental involvement. Although the levels of risk estimated by children and their parents were similar, when examining awareness of risk among individual parents matched with the children who had encountered those risks, parental awareness was low.

Valcke et al. (2011) conducted a long-term cross-sectional study on online risks. Based on the analysis of survey data from 10,000 young children, trends in their (un)safe Internet usage are studied in 2005-2009. Results clearly reflect risky, unsafe Internet usage. Also, no consistent reduction in unsafe internet behavior is being observed over the years. Parental and teacher control hardly increase, and hardly seem to impact the level of unsafe internet behavior (Valcke, De Wever, Van Keer, & Schellens, 2011).

On the other hand, Duerager and Livingstone (2012) reported that parents from higher SES homes do more active safety mediation but do not impose more restrictions.

Active mediation by parents is associated with lower online risk of harm, as well as children enjoying more online opportunities and gaining more digital skills (Hollandsworth et al., 2011; Livingstone et al., 2015). "Active safety mediation" is more often used after a child has experienced something upsetting online to prevent further problems. "Active safety mediation" and "monitoring" of internet safety is also associated with a higher tendency to engage in communicative coping. "Restrictive mediation" is also associated with lower online risk of harm, but also lower online opportunities and digital skills, because children are less free to explore, learn and become resilient. They are also more likely to adopt passive responses to online risks (Livingstone, 2015).

Does parental involvement and socioeconomic status actually help increase teens digital safety in an environment that embedded with digital media, internet, and mobile technologies? Since prior literature reported contradictory findings of parental influence on teen digital safety, this study will further examine this matter. The set of hypothesis are as following:
H5: Active parental involvement of teens' use of digital and mobile technologies will have a positive effect on teens' digital safety.
H6: Parent socioeconomic status will have a significant relationship with teens' digital safety.

Research model

From the above hypotheses a research model of this study is proposed (Figure 1). This model hypothesizes that three elements of teen digital citizenship: digital access, digital etiquette, and digital safety, can be explained by parental involvement and parent socioeconomic status.

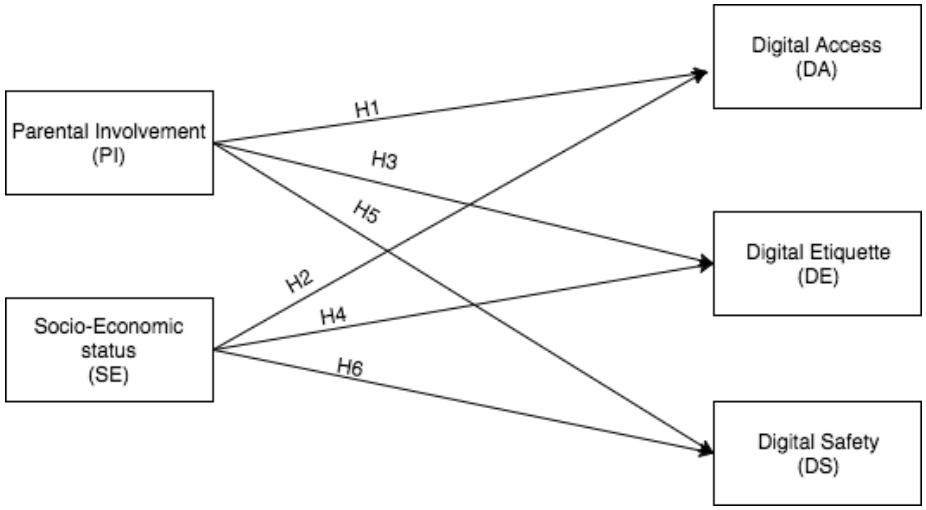

Figure 1. Proposed research model

Method

Participants

The sample (n = 270) for this study was a subset data from a large national survey study conducted by Pew Research Center's Internet & American Life Project (Madden et al., 2013). The project collected information about social media usage and related questions from teenagers and their parents in United States. Among the 270 teen participants for this study, 54.4% were male while 45.6% were female. The teen participants were from 12 to 17 years old, and the mean age was 14.56. Thirty seven percent of the parent participants were male and 63% were female. Mean age of parent participants was 47 years old. Participants who volunteered were given the survey questionnaire by the researchers to complete. They were briefed on the purpose of the study and their right not to participate, during or after data collection. On average each participant took about 30 minutes to complete the questionnaire.

Measures

The questions used in this study were based on five constructs: parent socioeconomic status (2 items), parent involvement (4 items), teens digital access (4 items), digital etiquette (4 items), and digital safety (4 items).

The category of parent socioeconomic status includes two questions: parent education level and parent income. The parent involvement measure included scales as parental knowledge and concerns of teens online behaviors, which was related to parental monitoring measurement developed by Kerr et al. (2010). The 4 questions measured parental involvement of how teens manage online interactions, sensitive information, digital identity, and opportunities. The digital access measure assessed teen access to internet, emails, whether they own a cellphone or computer/laptop, and whether they access the internet using mobile devices. These access variables were in alignment with Ahn (2010)'s study. The digital etiquette measure included questions such as, if the teen participant used inappropriate information online, received inappropriate content, developed closer relationship and uncomfortable online interactions. The questions are based on Ribble's (2004) examples of digital etiquette. Digital safety measures include questions such as personal data sharing online, privacy settings, etc. The questions were in accord with Livingstone's (2015) scales. Most of the questions are likert-scale questions. The scales are: "very," "somewhat," "not too" and "not at all." a few questions used "yes" and "no" as possible answers. See Appendix A for the questionnaire used by this study.

Analysis

A partial least squares (PLS) path modeling approach was adopted for the data analysis of this study. PLS path modeling is a multivariate statistical method to examine the relationship among a group of independent and dependent variables (Goggins & Xing, 2016). This approach is recognized as the second generation of multivariate analysis, composed of multiple regression, path analysis, principle component analysis and multiple discriminant analysis (Fornell & Larcker, 1981). While the linear structure relationships (LIREL) model is more suitable for theory testing and development, PLS path modeling is for predicative applications in a regression sense. Since this study is more explanatory in nature, the PLS path modeling is more suitable for model testing.

Specifically, the reflective measures were used to test the differences of the latent variables (SE and PI) effects on manifest variables (DA, DS, and DE). The factors revealed by EFA were subjected to confirmatory factor analysis (CFA) using R. Further analyses based on the model include t-tests and testing of the structural equation model based on the identified factors.

Results

Convergent validity

This section presents details on the reliability and validity of the data collected in this study. Fornell and Larcker (1981) proposed three procedures to assess the convergent validity of a set of measurement items in relation to their corresponding constructs. These are (1) item reliability of each measure, (2) composite reliability of each construct and (3) the average variance extracted. The item reliability is assessed by its factor loading onto the

underlying construct. Hair, Black, Babin, Anderson, and Tatham (2006) suggested that an item is significant if its factor loading is greater than 0.50.

As the review of literature indicated that the factor structure of the survey must be tested for validity and reliability, we first performed exploratory factor analysis (EFA) on the data of the five constructs: parental involvement, parent socioeconomic status, digital access, digital etiquette and digital safety employing the steps recommended by Hair et al. (2010). Factors with eigenvalues greater than 1 were retained. Items with initial loading below .5 were removed. As a result, items da1, da4, ds1, ds3, de1 and de2 were removed.

As shown in Table 1, all remaining factor loadings of all the items in the measure ranged from 0.65 to 0.92, which exceed the value recommended by Hair et al. (2006). Convergent validity is demonstrated at the item level.

Table 1. Factor loading and average variance extracted

Latent variables	Item	Factor loading	AVE*
Parents socioeconomic status (SE)			0.781
	se1	0.923	
	se2	0.841	
Parent Involvement (PI)			0.593
	pi1	0.750	
	pi2	0.735	
	pi3	0.778	
	pi4	0.812	
Digital Access (DA)			0.606
	da1	-0.212	
	da2	0.808	
	da3	0.647	
	da4	0.460	
Digital Safety (DS)			0.649
	ds1	0.216	
	ds2	0.901	
	ds3	0.384	
	ds4	0.682	
Digital Etiquette (DE)			0.617
	de1	0.001	
	de2	0.343	
	de3	0.855	
	de4	0.689	

Note. *AVE, average variance extracted, computed by totaling the squares of factor loading divided by the number of factors in the underlying construct.

The composite reliability of each construct was assessed using Cronbach's α. DeVellis (2016) suggested that α values between 0.70 and 0.90 should be considered good. The α values for DA, DS and DE are calculated using average inter-item correlation. The range for average inter-item correlation for reliability is 0.15-0.5.

Table 2. Construct reliability

Construct	α	SE	PI	DA	DS	DE
SE	0.724	(0.884)				
PI	0.778	0.025	(0.770)			
DA	0.37*	0.184	0.045	(0.778)		
DS	0.49*	0.140	0.111	0.074	(0.806)	
DE	0.39*	0.112	0.110	0.138	0.002	(0.785)

Note. *Marked item used average inter-item correlation calculation. Diagonal, square root of average variance extracted from observed variables (items); off-diagonal, correlations between constructs. SE = parent socioeconomic status; PI = parents' involvement; DA = digital access; DS = digital safety; DE = digital etiquette.

Discriminant validity

Discriminant validity is considered adequate when the variance shared between a construct and any other construct in the model is less than the variance that the construct shares with its measures (Fornell, Tellis, & Zinkhan, 1982). The variance shared by any two constructs is obtained by calculating the square of the correlation between the two constructs. The variance shared between a construct and its measures corresponds to average variance extracted. Discriminant validity was assessed by comparing the square root of the average variance extracted for a given construct with the correlations between that construct and all other constructs. The diagonal elements have been replaced by the square roots of the average variance extracted.

For discriminant validity to be judged adequately, these diagonal elements should be greater than the off-diagonal elements in the corresponding rows and columns. From Table 2 discriminant validity appears satisfactory, indicating that the constructs in the proposed research model are deemed to be adequate.

Path modeling analysis

In order to evaluate the proposed hypotheses, the researchers estimated the path coefficients between the constructs. PLS also helped the researchers measure the variances between the dependent and independent constructs. Figure 2 shows the results calculated for the proposed research model. Based on the path coefficient and *t*-statistics, the results indicate that only H1 was rejected. H2-H6 were supported by the path analysis results (Table 3).

Table 3. Path coefficients of the proposed research model

Hypotheses	Path		Path coefficient	Standard error	*t* value	Support hypotheses
	From	To				
H1	PI	DA	0.050	0.0601	0.831	No
H2	SE	DA	0.186	0.0601	3.090^{***}	Yes
H3	PI	DS	0.107	0.0603	1.78^{*}	Yes
H4	SE	DS	0.137	0.0603	2.28^{**}	Yes
H5	PI	DE	0.107	0.0605	1.77^{*}	Yes
H6	SE	DE	0.110	0.0605	1.81^{*}	Yes

Note. $^{*}p < .10$ weak significance; $^{**}p < .05$ moderate significance; $^{***}p < .01$ strong significance.

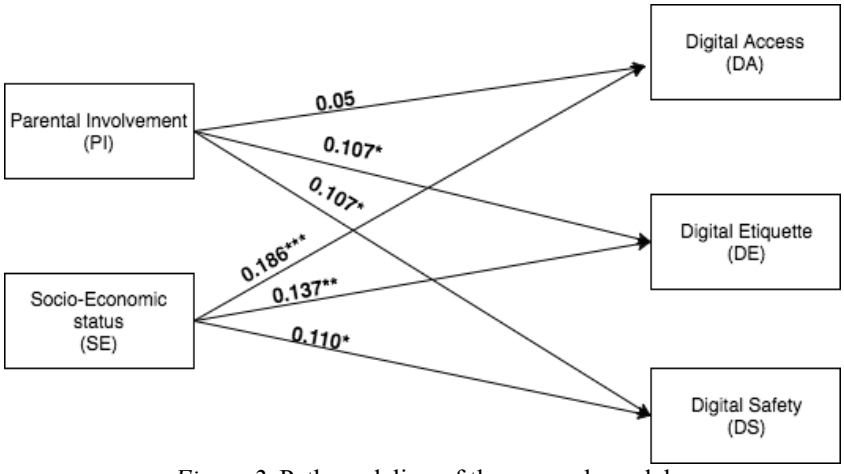

Figure 2. Path modeling of the research model

Discussion and conclusion

This study contributes to past discussion of teen digital citizenship by examining the role of parental involvement and socioeconomic status in the three aspects of digital citizenship: digital access, digital etiquette and digital safety. The study revealed that parents' socioeconomic status has a significant relationship with all aspects of teen digital citizenship: digital access, digital etiquette, and digital safety. Parental involvement also has a positively significant effect on teen digital etiquette and digital safety.

The results of this research reinforced that teens developed better digital citizenship with parents from higher SES homes. The finding echoed Clark (2009), and Duerager and Livingstone (2012)'s findings. Clark (2009) reported that many of the young people in the study of lower SES families made comparatively little use of the internet, particularly when compared with young people from higher income families. Teens in lower SES families experienced frustration at their parents' lack of experience and their subsequent actions, some of which were interpreted as invasions of privacy and others as an obstruction to their social and even academic goals. Wang et al. (2005) found that parent education level as an indicator for teens internet use. Duerager and Livingstone (2012) discovered that parents with better socioeconomic status do more active mediation regarding online safety with teens, which leads to fewer risks associated online behavior.

Parent involvement has been discovered as a significant predictor of teen digital etiquette and digital safety, but not for teen digital access. Despite the extent of parental involvement in teenagers' technology usage, getting online has become the norm of teenagers' everyday life. Data from Pew Research Center indicated that aided by the convenience and constant access provided by mobile devices, especially smartphones, 92% of teens report going online daily — including 24% who say they go online "almost constantly," More than half (56%) of teens (defined in this report as those ages 13 to 17) go online several times a day, and 12% report once-a-day use. Just 6% of teens report going online weekly, and 2% go online less often (Lenhart et al., 2015).

Digital etiquette recognizes virtual communities (Rheingold, 1993) as new spaces where people live, interact, and communicate with each other on a regular basis. Ribble (2009) claimed that teaching teenagers to engage in internetworking appropriately, ethically and responsibly should be included in digital citizenship education. Parents need to be aware that rights to free speech; protecting privacy; intellectual property; copyright protection; and respecting self, others, and community, including reporting cyberbullies and harms, are important issues of digital citizenship. The influence of parental involvement on teen digital etiquette has been studied rarely in prior literature. This study has provided initial evidence that parental involvement positively influences teen digital etiquette. More specifically, parental knowledge and involvement in mediating teenagers' online activities influence how teens behave appropriately and responsively when using digital technologies. Through the process of getting to know teens online activities and their inner thoughts about why or how they interact with people online periodically, parents could facilitate teens building digital identities, perspectives, values and appropriate conduct, at the meantime, support teens extending social connections to family and friends.

According to Duerager and Livingstone (2012), parent active mediation of internet use tends to decrease the experience of harm between 9 and 12 years, though there is no effect for 13 to 16 year olds. Our study further showed that teenagers' (12-17 years old) digital safety was significantly influenced positively by parental involvement. Researchers also found that parental involvement has greater direct influence on online risk than parental restriction. Similarly, Livingstone et al. (2015) found that the use of 'parental filters' was not found to reduce online risk. The researchers reported a correlation such that more parental filtering is linked with less online risk, but when the researchers control statistically for the child's age, this correlation disappears. It seems that parents more often apply filters for younger children and, separately, younger children encounter less risk since they use the internet less. Thus, there is no statistical link between parental filtering and level of risk after controlling for age (Livingstone et al., 2015). From these results, we learn that active parental awareness and involvement is more effective than parental restriction for teenager use of digital technologies. There is probably no such one-size fit-all kind of solution or strategy for different families to react to teenagers' safety issues brought by digital interactions. However, awareness and knowledge of the risks in digital world will help parents pro-actively guide and monitor their teenagers. Parents also need to realize that growing up digital presents both opportunities and risks. Teenagers' explorations in the digital world are not very different from those by earlier generations; the platform differs, not the behaviors. Teens use digital and mobile technologies for many purposes, risk is not always negative, and opportunities to fail safely can be valuable too.

In the past two decades, parents and teenagers experienced the most drastically changing world in the perspective of information technology. Chai, Bagchi-Sen, Morrell, Rao, and Upadhyaya (2009) argued, "The rapid development of information technology (IT) can make even the most aware users vulnerable" (p. 167). To maneuver in these new circumstances, youth are seeking guidance and strategies from parents, teachers, and friends (Chai et al., 2009; Lenhart et al., 2011). The implications of this research are four fold: (1) the findings of this research provides parents and educators with accurate information supporting teenagers develop digital citizenship specifically improve teen digital access, digital etiquette, and digital safety. (2) Extra support need to be provided to the teenagers from lower SES homes in regard to digital citizenship development. (3) Promoting parental awareness on getting involved with teen digital technologies use in order to help teens become better digital citizens. (4) The empirical evidence from this study can help school districts and educators to provide

practices and curriculum for parents who are in need of learning strategies of guiding teens digital citizenship development.

In conclusion, this article has examined parental and socioeconomic influence on teen digital access, digital etiquette, and digital safety. The results indicated that parental involvement efforts empowered teenagers online by enhancing their opportunities and skills while also going some way to reducing risk and harm from online risk. Although this study mainly focuses on parental and SES influence, it is no doubt that this is a community effort, including schools, teachers, parents, peers and the public, to educate our youth on how to be a good digital citizen. The limitation of this research is the scope of the study. We have mainly focused on the parental effects and three aspects of digital citizenship. Future studies could further explore extended elements of digital citizenship. Research on parental strategies when involved in mediating teen technology usage is another direction that could contribute to the current body of research.

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Appendix A. Questionnaire questions used by the study

Demographic Questions

RECORD SEX OF PARENT
1 Male
2 Female

ASK ALL PARENTS:
What is your race? Are you white, black, Asian, or some other race?
1 White
2 Black or African-American
3 Asian or Pacific Islander
4 Mixed race
5 Native American/American Indian
6 Other (SPECIFY)
8 Don't know
9 Refused

RECORD TEEN SEX
1 Male
2 Female

Socio-Economical Status

se1
ASK ALL PARENTS:
What is the last grade or class you completed in school?
1 None, or grades 1-8
2 High school incomplete (grades 9-11)
3 High school graduate (grade 12 or GED certificate)
4 Technical, trade or vocational school AFTER high school
5 Some college, no 4-year degree (includes associate degree)
6 College graduate (B.S., B.A., or other 4-year degree)
7 Post-graduate training/professional school after college (toward a Masters/Ph.D., Law or Medical school)
8 Don't know
9 Refused

se2
ASK ALL PARENTS:
What was your total family income from all sources, before taxes last year?
1 Less than $10,000
2 $10,000 to under $20,000
3 $20,000 to under $30,000
4 $30,000 to under $40,000
5 $40,000 to under $50,000
6 $50,000 to under $75,000
7 $75,000 to under $100,000
8 $100,000 to under $150,000
9 $150,000 or more
10 Don't know
11 Refused

Parental Involvement

In addition to the ways the internet and cell phones are useful for teens like yours, some parents have concerns about technology. For each of the following, please tell me how concerned, if at all, you are about these issues.

pi1. How your child manages their reputation online

pi2. How much information advertisers can learn about your child's online behavior

pi3. How your child interacts online with people they do not know

pi4. How your child's online activity might affect their future academic or employment opportunities

Digital Access

da1
Do you use the internet or email, at least occasionally?

da2
Do you access the internet on a cell phone, tablet or other mobile device, at least occasionally?

da3. A cell phone... or an Android, iPhone or other device that is also a cell phone
da4. A desktop or laptop computer

Digital Safety
ds1
Thinking about Facebook... When, if ever, was the last time you checked your privacy settings on that profile?
1 Sometime in the past 7 days
2 Sometime in the past 30 days
3 Sometime in the past 12 months
4 When you first created your profile
5 You have never checked them
8 You don't know or you can't remember
9 Refused

We'd like to know if you have posted the following kinds of information to the profile or account you use most often, or not.

ds2. A photo of yourself

ds3. Your relationship status
ds4. Your school name

Digital Etiquette

Have you ever done or experienced any of the following?
de1. Shared sensitive information online that later caused a problem for you or others in your family
de2. Received online advertising that was clearly inappropriate for your age

de3. Been contacted online by someone you did not know in a way that made you feel scared or uncomfortable
de4. Had an experience online that made you feel closer to another person