INTERNATIONAL SECTION

Relationships Between Young South Koreans' Online Activities and Their Risk of Exploitation

SOONHWA SEOK
Korea University
sunaseok@yahoo.com

BOAVENTURA DACOSTA
Solers Research Group
bdacosta@solersresearchgroup.com

The misuse of the Internet that takes advantage of adolescents and young adults' lack of understanding along with their growing online presence has left them at risk. A study comprising 1,092 South Korean high school students investigated ways in which adolescents and young adults may be exploited while engaged in popular and everyday online activities. Specifically, exposure to sexually explicit material (SEM) and violent content, cyberbullying, malware, phishing, and identity theft were examined in the contexts of social media, streaming movies and/or television, streaming and/or posting videos, downloading and/or listening to music, downloading and/or sharing files, involvement in free and/or subscription-based online gaming, reading news, emailing, surfing, and completing school assignments. The findings reveal prevalence rates consistent with the literature on young people's technology use and online activities; moreover, exposure to SEM and cyberbullying were found to have statistically significant relationships with these activities. These are findings consistent with studies concluding that exposure to SEM and online bullying are two of the most serious issues related to young people today and, therefore, warrant continued attention to identifying strategies that can be used to curb risky online behavior. With more and more students using the Internet to access educational content and complete schoolwork in online and blended courses, it is imperative that young people are taught how to safeguard themselves when online.

RELATIONSHIPS BETWEEN YOUNG SOUTH KOREANS' ONLINE ACTIVITIES AND THEIR RISK OF EXPLOITATION

The growing availability of high-speed broadband and technological advancements, such as smart devices, has had a profound impact on education, creating favorable conditions for e-learning (Hwang, Yang, & Kim, 2010). As the Internet and respective technologies have moved learning outside of the traditional classroom setting, such technologies have become a source of significant concern when it comes to young people (Staksrud & Livingstone, 2009). While the Internet poses threats for users of all ages, young people are said to be at particular risk because it is believed that they are not fully aware of the consequences of their online actions (Mascheroni & Cuman, 2014; UNICEF, 2017) and because being online creates situations that force young people to make decisions about matters that they may not be developmentally ready for (Miller, Thompson, & Franz, 2009). This lack of understanding, coupled with the belief that young people are one of the fastest groups of adopters of the Internet (Marcum, Ricketts, & Higgens, 2010; UNICEF, 2017), has left them especially vulnerable to exploitation.

Safeguarding young people is problematic in itself (Staksrud & Livingstone, 2009), however, because of an alleged relationship between online exposure and risk. That is, the greater the online exposure the greater the risk, but less risk also means less exposure to online opportunities (Livingstone & Helsper, 2010), which is increasingly necessary to be successful in school and other areas of daily living. Care, therefore, is needed when implementing safeguards (e.g., technical controls, policies, legislation, interventions, and training) to ensure that they do not hinder, but rather stimulate, healthy online use, to include the educational benefits of the Internet (Staksrud & Livingstone, 2009).

This issue is becoming more and more significant as students are increasingly going online to access educational content and complete school assignments (UNICEF, 2017). Countries such as South Korea have been instrumental in promoting the rapid growth of e-learning (Lee, Yoon, & Lee, 2009), recognizing the importance of blending information technology and educational services (Kim, Cho, & Lee, 2013). Moreover, access to e-learning is not only available to students from developed countries, but has become increasingly important in rural parts of the world in bringing educational services to students who would otherwise be marginalized and kept from a quality education. Children and young people living in remote areas of Brazil, for instance, have been accessing educational content for over a decade (UNICEF, 2017).

One of the ways to protect young people while still allowing them access to the countless benefits offered by the Internet is to educate them on ways to identify and combat online dangers (Livingstone & Smith, 2014; Valcke, De Wever, Van Keer, & Schellens, 2011). This idea is supported by others (e.g., Mishna, Cook, Saini, Wu, & MacFadden, 2011), who have associated cyber-awareness interventions and training with increased knowledge of safe online practices, but who have also cautioned that information alone may not be enough to change risky online behavior. That is, while it is imperative that young people be taught about online safety, the relationship between information and putting the knowledge gained into practice is unclear. Subsequently, it has been proposed that interventions and training must do more than expose young people to information about safety, including promoting strategies for decreasing unsafe online behavior (Mishna et al., 2011).

Regrettably, to date, research on this issue has been mostly descriptive (Marcum et al., 2010; Patton et al., 2014), focused on the magnitude of online exploitation in terms of demographics (Reyns, Henson, & Fisher, 2011). Little attention, by comparison, has been paid to examining relationships between online activities and risk (Marcum et al., 2010).

The current investigation was conducted to close this gap, by exploring ways in which today's young people may be exploited while engaged in popular and everyday online activities. It is hoped that the findings may offer insights that can be used to develop and improve cyber awareness interventions and training. Specifically, the study examined exposure to online sexually explicit material (SEM) and online violent content, cyberbullying, malware, phishing, and identity theft in the context of popular and everyday online activities. Namely, the study examined social media (e.g., Facebook), the streaming of movies and/or television (e.g., Netflix), the streaming and/or posting of videos (e.g., YouTube), the downloading of and/or listening to music (e.g., iTunes), the downloading and/or sharing of files (e.g., BitTorrent), involvement in free and/or subscription-based online gaming (e.g., PlayStation Now), reading news, emailing, surfing, and completing school assignments. Furthermore, the investigation also examined the pervasiveness of young people's technology use, offering exposure rates to the aforementioned potential types of exploitation to help put the findings in context.

To avoid the ambiguity that often surrounds controversial and highly debated topics, "cyberbullying" was defined as aggressive behavior that is repeated over time, intended to harm, and that involves power differences between the victim and the perpetrator (Olweus, 2010). This may include different types of bullying, from the constant harassment of classmates on social media to name-calling in online gaming. As in other studies

(e.g., Ballard & Welch, 2015), this broad definition was adopted as a conservative approach to avoid unnecessary criticism. Similarly, "online" was also defined very broadly, to mean performing an action while connected to the Internet. This too could include a range of activities, from sending email to playing online games. "Young people", in turn, are defined in this study as high school students, ages 15 to 20. The participants were further grouped, identified as "adolescents" (ages 15 to 17) and "young adults" (ages 18 to 20).

Finally, while social media, movies, television, music, and games are not typically included in the domain of learning, to successfully educate young people on safeguarding themselves from online dangers, to include when students are online for educational reasons, a stronger understanding is required on how these individuals are exploited while engaged in a breadth of everyday online actions. That is, young people do not solely go online to learn or complete homework, so interventions and training must be developed in the context of understanding students' overall online activities. The widespread availability of high-speed broadband and smart devices, for example, has had a profound impact on South Korean young people that has affected their lives, both personally and as students. When coupled with future research, the findings emerging here will be of value to policymakers, educators, practitioners, and researchers interested in furthering effective ways to help young people protect themselves from online exploitation.

METHOD

Setting

The study took place at four high schools near Seoul, South Korea. The participating schools were vocational-track institutions focused on a wide range of disciplines, to include agriculture, commerce and business, home economics, and technology and engineering. In South Korea, primary and middle school education is compulsory, with high school comprising two tracks, vocational and general (Ji-Yeon, 2014). Vocational high schools teach a trade and help students enter the job market as skilled workers, whereas general high schools prepare students for higher education at the university level (Ji-Yeon, 2014).

South Korea was chosen because of its leadership role in the research and development of mobile and wireless communication technologies as well as its high broadband penetration rate. For example, a 2016 study by the Pew Research Center found that among all the countries surveyed, South Korea had the highest rate of smartphone ownership

(88%; compared to the U.S. rate of 72%) and Internet access (94%; U.S. rate 89%) (Poushter, 2016). Similarly, Budhrani, Ji, and Lim (2018) cited a 2017 report released by the Korea Internet and Security Agency (2018) along with 2018 data from the Organisation for Economic Cooperation and Development (2019), showing that 90% of the South Korean population (6 years of age and older) possessed smart devices, and 99.5% of all South Korean households had access to the Internet. These findings concur with research showing that smartphones are highly popular in the country and used by young people for everyday activities (i.e., messaging, surfing, gaming, and social media) (Cha & Seo, 2018).

South Korea was also chosen because of its distinctive social and cultural emphasis on education (Severin & Capota, 2011). For instance, students are encouraged to spend most of their day studying (Severin & Capota, 2011), with a large majority attending supplementary education intended to help them achieve a high-grade point average and prepare for the college entrance exam (Innovation Centre Denmark, 2014). This strong cultural commitment, coupled with the country's leadership role in unifying quality education with advanced technologies, has provided a well-suited and unique population from which to draw participants.

Participants

A total of 1,092 students participated. Of these, 58% ($n = 638$) were 18 to 20 years of age, followed by 42% ($n = 454$) who were 17 and younger. (In South Korea, turning 19 years of age is considered adult; this occurs January 1st of the birth year, not on one's birthday.) Gender was almost evenly distributed, with 53% ($n = 575$) male and 47% ($n = 517$) female. Fifty-four percent ($n = 593$) of the participants lived in households comprising four people, with 35% ($n = 378$) of households earning a gross annual income of $20,000 to $39,999 USD, followed by 32% ($n = 348$) earning $40,000 to $59,999 USD. In 2018, the South Korean household income per capita was $16,567.175 USD (CEIC, n.d.). Unfortunately, data was not collected on the number of people who worked in the household, making it difficult to determine how the households ranked. There is the perception, however, that South Korean students who attend vocational schools come from low-income households, and choose the vocational track for financial reasons (Kim, 2013). Although this is not always the case, it may suggest that multiple family members in these households worked, explaining the gross annual incomes reported. Finally, 28% ($n = 303$) of the participants primarily studied the visual and performing arts, followed by 9% ($n = 94$) computer science and 8.5% ($n = 93$) information technology or engineering.

Materials

A 51-item questionnaire was created by the authors to investigate the online activities of young people. Items were derived from a research synthesis focused on cyber awareness conducted by the authors. The authors examined peer-reviewed materials, as well as online news articles, and commissioned studies on the state of cyber safety. The materials were not restricted to the South Korean culture or Asian countries, but addressed cyber safety in general, across different cultures and geographic locations. From these materials, the authors identified areas of concern, categorizing findings by technology use, online activities, and online victimization practices.

The questionnaire was divided into two sections. In the first, the participants were asked about their online practices. The items focused on how they went about preventing malware, handling passwords, dealing with data encryption and storage, as well as surfing. Items also focused on device use, amount of time spent online, and activities mostly engaged in, as well as exposure to online threats. In the second section, demographic information was collected.

The findings presented here are based on a subset of the questionnaire items. Namely, the items used were those related to online activities and forms of online exploitation. In addition, items on device use, time spent online, and demographics were also included.

Procedure and Analysis

The paper-and-pencil questionnaire was administered by staff in the participating schools. The students could answer the items in any order, skip items, and withdraw from the study at any time. The questionnaire was presented in Korean but was translated to English for statistical analysis and reporting by an expert fluent in English and Korean. Permission to conduct the study was obtained from school officials, and parental consent was sought for participants 17 years of age and younger.

Pearson's chi-square tests of independence were used to explore the relationships between the online activities and potential forms of exploitation. A value of .05 was used to determine statistical significance.

RESULTS

Technology Use

Mobile phones (88%, $n = 964$) were among the most popular technology devices used, followed by personal computers (PCs; 85%, $n = 931$), video game devices (handhelds: 27%, $n = 298$; consoles: 13%, $n = 141$), and

tablets (12.5%, n = 137). Further, as shown in Table 1, using social media (47%, n = 510), free online gaming (16%, n = 176), and streaming movies/television (10%, n = 109) were among the most frequent single activities in which the participants engaged. That is, the one online activity each participant engaged in the most. In turn, emailing (n = 1), involvement in subscription-based gaming (n = 7), completing school assignments (n = 11), reading news (n = 12), and downloading and/or sharing files (n = 14) were reported by one percent or fewer. Simply put, compared to the other online activities, less than one percent of the participants reported that their primary online activity was emailing, playing subscription-based games, completing school assignments, reading news, or downloading/sharing content. Lastly, 34% (n = 534) spent more than six hours per week online, with 66% (n = 724) spending less.

Table 1
Online Activities in Which Participants Engaged the Most

Online Activity	Freq. (%)
Social media (e.g., Facebook)	510 (46.7%)
Streaming of movies and/or television (e.g., Netflix)	109 (10%)
Streaming and/or posting of videos (e.g., YouTube)	46 (4.2%)
Downloading and/or listening to music (e.g., iTunes)	49 (4.5%)
Downloading and/or sharing files (e.g., BitTorrent)	14 (1.3%)
Free online gaming	176 (16.1%)
Subscription-based online gaming (e.g., PlayStation Now)	7 (.6%)
Reading news	12 (1.1%)
Email	1 (.1%)
Surfing	48 (4.4%)
Completing school assignments	11 (1.0%)
Other	109 (10%)

Note. The participants were asked to identify the one online activity in which they participated the most.

Exploitation

As shown in Figure 1, almost half of the participants reported having been exposed to SEM (47%, $n = 507$), followed by violent material (31.5%, $n = 344$), cyberbullying (28%, $n = 304$), malware (26%, $n = 286$), phishing (12%, n = 128), and identity theft (5%, $n = 53$).
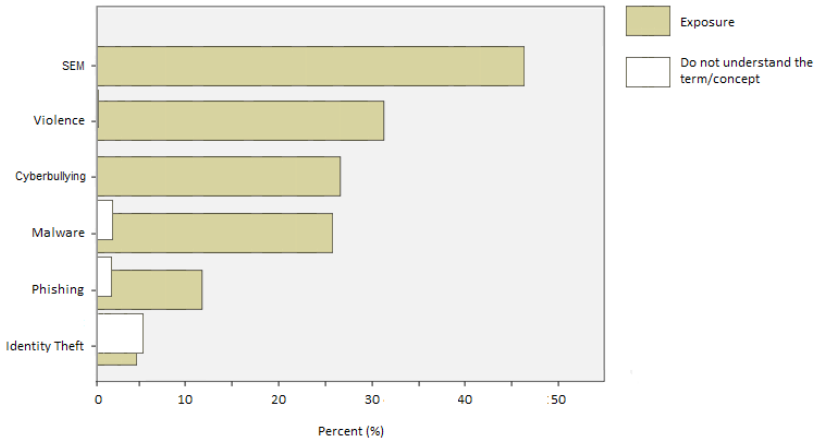

Figure 1. Online Exploitation and Lack of Understanding.

Table 2
Online Activities Most Involved in Viewed in the Context of Potential Forms of Exploitation

Online Activity	SEM	Cyberbullying
Social media (e.g., Facebook)	241 (45.6%)	140 (26.5%)
Streaming of movies and/or television (e.g., Netflix)	36 (33.0%)	30 (27.5%)
Streaming and/or posting of videos (e.g., YouTube)	17 (32.7%)	8 (15.4%)
Downloading and/or listening to music (e.g., iTunes)	26 (51.0%)	15 (29.4%)
Downloading and/or sharing files (e.g., BitTorrent)	6 (42.9%)	5 (35.7%)
Free online gaming	95 (54.0%)	69 (39.2%)
Subscription-based online gaming (e.g., PlayStation Now)	6 (85.7%)	2 (28.6%)
Reading news	4 (33.3%)	1 (8.3%)
Email	-	-
Surfing	28 (56.0%)	18 (36.0%)
Completing school assignments	6 (50.0%)	-

Exploitation and Online Activities

As illustrated in Table 2, only exposure to SEM, χ^2 (14, N = 1,092) = 24.28, p < .05, Cramér's V = .150, and cyberbullying, χ^2 (14, N = 1,092) = 27.20, p < .05, Cramér's V = .160, showed statistically significant relationships with the online activities. No statistical significance was found with regard to exposure to violent material, χ^2 (28, N = 1,092) = 29.82, p = .37; malware, χ^2 (42, N = 1,092) = 55.87, p = .07; phishing, χ^2 (28, N = 1,092) = 28.02, p = .46; and identity theft, χ^2 (28, N = 1,092) = 29.30, p = .40.

DISCUSSION

Technology Use

Participants owned multiple devices in the form of mobile phones (88%), PCs (85%), gaming devices (handhelds: 27%; consoles: 13%), and tablets (12.5%). Mobile phone ownership was aligned with the previously cited 2016 report released by the Pew Research Center, which found that South Korea ranked highest (88%) among all the countries surveyed regarding smartphone ownership (Poushter, 2016). Similar statistics have been reported with different populations in other studies. For example, Alexopoulos et al. (2009) ranked device ownership among 374 incoming first-year undergraduate business students at an Irish university as follows: mobile phones (99.7%), PCs (laptops, 73.9%; desktops, 70.9%), game devices (consoles, 62.8%; handhelds, 34.8%), and tablets (6.1%).

Findings showed that less than one percent (n = 11) of the participants primarily went online to complete school assignments, suggesting that although the participants owned multiple devices, they were not using them mainly in educational contexts. There may be different explanations for this. As stated, some research found that young people are using these devices more for everyday activities than for educational reasons (Lohnes & Kinzer, 2007; McWilliam, 2002). For instance, in examining smartphone use among 1,824 South Korean middle school students, Cha and Seo (2018) reported the participants mostly used their devices for messaging, followed by surfing, gaming, and then social media. The high mobile phone ownership alongside the popularity of social media (47%), free online gaming (16%), and streaming of movies and/or television (10%) in the current investigation appears to be aligned with the Cha and Seo (2018) investigation.

With regard to their use in South Korean classrooms, while differences may be found between schools (e.g., in rural areas vs. city), laptops are utilized by students in postsecondary education settings more than at the primary or secondary levels, with private schools leveraging such devices in

classrooms more than public schools. In many traditional, public middle schools, for example, classroom instruction is teacher-led, with the teacher typically having a laptop with the digital materials shown to students on a screen or individual monitors (Simon & Martini, 2009).

However, South Korea continues to move forward with its digital textbook project, with the goal of replacing paper-based textbooks at the elementary and middle school levels with mobile-based versions (Joo, Lim, & Kim, 2016). Digital textbooks are intended to be accessible via multiple devices, to include PCs, tablets, and smartphones, and thus, the digital textbook project and similar efforts may help shift the use of such devices to classrooms, as well as help young people to use their devices for general educational purposes.

Another interesting finding of the current study was the low game device ownership. This may be explained by the fact that in South Korea video games are predominantly played on PCs, with a long trend in lagging console sales attributable to a number of reasons, to include, an epilepsy panic in the 1990s (Rumas, 2007); a ban on Japanese cultural products lasting until 1998, which included console games (Jin & Chee, 2008); pirating of arcade games; and a proliferation of high-speed broadband (Rousse-Marguet, 2013).

Coupled with the re-emphasis that young people use multiple devices, this finding shows that assumptions should not be made regarding online gaming. That is, although dedicated game consoles are immensely popular, this is not necessarily the case everywhere, and consequently, cyber awareness interventions and training should not be limited to any single gaming platform (i.e., believing that bullying occurs in chats during games played on PCs rather than consoles).

Research shows that young people spend considerable time on social websites (e.g., Bolton et al., 2013; Hargittai, 2007) and gaming (e.g., Brooks, Chester, Smeeton, & Spencer, 2015; Williams, Yee, & Caplan, 2008). In the present study, the online activities in which the participants mostly engaged were as follows: social media (47%), free online gaming (16%), and streaming of movies and/or television (10%). These findings have been echoed in other South Korean investigations. For example, surveying the information and communication technology (ICT) practices of 1,258 students, DaCosta and Seok (2014) identified the following as the primary dimensions: communicating, socializing, downloading and sharing, gaming, and online learning. Although the authors reported substantially higher prevalence rates than in the current investigation, of all the online activities examined, they specifically called out social media (60%), video games (37%), and online movies (78%) as the most popular. These findings emphasize the importance of continuing awareness interventions and training that focuses on safeguarding today's young people while engaging in these online activities.

More interesting is perhaps the finding that subscription-based online gaming ($n = 7$) and the previous mentioned completing of school assignments ($n = 11$) were reported by one percent or less of the participants. Although emailing ($n = 1$), reading news ($n = 12$), and downloading and/or sharing files ($n = 14$) also ranked low, these are not typically viewed as primary online activities or as consuming as much time as gaming or working on school projects. The availability of free gaming coupled with piracy and the likely absence of discretionary funds may explain the disinterest in subscription-based gaming. In another study, Seok and DaCosta (2015) found that 66% ($n = 1,320$) of the South Korean students they sampled only played free games.

However, it is the low rate of completing schoolwork as a primary online activity that seems the most puzzling, particularly given that the South Korean culture tends to be characterized by technology-supported academic achievements and rigor. There may be several possible explanations for this finding. In addition to the perception that students who attend vocational high schools do not have the financial means to attend college (Kim, 2013), it is also believed that these students do not have the academic aptitude or grades (i.e., GPA, college entrance exam scores) to enter postsecondary education (Kim, 2013). These perceptions have contributed to a stigma about attending vocational schools in South Korea (Ji-Yeon, 2014), creating the unwarranted and negative view that trade schools are inferior and that a college education is needed to be successful. If true for the current sample, this may explain why only 1% ($n = 11$) reported that they went online to mostly complete their schoolwork. Consideration should be given to reproducing this study, sampling from both vocational and general high schools to offer further insights into possible differences between these educational paths and students.

There is also another possible explanation for the low rate of completing schoolwork as a primary online activity. As stated earlier, there is research to suggest that young people may not be interested in mainly using everyday technology for educational purposes (Lohnes & Kinzer, 2007; McWilliam, 2002), or have made distinctions between "living" and "learning" technologies (Waycott, Bennett, Kennedy, Dalgarno, & Gray, 2010). For example, Waycott et al. (2010), while examining student and staff access to and use of technologies at three Australian universities found that some of the participants used technologies to separate their work/education and social lives, with differences identified between technologies used in educational settings and those used in everyday life. It could be argued that such research is not applicable to the South Korean culture, based on what is known about the country's emphasis on education. Particularly given that blended learning is growing in popularity, although more widely adopted at the postsecondary level (Lee, 2018). According to Hwang et al. (2010),

e-learning was adopted in 67.5% of higher education institutions before 2005, showing its use at the postsecondary level prior to that of primary and secondary education. Even though the authors also report that the adoption of e-learning has since been the highest in primary (88.0%) followed by secondary (middle schools, 78.0%; high schools, 68.7%) schools and then universities (junior colleges, 62.0%; universities, 78.0%); with vocational schooling also a leading area in adopting e-learning into education. Such statistics should be viewed with care, however, as South Korea is still very much rooted in traditional, teacher-led, face-to-face instruction, and challenges, such as lack of interactivity with instructors and course-related information, have hampered the implementation of online learning solutions (Lee & Im, 2006).

Given the findings of the present study, the supposition that young people are not interested in mainly using everyday technology for educational purposes merits additional study in the current context as well as its applicability across cultures. The results of such further research could offer insights to educators, practitioners, and other stakeholders interested in incorporating everyday technologies both in and out of the classroom (Waycott et al., 2010), as well as tailoring cyber awareness interventions and training to different populations of young people.

As for time engaged in online activities, 66% of the participants reported spending less than six hours per week online, comprising 27% ($n = 290$) who spent one to three hours, 23% ($n = 252$) spending three to six hours, and 17% ($n = 182$) spending less than an hour. At odds with research declaring that young people spend considerable time online (e.g., Matyjas, 2015), these findings may be unique to Asian countries. Mythily, Qui, and Winslow (2008), in investigating Internet use among 2,735 twelve- to eighteen-year-old secondary school students in Singapore, found that 25% of their sample did not access the Internet every day, with 12.4% spending at least one hour per day, 22.4% spending two, 21.8% spending three to five, and 17.1% spending more than five hours a day. While it could be argued that online use since the Mythily et al. (2008) study tends to have increased, the 2016 Pew Research Center report revealed that despite having the highest Internet access rate (94%) among all the countries surveyed, only 58% (compared to the U.S. rate of 69%) reported that they used the Internet more than once per day (26% used the Internet only once per day) (Poushter, 2016). Nevertheless, with the continued strength of South Korea as a high-tech leader, as demonstrated by its widespread broadband Internet access, this finding warrants additional study, as new data may reveal differences between the online habits of Asian students and students in other parts of the world, furthering the development and tailoring of effective cyber-awareness interventions and training.

Exploitation

Exposure to SEM

Of the possible forms of online exploitation investigated, exposure to SEM was the most frequent at 47%. Similar rates have been noted in previous studies. For example, Lo and Wei (2005) found a 38% prevalence rate for the 2,001 Chinese high and middle school students they surveyed. Mitchell, Finkelhor, and Wolak (2007) reported that 42% of the 1,500 ten- to seventeen-year-olds they sampled in the United States had been exposed to online pornography, 66% of which was unsolicited. Braun-Courville and Rojas (2009) found that 55.4% of the 12- to 22-year-olds they surveyed at a primary care facility in New York City had been exposed to Internet pornography, 43% of which was reported as accidental exposure. Finally, Chen, Leung, Chen, and Yang (2013) reported that 71% of 1,166 Taiwanese students in 10th through 12th grade had been exposed to Internet pornography, 41.3% of which was unintentional. This finding, when viewed in the context of the exposure rates reported in similar lines of research, reinforces the continued importance of SEM as a topic in cyber awareness interventions and training.

Cyberbullying

The 28% cyberbullying rate in the current investigation is also similar to rates reported in the literature. Misna, Saini, and Solomon (2009), for example, pointed to studies revealing prevalence rates from 10% to 35% (e.g., Hinduja & Patchin, 2008; Kowalski & Limber, 2007; Patchin & Hinduja, 2006; Williams & Guerra, 2007) and higher (e.g., Juvonen & Gross, 2008; Raskauskas & Stoltz, 2007). In a synthesis of studies across several disciplines, Aboujaoude, Savage, Starcevic, and Salame (2015) revealed that a significant proportion of children and adolescents (20% to 40%) had been cyberbullied. Furthermore, some of these investigations have sampled diverse cultures. For example, Li (2007b) found a 25% rate among 177 Canadian seventh-grade students sampled (compared to 54% who had been victims of traditional bullying), and Li (2007a) reported a rate of 28.9% based on an analysis of data on 264 seventh-grade Canadian middle school students and 197 Chinese secondary students. Walrave and Heirman (2011) reported a 34.2% rate among 1,318 twelve- to eighteen-year-old secondary students in Belgium, while Black (2014) found that 28.6% of 77 seventh- to ninth-grade students attending a Tennessee middle and high school had been cyberbullied. As with SEM, cyberbullying should be included in cyber awareness interventions and training, as online bullying may traverse cultural and geographical considerations.

Exposure to Violent Material

Finding appropriate research to compare the rate of exposure to violent material is difficult, as many studies view violence in the context of SEM and/or cyberbullying through different mediums. For example, Sabina, Wolak, and Finkelhor (2008) reported that 17.9% (n = 192) of the males and 10.2% (n = 371) of the females in their sample, younger than 18 years of age (surveyed later as college students), had sought or unwantedly seen SEM, to include depictions of rape. Ballard and Welch (2015) found that 52% of the 151 eighteen and older, self-selected, massively multiplayer on-line (MMO) game players they sampled had been cyber-victimized through name-calling (52%), use of profanity (50%), use of name-calling with a sexual meaning or connotation (48%), exclusion (20%), sexual harass-ment (23%), threats (12%), being pursued sexually (11%), removal from a guild because they were disliked (a group of players that band together for a common cause; e.g., defeat an enemy; 11%), and through spreading of lies (10%). Zilka (2017), in turn, in examining the awareness of eSafety and po-tential online dangers for children and teenagers, reported that among the 345 Israelis surveyed, 26.4% believed that online dangers consisted of cy-berbullying and violence. The 31.5% exposure rate in the current investiga-tion is within range of the aforementioned prevalence rates. However, fur-ther study is necessary given that this investigation is one of few that have attempted to independently examine exposure to violent material.

Malware, Phishing, and Identity Theft

Regarding exposure to malware, phishing, and identity theft, Bossler and Holt (2009), in surveying 788 U.S. college students, found that 30% had been victims of malware. In a later study involving 573 U.S. college stu-dents, the authors reported that 36.5% had lost data resulting from malware (Bossler & Holt, 2010). Further, Jagatic, Johnson, Jakobsson, and Menczer (2007) reported that among the 487 eighteen- to twenty-four-year-old col-lege students they sampled, 77% of females and 65% of males had been victims of phishing. Surveying 1,001 online respondents, Sheng, Holbrook, Kumaraguru, Cranor, and Downs (2010) found a 28% phishing victimiza-tion rate – a reported reduction from 47% after their sample received train-ing on how to identify and avoid phishing scams. Finally, Bossler and Holt (2010) also reported that 4.4% of their sample had suffered from credit card theft, while Harrell and Langton (2013) found identity theft among 16- and 17-year-olds to be less than 1%, increasing to 5% among those 18 to 24, and those 65 and older.

The 26% malware exposure rate in the current investigation appears to be similar to the rates reported above, as does the 5% identity theft rate. However, the 12% rate for phishing might be viewed as low. Sheng et al.'s (2010) study showing the positive effects of training may explain this

difference. That is, the participants in the current investigation may have been able to recognize phishing attempts, as further analysis revealed that only 3% ($n = 31$) acknowledged not understanding the term (see Figure 1). Further, since phishing is often perpetrated through email, the relatively low phishing rate in the current investigation might also be explained as a result of a relatively low rate of email use. Still, this finding is no less deserving of further study than the others mentioned.

Exploitation and Online Activities

When examined in the context of everyday activities, our findings revealed that only exposure to SEM, χ^2 (14, $N = 1,092$) = 24.28, $p < .05$, Cramér's V = .150, and cyberbullying, χ^2 (14, $N = 1,092$) = 27.20, $p < .05$, Cramér's V = .160, were statistically significant. This may be the case for several reasons. It has been proposed (e.g., Brown & L'Engle, 2009) that young people may have more difficulty avoiding online SEM than deliberately finding it. For example, in an early study, Rideout (2001) reported that of the 15- to 17-year-old U.S. students sampled, 70% had accidentally seen Internet pornography. Similarly, Livingstone and Bober (2004), in reporting on the findings of a UK-based national survey of 1,511 nine- to nineteen-year-olds, revealed that 57% had been unwittingly exposed. Among the 16- to 17-year-olds interviewed via phone, Flood (2007) also reported cases of unsolicited online porn for 84% of the boys and 60% of the girls. Sixty-six percent of the exposure rate reported by Mitchell et al. (2007) was unwanted, resulting from searches, misspelled web addresses, misleading links, pop-up advertisements, and email spam. Finally, Ybarra, Finkelhor, Mitchell, and Wolak (2009), in conducting telephone interviews with one caregiver and one young person 10 to 17 years of age across 800 U.S. households, reported that 32% had been exposed to unwanted online SEM.

These findings are interesting because they are similar to the 56% ($n = 28$) of the participants in the current study who reported having had been exposed to SEM while surfing the Internet (see Table 2). These findings may also explain the 33% ($n = 4$) who were exposed while reading news and the 50% ($n = 6$) while completing schoolwork. Depending on the news outlet used, the sites may have included inappropriate advertisements, whereas those doing homework may have inadvertently viewed SEM through misleading links and other methods described by Mitchell et al. (2007). Given the growing popularity of online news sources and increasing academic dependence on the Internet, these findings necessitate further study, as additional evidence may lead to best practices in safeguarding young people in these contexts.

While surfing the Internet is arguably the most frequent way in which young people are exposed to SEM, other types of media have raised concerns as well. For example, in examining data from a cross-sectional

online survey of 1,588 youth, Ybarra and Mitchell (2008) found that 32.5% had been harassed through threats, aggressive comments, or rumors, 9% of which was through social media sites. The authors also noted that 15% had received an unwanted sexual solicitation, with 4% originating from social media. The authors concluded, however, that the broad claims of cyberbullying and sexual misconduct on social media were not justified, as young people were more likely to be solicited through instant messaging (IM; 42.5%) and chat rooms (31.7%). Similarly, Hinduja and Patchin (2008) found that youth were more likely to be bullied in chat rooms or through text messaging, with girls (13%) more than boys (9.7%) being harassed through email.

The 26.5% ($n = 140$) online bullying and 46% ($n = 241$) SEM exposure rates found in the current investigation for participants who predominantly used social media (see Table 2) may seem high in comparison to the findings of Ybarra and Mitchell (2008); however, it is important to note that social media platforms (e.g., Facebook) now include IM and chat features. With social media gaining popularity among adolescents and young adults in recent years, the rates reported in the present study may reflect more accurate exposure rates related to social media, as more current research suggests that acts of violence against young people, for instance, is increasingly occurring in the online space (Patton et al., 2014); again an issue that warrants further study with regard to possible cultural influences and variances.

Young people are also exposed to SEM in the form of music containing sexual language and videos containing sexual imagery, which has been associated with permissive sexual attitudes (Zhang, Miller, & Harrison, 2008), raising the concern that these forms of media play as much of a role as websites in exposure to SEM. Brown et al. (2006), for example, in conducting a longitudinal study surveying 1,017 U.S. adolescents from 14 middle schools, reported that 66% of the males and 39% of the females in their sample had seen at least one form of SEM within the past year, leading the authors to conclude that exposure to music, movies, television, and magazines accelerate sexual activity. Furthermore, such concerns are not restricted to young people. Thus, in sampling older college students (514 Australian and 902 U.S.), Wright and Rubin (2017) found that exposure to sexual content in music (i.e., lyrics, videos, and social media) could lead to engagement in risky sexual behaviors. These findings offer support for the exposure rates in the current investigation regarding music (51%, $n = 26$), television (33%, $n = 36$) and videos (33%, $n = 17$), as well as the sharing of online content (43%, $n = 6$). Overall, these results emphasize that although activities such as visiting social media websites and online gaming are important considerations in cyber awareness interventions and training, topics such as exposure to SEM through streaming music should not be neglected.

Among the different forms of media that have prompted alarm, video games are perhaps one of the most scrutinized. *Grand Theft Auto*, for example, has often been cited for its sexual overtones and depictions of violence. Although the Entertainment Software Rating Board assigns age and content ratings for video games, it is believed adolescents and sometimes children still play games that are rated Mature (M). Thus, as part of their Media Wise survey of 657 fourth- to twelfth-grade students, Walsh et al. (2005) reported that 70% played M-rated games, with 78% of boys owning these types of games and 60% rating at least one as their favorite. Further, Yao, Mahood, and Linz (2010) found that playing sexually charged games may promote thoughts related to sex, encourage a view of women as sex objects, and embolden inappropriate treatment of women. Video games have also helped bring attention to online harassment and cyberbullying through controversies such as #GamerGate. Thus, Lam, Cheng, and Liu (2013) noted that 14.4% of 1,278 thirteen- to eighteen-year-old Chinese high school students who had been exposed to violent games had also been cyberbullied. In turn, Fryling, Cotler, Rivituso, Mathews, and Pratico (2014) found that 78% of the 1,033 twelve- to seventy-year-old gamers they sampled (who played a variety of online games from early childhood to adult content) had been cyberbullied in MMO games.

The 86% ($n = 6$) exposure rate to SEM reported by the participants in the current investigation who predominantly played subscription-based games are comparable to the estimates offered in the Media Wise survey (i.e., Walsh et al., 2005). Namely, the participants may have been exposed to SEM while playing M-rated games, with the exposure rate for free games (54%, $n = 95$) lower because free games generally target a larger audience, and thus, are typically void of adult-themed content. Although Lam et al. (2013) noted that making comparisons to their 14.4% cyberbullying rate was difficult due to lack of similar studies, they pointed out that the rate was similar to that of investigations conducted in the United States (e.g., Wang, Iannotti, & Nansel, 2009; Wolak, Mitchell, & Finkelhor, 2007), concluding that cyberbullying is common among both Chinese and U.S. high school students. The 39% rate for free and 29% for subscription-based gaming found in the current investigation might, therefore, be considered high in comparison.

However, eSports are incredibly popular in South Korea, with competitive gaming commonplace, possibly explaining the high prevalence. If this is the case, it may suggest a connection between the popularity of eSports and the degree of bullying reported in online gaming, warranting further, careful study. This is particularly important because eSports is not only growing in popularity, but also has educational potential, possibly supporting the development of soft skills (e.g., communication, teamwork), literacy

(e.g., reading and writing), as well as promoting interest in science, technology, engineering, and mathematics (North America Scholastic Esports Federation, 2019). Given a possible connection between online bullying and eSports, alongside the importance of eSports in educational contexts, further study is needed to explore student safety guidelines and strategies to curb risky online behavior. Such study may also include ways to disseminate guidelines and strategies, as part of online teacher standards or as separate standards specifically drawn for eSports teachers.

Limitations and Future Research

Several areas of this study may be viewed as limitations. First, the strength of the associations was small, suggesting the need for caution in interpreting the findings. In addition, as always, there are validity challenges associated with self-reported data. Although it is believed that the participants responded truthfully, it is conceivable that some did not want to admit that they had been exploited. Further, the terms "cyberbullying" and "online" may have been defined too broadly, possibly influencing the findings. Method of access, which was not specified in either definition, may have had a significant impact on the online activities reported or on rates of exposure, as school and home networks are typically viewed as being safer than public Wi-Fi. The participants reported using multiple devices, but identifying which devices were used for specific activities was out of the scope of the investigation. Future research should consider device selection, as this may offer additional insights into how cybercriminals are targeting and exploiting young people, as well as help frame future cyber awareness interventions and training. Malware, for instance, might be more prevalent on open networks. The participants were asked to indicate their one primary online activity. Having a ranking of online activities from most to least important might have offered additional insights and perhaps even different findings. Instant messaging and chat were excluded due to their decreasing popularity, but they may have played a role in the findings regarding social media, possibly showing their continued relevance. Mishna et al. (2011) proposed that cyber awareness interventions and training need to engage young people, parents, educators, and practitioners, and even though Reyns et al. (2011) asserted that most studies have not advanced beyond explaining exposure in terms of demographics, Livingstone and Haddon (2008) had earlier noted that socioeconomic factors should be examined not only as they relate to families, but also to schools, neighborhoods, and surrounding areas. Therefore, future investigations should expand their scope to include other perspectives as well as demographic influences in the context of community. Furthermore, it has been proposed that while it is possible to categorize different types of risks, it is difficult to identify relationships

between risks and activities; with cultural differences in attitudes towards what constitutes risks noted as a reason (UNICEF, 2017). Thus, future research should include participants from other cultures. As described, South Korea has placed an emphasis on integrating technology in support of e-learning initiatives. Although aspects of this study were found to be consistent with those of research conducted in different cultures, future study is needed to compare young people from a global perspective.

CONCLUSIONS

With more and more students using the Internet to access educational content and complete schoolwork (UNICEF, 2017), it is imperative that young people are taught about how to safeguard themselves when online. However, it has been suggested that such knowledge does not necessarily lead to reduced risky online behavior (Mishna et al., 2011), with the relationship between knowledge and online practices being unclear (Mishna et al., 2011). Born out of the need for strategies that can be applied to decrease unsafe online behavior, the current investigation examined relationships between online activities and potential forms of exploitation.

The findings revealed rates consistent with the literature, but more important, they showed that exposure to online SEM and cyberbullying were the only potential forms of exploitation that had statistically significant relationships with the activities. Although much more research is needed, these preliminary findings suggest that exposure to online SEM and cyberbullying are the two largest issues facing today's young people as they relate to popular and everyday online activities. In addition, the findings emphasize the popularity of social media, online gaming, and the streaming of multimedia. This does not suggest that the many other activities that young people are engaged in are unimportant. Rather, it is a call for policymakers, educators, practitioners, and researchers to continue to bring online SEM and cyberbullying as well as the use of social media, online gaming, and the streaming of multimedia to the forefront, while working towards identifying strategies that can be used to curb risky online behavior. This is especially important as online and blended learning grows and students spend more time online completing school work.

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