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Understanding Parents' Perceptions of Communication Technology Use

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ABSTRACT

This study examined parents' perception of their children's communication technology use. Participants were 421 parents from a city in Southeast Texas. The study explored parents' perceptions of their communication technology skills compared to their children's skills. The study also investigated parents' areas of concern for their children's technology use, current solutions parents are using to protect their children, and parents' perspectives about the level of benefit and risk of communication tools and environments. According to descriptive data, parents rate their communication technology skills higher than the children's skills on all of the technologies explored with the exception of online games. Moreover, parents are most concerned with their children's safety and employ a variety of methods to protect their children from online threats. Lastly, parents' view communication technologies as somewhat risky and of little benefit to the child. Parents' acknowledge there are risks and benefits of communication technologies to their children. A better understanding of parents' perceptive of communication technologies is only the beginning to discover how parents' are monitoring their children's technologies and the safeguards parents are taking to ensure their children have a positive and safe experience.

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Keywords:
Communication technology, parents, perception, concerns, social media.

Introduction

Recent improvements in technology have permitted high-speed Internet connections, which allow access to information anytime and anywhere. Easy accessibility to information regardless of time and place has made the Internet an effective tool to stay connected to the world through various outlets, such as Facebook, Twitter, and other social media sites with communication technology devices (e.g., smart phones and tablets). Therefore, computers, related technologies including mobile devices, and the Internet have become an essential part of our modern life.

A substantial amount of research has been conducted with teachers' and students' perception of technology use; however, there is little research that reports parents' perceptions of their children's use of communication technology. Although researchers agree there are benefits to technology use for the development of todays' students, researchers also acknowledge the risks associated with communication technologies and that the benefits are seen when technology is used with intention (Chapel, 2008; Gemmill & Peterson, 2006; Jans-Thomas, 2005; Wu Fowler, Lam, Wong, Wong, & Loke, 2014). Hence, parents need to be aware of how their children are exposed to various communication technologies and tools, so that parents can protect their children from potential harms and support their children to reap the benefits of these technologies. Because today's technology rapidly changes, parents may be challenged or find it difficult to follow current technological developments. Therefore, parents may not be aware of the types of threats or side effects their children may be exposed to. Thus, being familiar with recent technological developments and corresponding risks would help parents to provide appropriate protection to their children.

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Beginning in the early 20th century, society has been exposed to new technologies for use in daily life, and this exposure has increased in the last decades due to the rapid changes in technologies and easy accessibility to them. Each time a new technology becomes available to users, proponents and opponents arise to support or criticize the new technology's effects (Wartella & Jennings, 2000). In respect to today's communication technologies, people generally agree about their social and educational benefits and necessity. However, individuals, especially parents, have concerns over the rapid change in the technological tools and widespread use of Internet due to the potential risks that younger generations may be exposed to, such as child pornography, cyber bulling, or privacy (Anastasiades, Vitalaki, & Gertzakis, 2008; Ou, 2011).

For educators, improving teaching and learning through use of technology and the Internet has very strategic importance due the widespread technology use among children. For instance, computers are widely used in school settings. Therefore, it is not surprising to see that teachers in every grade level and content area use technology to improve their teaching as well as to improve students' learning opportunities (Gorder, 2008). Thus, teachers are prepared for a new type of classroom that is different than before (McEwen, 2008). It also should be noted that due to easy accessibility and necessity "children are exposed to media from a very young age" (Wartella & Jennings, 2000, p. 35). Therefore, it is very important that teachers and parents work together to maximize the benefits of children's technology use.

For the sake of students' learning and safety, not only should teachers be aware of different technology, but parents should also keep abreast about the technologies that their children use both at home and school. Valentine and Holloway (2001) found that the way children benefit from technology use at home is highly related to parents' perceptions. Accordingly, Orleans and Laney (2000) suggest that it is essential for parents to be aware of their children's computer use and help their children benefit from technology while also being aware of its side effects. Moreover, Becker (2000) reported that children use computers at home more for entertainment than for school-related purposes, which may increase the risk of computer use for children. In other words, when students spend time with computers and related technologies without beneficial reasons, they are more likely to face negative circumstances. For instance, it is almost impossible for a parent to be aware what their children are doing on social media, such as Facebook or Twitter. In addition, the place where children use communication technologies is also important because it gets harder to adequately monitor their use when they are not in sight (Wu et al., 2014). Likewise, Wartella and Jennings (2000) emphasized that "new technology also brings a greater sense of urgency about the need to monitor and improve the quality of media content" (p. 39). For these reasons, the role of parents has become more essential as their children use new technologies.

Parents tend to be aware of what their children are doing with new forms of communication technologies, while letting them benefit from these technologies for their educational and social development (Subrahmanyam & Greenfield, 2008). Parental involvement has a vital role on controlling the effect of children's technology use. For instance, teaching children about online privacy would protect them from identity fraud (Moscardelli & Divine, 2007; Paine, Reips, Stieger, Joinsona & Buchanan, 2007). The level of parents' support and care depends on their knowledge about the technology. For example, according to Paine et al. (2007), people tend to protect themselves online more if they have more Internet experience. Therefore, it is the parents' responsibility to remain updated on the new technologies their children use while online. According to Davies (2011), most parents tend to support their kids when they are online. This awareness is no different than what parents currently do to protect their children in any type of environment. For example, no matter how familiar or enjoyable a local park is, a parent would not leave their child unattended while playing at the park.

Parents' involvement in their children's computer use is very important from various perspectives. For example, parents can help their children more with computer-based studies if they are knowledgeable about recent technologies. For instance, parents often have a role to help their children with homework. The Internet has become an essential resource for children and parents when doing their homework (Cranmer, 2006). Parents can be more helpful to their children with homework by making themselves more familiar with searching the Internet and identifying trustworthy resources. Subsequently, parents can guide their children when they need help using computers or completing specific tasks, such as searching on the Internet.

In addition, parents can be more watchful of potential harms to their children if they are familiar with recent technologies. Livingstone and Bober (2004) found that although parents are aware of the need of Internet technologies for their children to do better in school, many parents are concerned about its potential dangers. Most parents have some level of concern of their children's technology use. According to Wartella and Jennings (2000), with the new type of communication technologies, parents became more concerned due to interactive roles that their children might have. They also stated that children's interactivity "enables both greatly enriched learning as well as increased risk of harm" (p. 39). It is important to note that parents may not be knowledgeable about children's interactivity on Internet (Beale & Hall, 2007). Direct online communication via instant messaging could be given as an example of using the Internet interactively.

One of the significant issues here is the distinction between perceptions of children and parents about the risk of harm of technology use. For example, a study conducted by Lim, Khoo, and Williams (2003) indicated that parents have more concerns about Internet use than their children. Moreover, according to Liau, Khoo, and Ang (2008) parents tend to underestimate their children's misuse of the Internet, such as visiting inappropriate websites. The study also stated that parents think they monitor their children's Internet use adequately while their children think that they are not monitored at all. A plausible reason for this discrepancy may be that parents are using unobtrusive means of monitoring their children's online activities.

Parents have a responsibility to keep themselves updated with the recent communication technologies and their potential threats. Subrahmanyam and Greenfield (2008) stated that parents have less knowledge about electronic communication than their children have. Thus, parents may have difficulties determining what their children are doing online. Hsiao et al. (2007) found that many parents are unaware of available technologies to protect their children from the risks of Internet. There are many ways for parents to protect their children from harm of technology use. For instance, parents' online engagement with their children (e.g., becoming friend with them on social media) would help to monitor them (Daoty & Dworkin, 2014; Hinduja & Patchin, 2008). As Finn and Kerman (2004) suggested, training programs may also help parents and students to increase their confidence level in using Internet technology and take care of security issues with filtering software.

Researchers have studied students' and teachers' perceptions about computers and communication technologies in terms of their benefits for educational purposes (Cranmer, 2006; Orleans & Laney, 2000; Valentine & Holloway, 2001). However, there is a dearth of research literature on parents' views about these technologies in terms of their risks for their children (Anastasiades, Vitalaki, & Gertzakis, 2008).

The current study aims to fill this gap by bringing out parents' perspectives about these technologies in terms of their risks. More specifically, the present study explores parents' perceptions of their own communication technology skills, their children's communication technology use, and the potential risks of these technologies. Furthermore, the current study offers suggestions to address parents' concerns and how they may prevent their children from potential harm while participating in a communication technology environment. It is important to note that we addressed the most common technologies in this paper.

Research Questions

The primary question for the current study is: To what extent are parents aware of their children's communication technology use? To answer the main question, four research questions (RQ) are examined in this study:

RQ1: What are parents' perceptions of their own communication technology skills compared to their children communication technology skills?

RQ2: What are parents' concerns about their children's communication and web-based technology use?

RQ3: What are the current solutions parents' are using to protect their children from potential harms?

RQ4: What are parents' perspectives about the level of benefit and risk of communication tools and environments?

Method

Participants

Participants were selected using a convenience sampling method from the residents of a city in Southeast Texas. Five hundred five parents responded to an online questionnaire. Although the total number of

participants in the study was 505, there were less than 505 participants reported for the research questions because not all participants answered each item on the questionnaire. To be included in the study, each participant had at least one school age child. The children included in the study ranged from preschool to college age. A wide range of children's age instead of focusing of certain age group was preferred to compare younger with older children. Moreover, the participants may be considered as technologically savvy because they successfully filled out a web-based questionnaire. Among the 421 participants, 28% were male and 72% were female. Participants represented all age groups; 7% were between 20 and 30, 48% were between 31 and 40, 39% were between 41 and 50, and 6% were 50 or above. The highest level of education parents completed included: 5% had a degree less than high school, 24% had some college experience, 39% had a college degree, and 32% had a graduate school degree. Most parents (68%) were employed full-time, 13% were employed part-time, 12% were unemployed, and 4% were retired. Most of the parents (86%) were married, 8% were divorced or separated, and 6% were single.

Procedures

A web-based questionnaire was used to collect the data. The researchers contacted many school principals and school administrative officers. Then, the principals or officers invited parents to take the questionnaire via their email address in early Fall 2012. The email requested parents to choose one of two hyperlinks. The first hyperlink led the parents to the online questionnaire, while the second hyperlink allowed the parents to opt out. If a parent had more than one child, he or she was asked to consider his or her youngest child while responding to each item. Thus, the evaluation of the questionnaire was based on this criterion. When a parent completed the survey, his or her response was immediately saved to the database. The questionnaire was closed to begin analysis in late Fall 2012. No unique identifiers (e.g., name and e-mail addresses) were collected.

Operational Measures

A web-based questionnaire was designed by the researchers using Qualtrics®, a software package that creates web-based questionnaires and databases. The questionnaire included 15 items and had five sections that explored demographic information (i.e., 8 items), parents' perceptions of their communication technology skills compared to their children (i.e., 7 items representing 7 different technology platforms), parents' areas of concern (i.e., 6 items for 6 areas of concern), parents' current solutions being used to protect their children (i.e., 8 prescribed solutions), and parents' perspectives about the level of benefit and risk of communication tools and environments (i.e., 7 items per risk and benefit representing 7 different technology platforms).

In the beginning of the survey, there were instructions that informed parents if they were eligible to take the survey. If they had at least one school age child, they were able to continue with the questionnaire. Otherwise, the parent opted-out of the web-based questionnaire. Following the development of the questionnaire, expert opinions on each item, as well as the questionnaire in general, were provided. Then, some minor changes and additions were implemented on the questionnaire.

Data Analyses

SPSS 21 was used to analyze the data. Statistical analyses were descriptive in nature. Frequencies were calculated for the demographic information, comparison of parents' skills with their children' skills, parents' concern areas, perceived risk and benefit of technology use, and parents' solutions against potential harm of technology use. In addition, *t*-tests and ANOVA were conducted to compare the groups. Before comparing the groups, the required assumptions were checked and no violation was observed. A Tukey post-hoc test was performed when a result was statistically significant. Pearson correlations were also computed. Items of the questionnaire were grouped into four categories to address each research question. In each category, results were reported along with tables and figures.

Findings

The purpose of this study was to explore parents' perspective of their children's communication technology use. The results section reports the results to each of the four research questions. Frequency percentages were rounded to the nearest whole percent for the sake of readability, so totals may not add up to exactly 100%.

Parents' and Children's Communication Technology Skills Compared

The first category answers RQ1: What are parents' perceptions of their own communication technology skills compared to their children communication technology skills? Parents answered seven questions by considering their communication technologies skills compared to their children. These seven questions were about Facebook, Twitter, cell phone, online gaming, chat, text messaging, and forum/discussion sites. Overall, parents indicated that they were more skilled than their children in using Facebook, Twitter, cell phone, chat, text messaging, and forum/discussion sites.

Table 1. Parents' perceptions of their own communication technology skills compared to their children

	Much less skilled	Less skilled	About the same skill level	More skilled	Much more skilled
Facebook[a]	10.5%	9.6%	17.9%	18.2%	43.7%
Twitter[b]	21.4%	11.6%	21.6%	13.2%	32.2%
Cell Phone[c]	3.3%	12.9%	27%	25.4%	31.3%
Online Gaming[d]	28.9%	28.2%	17.9%	9.8%	15.2%
Chat[e]	12.7%	12.7%	28.1%	13.6%	32.9%
Text Messaging[f]	5.6%	11.8%	32.8%	15.7%	34%
Forum/ Discussion Sites[g]	11.4%	11.2%	18.8%	20.8%	38%

Notes. [a]n = 452, [b]n = 407, [c]n = 464, [d]n = 449, [e]n = 436, [f]n = 456, [g]n = 433.

Table 1 presents parents' perceptions of their own communication technology skills compared to their children's skills. In contrast, for online gaming, more than half of the parents (57.1%) think that they are less skilled than their children.

Table 2. Parents' perceptions on their communication technologies skills by their child/children's grade level

	Group 1			Group 2				
	N	Mean	SD	N	Mean	SD	*p*	*Cohen's d*
Facebook	190	4.36	1.4	217	3.21	1.3	$p < .001$	0.86
Twitter	167	3.86	1.5	203	2.72	1.4	$p < .001$	0.79
Cell Phone	197	4.22	0.9	221	3.21	1.1	$p < .001$	1.00
Online Gaming	189	3.07	1.4	219	2.09	1.2	$p < .001$	0.76
Chat	181	4.08	1.2	214	2.85	1.2	$p < .001$	1.02
Text Messaging	192	4.20	1.1	220	3.09	1.1	$p < .001$	1.01
Forum/Discussion Sites	177	4.08	1.3	218	3.26	1.3	$p < .001$	0.63

Parents' perceptions about their skills on certain tools or environments also vary by their child or children's grade level. Parents were divided into two groups: (Group 1) parents having a child or children in primary school (e.g., preschool, kindergarten, or elementary level) and (Group 2) parents having a child in secondary or tertiary school (e.g., middle, high, or college level). Table 2 presents the *t*-test results between Group 1 and Group 2 across certain communication technology tools or environments. The results indicated that Group 1 parents perceived themselves as much more skilled relative to their children than the Group 2 parents. For all of the communication technology tools, the difference between Group 1 and Group 2 parents' perceived skills is statistically significant ($p < .001$). *Cohen's d* as an effect size index was also calculated. According to Cohen's benchmarks (1992), d = .20 indicates a small effect size, d = .30 indicates a moderate effect size, and d = .80 indicates a large effect size. As such, the difference between Group 1 and Group 2 is moderately to largely different amongst the listed communication technologies.

Parents' perceived skills compared to their child/children's skills were also analyzed across parents' gender, employment status, and number of computers at home with *t*-test and ANOVA; however, there was no statistically significant difference found.

Parents' Areas of Concern

The second category answers RQ2: What are parents' concerns about their children's communication and web-based technology use? Parents concerns were investigated in the following areas: time, content, safety, physical inactivity, bullying, and cost (cf. Table 3). Each area was viewed based on concern level and a composite score. Questions were scaled using a Likert-scale (i.e., 1- Not at all concerned to 5- Extremely concerned), while responses were also scored out of a possible 100 points. The least concerned area is cost (e.g., score = 43).

Table 3. Parents' concerns about their children' communication technology use

	Not at all concerned	Slightly concerned	Somewhat concerned	Moderately concerned	Extremely concerned	Score
Time[a]	28.9	19.8	19.8	18.6	13.0	53
Content[b]	18.8	15.8	19.7	18.8	26.8	64
Safety[c]	17.4	16.0	14.8	17.9	33.9	**67**
Physical inactivity[d]	23.8	15.0	17.0	20.7	23.6	61
Bullying[e]	32.2	19.5	14.4	13.4	20.5	54
Cost[f]	44.1	20.8	18.3	9.8	7.1	43

Notes. [a]n = 417, [b]n = 412, [c]n = 415, [d]n = 410, [e]n = 411, [f]n = 410.

As seen in Table 3, among the 410 responses, 64.9% of the parents are either not at all concerned or slightly concerned about cost. 48.7% is either not at all concerned or slightly concerned about time spent with communication technologies use. For bullying, 20.5% is extremely concerned, while 32.2% is not at all concerned. Approximately half of the parents is either moderately or extremely concerned about physical inactivity (44.3%), safety (51.9%), and content (45.6%). As seen in Table 3, safety and content are the most concerned area with the composite score of 67 and 64 respectively.

Table 4. ANOVA results for areas of concern by parents' level of education

Areas of Concern		Sum of Squares	df	Mean Square	F	*p*
	Between Groups	.551	3	.184	.093	.964
Time Spent	Within Groups	809.667	409	1.980		
	Total	810.218	412			
	Between Groups	.820	3	.273	.127	.944
Content	Within Groups	869.494	404	2.152		
	Total	870.314	407			
	Between Groups	1.947	3	.649	.284	.837
Safety	Within Groups	929.838	407	2.285		
	Total	931.786	410			
	Between Groups	7.026	3	2.342	1.041	.374
Physical Inactivity	Within Groups	901.986	401	2.249		
	Total	909.012	404			
	Between Groups	9.196	3	3.065	1.302	.273
Bullying	Within Groups	948.873	403	2.355		
	Total	958.069	406			
	Between Groups	13.850	3	4.617	2.849	.037
Cost	Within Groups	651.374	402	1.620		
	Total	665.224	405			

Further analyses were conducted to explore if there were any differences in parents' areas of concern based on the parents' gender, age, and employment status, and level of education.

According to *t*-test or ANOVA results, no statistically significant difference was found for time, content, safety, physical inactivity, bullying, and cost concern areas by gender, age, and employment status of the participants. However, there was a statistically significant difference for the cost concern area by the parents' level of education (cf., Table 4). A Tukey post-hoc analysis indicated the parents whose educational level is less than a high school (n = 19, mean = 2.95, SD = 1.58, p = .030) have more concerns about the cost of the technology than those holding a graduate degree (n = 131, mean = 2.08, SD = 1.23, p = .030) and college degree (n = 160, mean = 2.08, SD = 1.28, p = .027).

Parent's Solutions to Concerns

The third category answers RQ3: What are the current solutions parents' are using to protect their children from potential harms? , Parents selected from a list of seven solutions they had used to protect their children while online. Parents were also asked to state their solution(s) if the solution was not included in the list. Table 5 presents a list of the parents' responses.

Table 5. Parents' solutions to protect their children from potential harms

	Frequency	%
I limit the time spent with those technologies	342	81.2
I regularly monitor my child's web browsing history	299	71
I install antivirus program in my child's computer	297	70.5
I install firewall program in my child's computer to protect him/her from outside attacks	258	61.3
I ask my child to share passwords with me to check his/her accounts	233	55.3
I use parental control function of those communication technologies	231	54.9
I am connected with my child in social media to monitor him or her	180	42.8
I prefer to meet in person with my child's contacts in social media	109	25.9

Notes. n = 505.

As seen in Table 5, the most common solution parents reported was limiting their child's time spent with those technologies (81.2%) followed by monitoring their child's web browsing history (71%), and installing antivirus program on their child's computer (70.5%). Approximately half of the parents use other solutions, including installing firewall programs (61.3%), asking children to share passwords (55.3%), and using parental control functions (54.9%).

To assess the relationship between the number of solutions parents followed and their perceived skills on communication technologies, Pearson product-moment correlation coefficients were computed. The correlation coefficients for Facebook (r = .65, p = .190), Twitter (r = .090, p = .084), cell phone (r = .036, p = .459), online gaming (r = .016, p = .742), chat/msn (r = .047, p = .350), text messaging (r = .024, p = .624), and discussion sites (r = .091, p = .072) were observed.

Level of Benefit And Risk of Communication Tools And Environments

The fourth category answers RQ4: What are parents' perspectives about the level of benefit and risk of communication tools and environments? How much parents perceive several communication tools or environments (e.g., Facebook and Twitter) as beneficiary or risky was evaluated with two separate questions for each tool or environment. Questions were scaled using a Likert-scale (i.e., 1- Not at all risky/beneficial to 5- Extremely risky/beneficial).

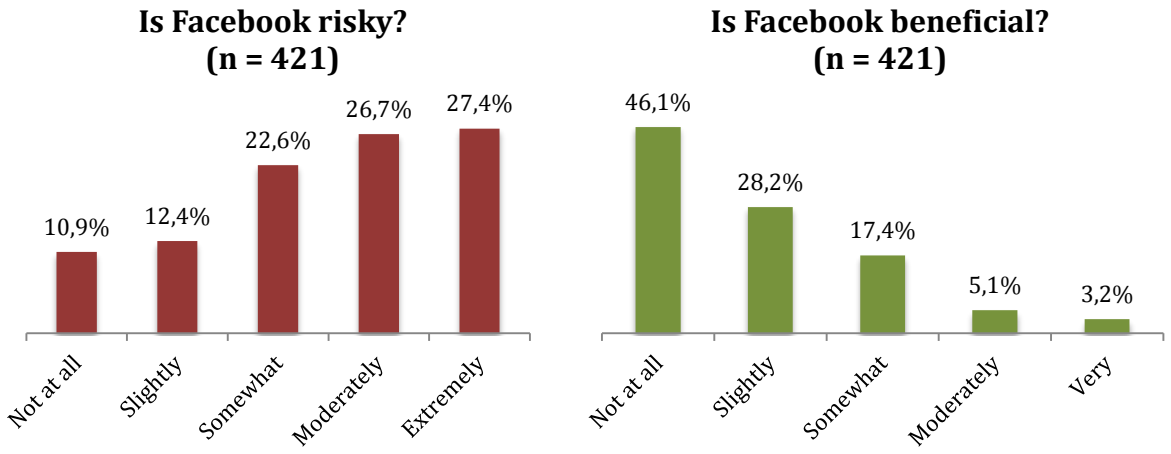


Figure 1. Parents' perceptions on their children's Facebook use.

Among the 421 responses, 27.4% of parents believe Facebook is extremely risky and 46.1% thinks it is not at all beneficial. On the other hand, 10.9% believe it is not at all risky and 3.2% is very beneficial (cf., Figure 1)

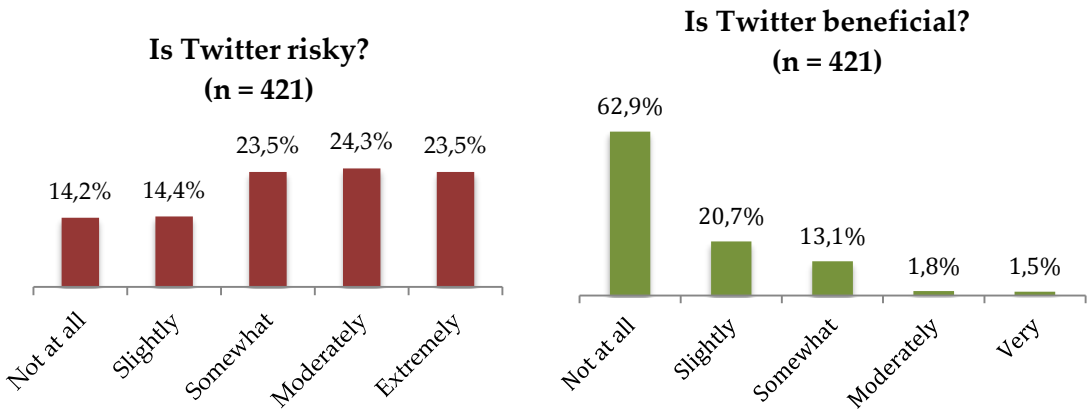


Figure 2. Parents' perceptions on their children's Twitter use.

As shown in Figure 2, Twitter is another social media tool perceived as not at all beneficial by most parents (62.9%; n = 249). Among the 421 responses, approximately half of parents considered Twitter as either extremely (23.5%) or moderately (24.3%) risky. Only about 3% of parents believe Twitter is either very or moderately beneficial.

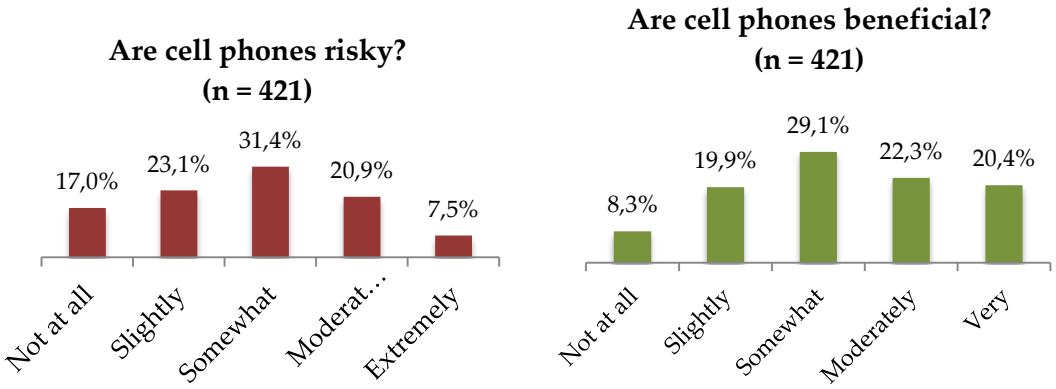


Figure 3. Parents' perceptions on their children's cell phone use.

Figure 3 shows parents' perceptions of cell phones (n = 421). Approximately 20% considers cell phone as very beneficial and 17 percent thinks it is not at all risky. Few parents believe cell phones are extremely risky or not at all beneficial. Approximately 30% percent of parents believe that cell phones are somewhat beneficial or somewhat risky.

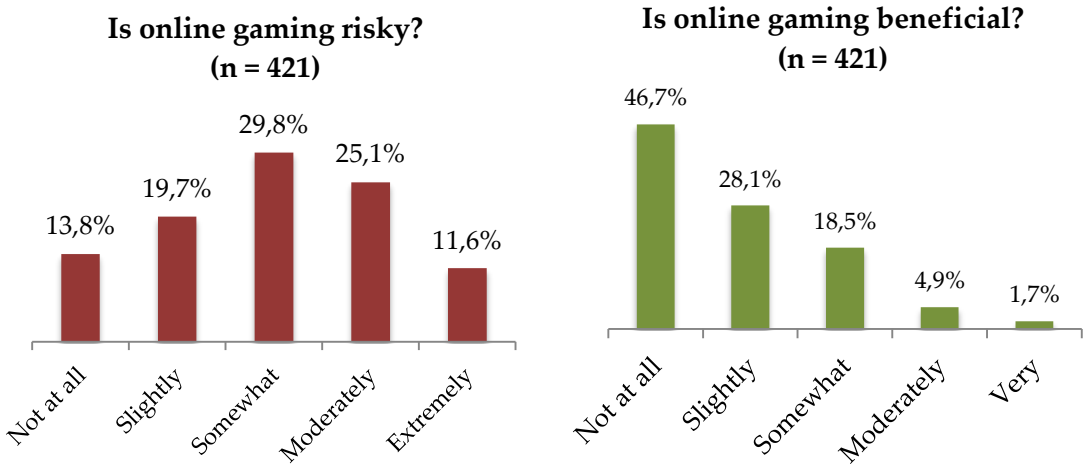


Figure 4. Parents' perceptions on online games

Figure 4 indicates that almost half of parents believe online games are not at all beneficial for children. Among the 421 responses, only 6.6% believe that online games are either very or moderately beneficial to their children. Online gaming is extremely risky for only 11.6% of parents and moderately risky for 25.1% of parents.

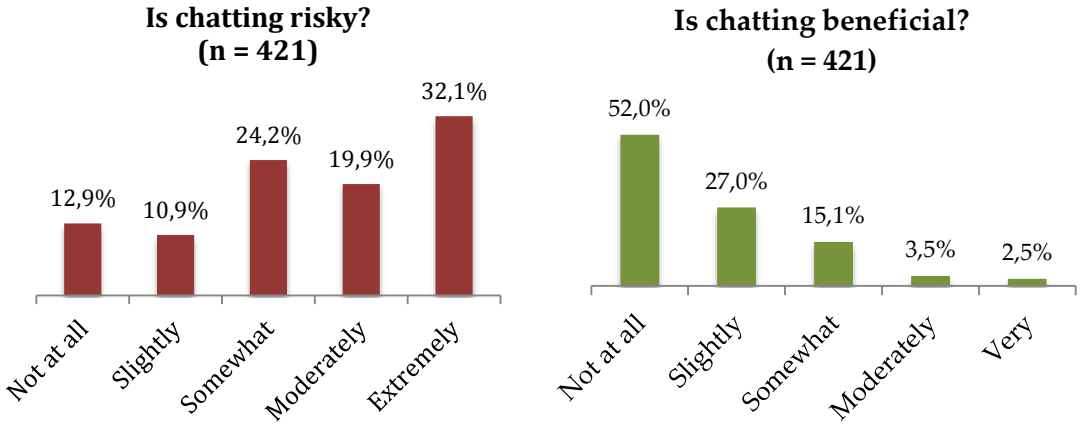


Figure 5. Parents' perceptions on chatting.

Chat/Instant messaging (n = 421) is a communication technology tool perceived as not at all beneficial by 52% of parents (cf., Figure 5). Only 6% considers chat/instant messaging as moderately beneficial and very beneficial. On the other hand, for 32% of parents chatting is extremely risky and for 20% of parents moderately risky.

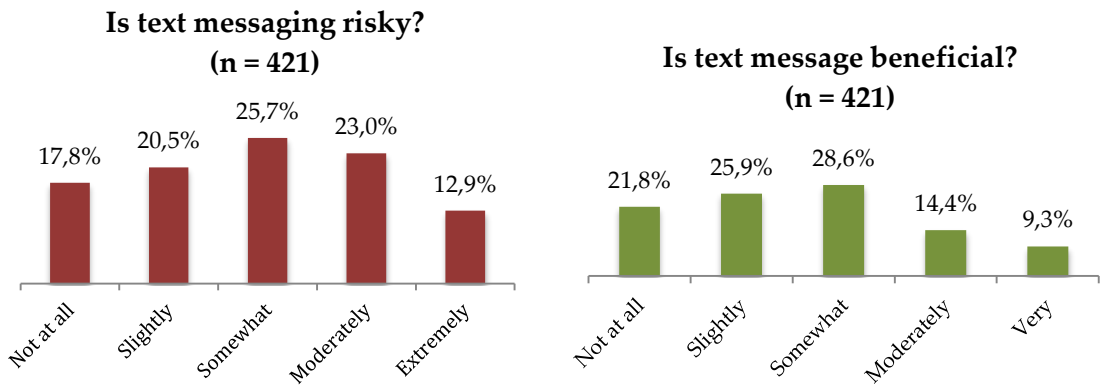


Figure 6. Parents' perceptions on their children's text message use.

Text messaging (n = 421), as indicated in Figure 6, is perceived as extremely risky for only 12.9% and moderately risky for 23% of parents. Few parents believe (9.3%) text messaging is very beneficial. Text messaging is moderately beneficial for 14.4%. While approximately a quarter of parents consider text messaging as somewhat beneficial and somewhat risky.

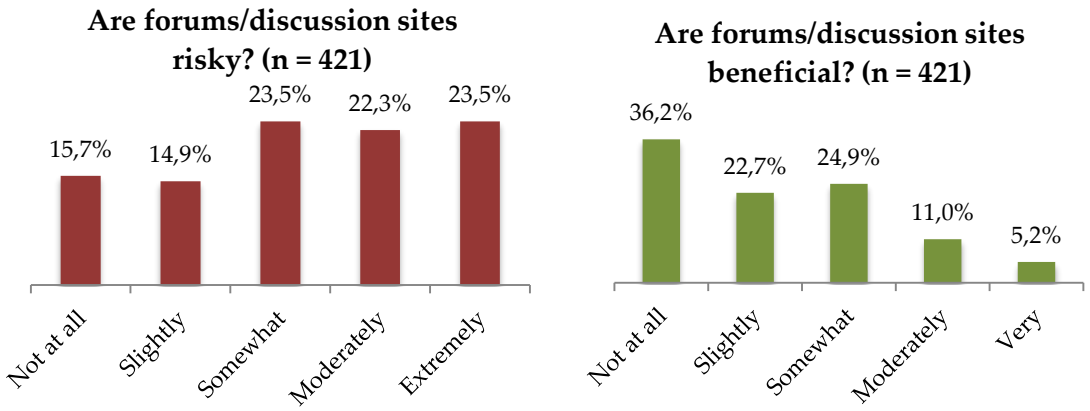


Figure 7. Parents' perceptions on their children's forum/discussion sites use.

The last type of communication technology environment is forums/discussion sites (n = 421). Figure 7 displays that 36.2% of parents believe forums are not at all beneficial, while few (5%) find forums very beneficial for their children. On the other hand, forums are rated as extremely risky by 23.5% and not at all risky by about 16%. According to half of parents, forums/discussion sites are somewhat risky or somewhat beneficial.

Discussion

Our findings provide descriptive evidence of parents' perceptions of their own communication technology skills, their children's communication technology use, and the potential risks of these technologies. Furthermore, we recommend practical solutions to parents' concerns and how they may prevent their children from potential harm while utilizing communication technologies.

Perception of Communication Technology Skills

Parents' responses to the first question revealed that most of the parents believe they know how to use social media tools and other communication technologies, such as text messaging and chatting, more than their children except when it came to online gaming. Parents may believe they are at least as good their children in using social media and messaging because of the perceived need and common use of those technologies. Communication technology is common for all age groups and is used by many regardless of age, gender, and ethnicity. More specifically, there is not a generation gap between parents and children in

these technologies. This is in contrast with the arguments of Subrahmanyam and Greenfield (2008) who stated that parents have less knowledge about electronic communication than their children have.

Parents need to know how to use communication technologies in order to help and protect their children from potential cyber threats. Therefore, parents may have stated that they are more skilled in the use of most of the listed technologies than their children. However, parents indicated that they are not as proficient as their children in online gaming. This may be due to parents' availability of time for online gaming and lack of need for online gaming, which resonates with Becker's (2000) findings. Thus, parents have less experience in playing online games (Bourgonjon, Valcke, Soetaert, Wever, & Schellens, 2011). In a similar vein, online gaming requires the development of a skill and may not necessarily be an efficient online social outlet for adults. Therefore, parents may have not tried to develop their gaming skills as much as children attempt to. In turn, the social outlets offered by online gaming are also not utilized to the extent of their children who participate in online gaming.

It is important to note here, parents should remain abreast on their children's online interests. Moreover, parents need to be aware that some of the communication technologies mentioned in this study have begun blurring the lines of interest. For example, Facebook now offers online gaming apps to play while on Facebook. Does this mean that parents are just as familiar with the online gaming apps via Facebook as other Facebook features? Or will parents overlook this aspect of Facebook due to their lack of familiarity with online gaming in general?

The results of this study suggest that parents believe neither Facebook nor online gaming is beneficial to their children, while parents perceive Facebook far more risky than online gaming. Although children may appear to play online games, they may also be connected through Facebook. Thus, parents must understand the same risks associated with a single technology remain the same when these communication technologies merge.

Parents also seem to be sufficiently skilled with cell phones, chat rooms, text messages, and forum/discussion sites. Hence, they are capable of guiding their children to use these platforms properly. However, it should be noted that many cell phones today essentially function like computers, often called smart phones. So, it is imperative for parents to be skilled in the latest phones used by their children. These smart phones have many features that may experience security issues such as locating your geographic location with GPS tools or collect personal data from your device activity. Therefore, parents need to educate and guide their children's use of the aforementioned platforms properly and safely.

Parents' Areas of Concern

Parents have concerns about their children's communication and web-based technology use overall (Lim et al., 2003). Parents are most concerned about their children's safety and type of content their children are exposed to. According to Lenhart and Madden (2007), younger users are less careful about online privacy when compared to adults. Parents are aware of potential risks of these technologies in terms of content and safety. It is plausible for children to view inappropriate materials online and encounter safety issues, such as viruses and identity fraud. Therefore, parents must carry the responsibility for their children's exposure to appropriate content and equip their children to manage situations when inappropriate content appears on their device.

Moreover, parents need to guide their children on how to share personal information and deal with unfamiliar people online. Parents can share with their children real-life stories about these issues to draw their attention to and show how serious consequences may occur if they are not cautious. It is also important to note that parents should have continuing conversations with their children regarding their technology use to engage in potential issues and resolve issues adequately (Anastasiades et al., 2008).

Overall, costs of the technology are not a concern for parents. With recent technological advances, most people can afford a personal computer or a smart phone. Thus, parents often provide devices to their children. However, when we looked at parents' level of concern related to cost, we found differences between parents of different education levels. Parents with less education seem to have more concerns about the cost of the technology than those having a higher education. Less education level is often equated with less income. Thus, it is reasonable for parents who have less income to see cost as an issue when providing

these technologies for their children. As a result, it is more likely for parents with low socio-economic status to have issues in supporting their children's technology use (Zhong, 2011).

Parents seem to be concerned with their children's physical activity because children may spend many hours online physically inactive. This may have residual health effects, such as obesity. Hence, parents should regulate time engaged with inactive activities and counteract that time with activities that promote physical activity. As with anything, too much of a good thing, can be harmful.

Parents' solutions to concerns

Parents agree that exposure to communication technologies is needed for their children to develop 21st century skills, while also understanding these technologies involve some risks. Although it is not easy to monitor children's computer use (Beale & Hall, 2007), parents should find ways to watch and protect their children. For example, parents could employ parental controls on a family computer just as parents use parental controls on their television. Table 3 shows which solutions parents prefer to protect their children from potential harm. Most of the parents limit their children's technology use time. However, limiting the time may not be enough to avoid potential risks. It is also important to note that parents cannot monitor their children all of the time (Anastasiade et al., 2008), so it is not easy to control children's' time with technologies.

Most of the parents also indicated that they monitor their child's web browsing history. By checking web browsing history, parents may get a general idea about which websites their children have visited. On the other hand, some children can easily remove their web browsing history or use a browser's private browsing feature, which disables adding visited webpages to the history list. Parents need to be aware of such features and create clear standard expectations with their children in how the technologies given to them will be handled.

Additionally, parents tend to use antivirus or firewall program to protect their computer from outside attacks. Parents should keep in mind that every day new viruses are released and new types of attacks are attempted. Therefore, installed protection software should be updated frequently to remain protected from recent threads. Almost half of the parents chose to check their children's user accounts, use parental control features, and/or monitor their children in social media. Based on these practices, parents are taking preliminary of the steps to protect their children.

Risks and Benefits of Communication Technologies

Parents' acknowledge there are risks and benefits of communication technologies to their children. With regards to Facebook and Twitter, most parents agree that using these social media platforms has risks to their children and believe that social media platforms are not beneficial to the children. As a result, parents may not allow their children to use social media or monitor their children's social media activity more closely than other communication technologies. Parents' concerns about Facebook are reasonable because it provides users' information to others more than other platforms (Lohr, 2012). If children are asked to use Facebook in a non-voluntary, academic context, parents may recommend to their children suggestions offered by Ritter and Delen (2013). In a similar vein, parents do not see online gaming or instant messaging platforms beneficial, overall. It should be noted that parents' perceptions about the risk level of online gaming is very balanced. Although most parents think that their children do not benefit from playing online games, they do *not* see online gaming as risky. This may be a result with the lack of parents' online gaming experience. Aforementioned, parents indicated that they are less skilled than their children in online gaming. Therefore, parents may not have sufficient knowledge about how online gaming environments function or understand the potential risks associated with online gaming. Hence, we recommend parents discuss with their children about playing online games and encourage them to play games safely.

Most of the parents believe that using forum/discussion sites could be risky and are not necessarily beneficial for their children. Forum and discussion sites are platforms in which people freely share their thoughts and communicate with others without knowing the people within forum personally. Thus, these platforms may not be proper for children because it is not easy to understand whether users are expressing their true identity.

Parents see cell phone as a necessity for their children. Although the current study did not explore how cell phones are used, parents see cell phones as a means for their children to call or text family and friends, essentially people their children know. Thus, parents do not see cell phones as a risky technology. Instead, parents believe children could benefit from cell phones in various ways, such as communicating with parents and friends. Parents perceive cell phones as low risk to their children when used for text messaging, and believe the technology to be beneficial. In text messaging, most users communicate with people they have met in person and not with people they have not met. For this reason, parents may see texting as a harmless act.

Implication for Practice, Application and Policy

There are benefits of knowing how to use communication technologies for both parents and children. First, parents may be aware of the potential risks and use possible monitoring methods of these technologies to protect their children (Beale & Hall, 2007; Campbell, 2005). Parents who know these tools' features may engage in their children's communication technology use and employ appropriate techniques to protect them. Likewise, parents may choose to share accounts, befriend/follow their children, and help their children manage privacy settings in their account. For instance, personal information on Facebook may be accessible to everyone, and children may not be aware of the potential risks of sharing this information with others. Therefore, skilled parents should have access to their children's Facebook account and check whether privacy settings are set properly.

Aforementioned, parents need to be aware of the scope of online features to supervise their children while they are involved with communication technologies (Anastasiades et al., 2008). One outcome, the lack of parents playing online games, is that parents could have minimal supervision of their children when they play online games. Although computer games might have some positive effects on children's development (Subrahmanyam, Greenfield, Kraut, & Gross, 2001), there are many potential risks of online gaming that children may come across. For instance, some online game websites involve multiple players. As such, children have the opportunity to communicate with strangers while playing games online. We recommend parents be watchful on their children's online gaming habits, protect them by informing about potential dangers, and providing virus protection software. In addition, parents can talk with their children about online gaming and become informed about latest developments to provide their children with more adequate support (Kong & Li, 2009).

Limitations

In the present study, although the number of schools from which the data was obtained would be important for generalizability, it is unknown how many schools were represented in the final data set.

Conclusion

Our study contributes to the literature on parents' awareness about their children's communication technology use by addressing four main goals. The first goal was to examine parents' perspectives of their skills using communication technologies. The second goal was to explore parents' areas of concern regarding their children's communication and web-based technology use. The third goal was to determine which solutions parents' use to protect their children from potential harms of using communication technologies. The fourth goal was to explore parents' perceptions about the level of benefit and risk of communication tools and environments to their children. A better understanding of parents' perceptive of communication technologies is only the beginning to discover how parents' are monitoring their children's technologies and the safeguards parents are taking to ensure their children have a positive and safe experience.

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