

Duration of Adolescent Technology Use and Closeness with Parents

Sarah H. Khan

Adolescent Psychology

Barnard College, Columbia University

Abstract

Adolescents are one of the heaviest users of technology as a group. With the ever increasing amount of time teenagers spend on cell-phones, computers and numerous types of video games, their attention is absorbed by these devices. This may take away from important social interactions that develop in-person relationships. One study from 2004 suggests that more time spent on television, computers and video games leads to a lower quality of attachment to parents. A good parent-teen relationship is important for adolescent health and development. Although there have been no recent experiments on how adolescents' wide use of different types technology affects their relationship with parents, there are indications that electronic communication may be reinforcing teenagers' peer relationships at the expense of relationship with their parents. This study examined the relationship between duration of adolescents' technology use and the relationship with their parents. Three types of technology were considered, namely, computers, cell phones and video games. Self-report questionnaires were filled out by 63 teenagers (ages 14 to 18) from a high school in Bronx, NY. A statistically significant negative correlation was found between duration of computer use and closeness to parent supported by Pearson's correlation coefficient, $r(58) = -0.263$. However, there were no significant correlations found for any of the other types of technology considered. These findings are attributed to the fact adolescents more commonly use cell phones than the internet to maintain a good relationship with their parents. Therefore, it is possible that cell phones aid parent-teen closeness as it allows them to stay in touch when they are not together. Also, most adolescents reported spending relatively little time playing video games. That may be why video games did not impact their relationship with parents.

Introduction

As we advance further in technology, its use for everyday purposes is becoming increasingly common, especially among subsequent generations. Technology use is increasing due to its undeniable benefits, especially of better communication. With newer methods of communication and sharing information emerging every day, come the shortcomings of a world inundated with technology. A recent article in the New York Times suggests that the infatuation with technology and cell phones in particular is taking away from face-to-face social interactions (Carr, 2010). In person communication seems to be decreasing as people are increasingly connected wherever they are through their computers and cell phones or hooked to a video game instead of engaging in conversation with the people around them.

For the purposes of this study we will categorize technology into three main categories, computers, cell phones and video games. Computer use includes the use of the internet, all online and offline activities including social networking, doing homework and playing games. Cell phone use in addition to talking and texting includes new capabilities of cell phones such as internet related activities and also playing games. Video games refer to all kinds of gaming platforms outside of computers and cell phones, such as television based consoles and portable video game consoles. This study aims that these three categories will also encompass new forms of technology that are less easily categorized, such as “iPads” by Apple that include video games as well as most features of computers and cell phones.

Adolescents are one of the heaviest users of technology as a group (Subrahmanyam, 2008). They are invaluable consumers of new forms of communication such as instant messaging, text messaging, social networking, blogs and photo and video sharing mediums

(Subrahmanyam, 2008). David Carr (2011) from the New York Times calls young people “digital natives” which represents how different they are from their parents and older groups of people in terms of technology use. They are born into the age of technology compared to previous generations who learnt to use it after they were older. Thus, it is also younger generations who have a harder time separating themselves from technology because they might suffer socially among peers if they are not up to date or well connected (Richards et. al., 2010).

As a result, a lot of time is spent on all these forms of technology and it is now increasingly integrated into adolescents’ lives. Teenagers say that technology has become an immensely important part of everyday life. Most say it is because it helps them keep in touch with their friends as well as their parents. (Subrahmanyam, 2008)

When looking at patterns of technology use of groups like adolescents, it is important to take into account the recentness of statistics. Patterns of technology use are changing so frequently that research on these patterns from only a decade ago may be outdated. This is reflected by the fact that the number of internet users in North America has grown by 146.3% from 2000 to 2010 and 444.8% in the world from 2000 to 2010 (Internet World Stats, 2011). Therefore, when it comes to research about technology it is important to take into account relevance of the research to the current time.

Also specifically within adolescents, usage patterns have changed a lot in the last few years. This is not confined to the internet or computer based technology. With respect to cell phones, about 75% of 12-17 year-olds now own cell phones as found in 2010 compared to 45% in 2004 (Lenhart, 2010). In 2008, Virgin Mobile reported that nine out of ten teenagers who own cell phones have text messaging capability and two thirds of them use text messaging every day.

They also reported that more than half of their customer aged 15 to 20 years send or receive at least eleven text messages per day whereas about one fifth of them text twenty-one times per day or more.(Subrahmanyam, 2008)

Adolescents' preferred mode of communication is texting and they are the heaviest users of text messaging as a group (Bilton, 2010). Among all teens, their frequency of texting is now greater than the frequency of every other common form of interaction with their friends including in person interaction (Lenhart, 2010). It was found in 2010 that young people under 18 send and receive more than double the amount of text messages per month than any other age group (See Figure in Appendix 1) (Bilton, 2010). Text messaging is rampant among teenagers and also something that has been increasing quite rapidly in recent years. It was found that Verizon Wireless hosted 17.7 billion text messages from October through December 2006 which was more than double the total from the same months in 2005.

However, the advantages of technology come along with drawbacks. With the infinite amount of time teenagers spend on cell-phones, computers and numerous types of video games, their attention is absorbed by these devices. Text messaging is one of the most noticeable behaviors that disrupt face to face social interactions. Carr (2010) in his article in the New York Times about text messaging notices how at a conference people are "adjacent and yet essentially alone" because everyone is texting and talking rather than engaging with the "flesh-and-blood human beings" around them. Continuous peering at cell phone screens and typing away with the thumbs while talking to someone was the theme of his article, called "Keep your thumbs still when I'm talking to you". It mainly referred to adolescents and how recently, texting has become so common that it is taking away from face-to-face social interactions that develop important in-person relationships. This phenomenon might be one main reason why new technology such as

texting may cause a decline in face-to-face relationships such as the adolescent-parent relationship.

Among cell phone owning teens, voice calls are also a central function of their cell phones, especially for communicating with their parents. Though teenagers make and receive far fewer calls compared to text messages, voice is still the primary mode of conversing with parents (Lenhart, 2010). One of the primary reasons parents allow their children to have cell phones is so that they may monitor their whereabouts and stay in contact with them when they are not in close proximity (Lenhart, 2010). 94% of cell using teens aged 12-17 report that cell phones give them more freedom because they can reach their parents no matter where they are (Lenhart, 2010).

However, cell phones are a mixed blessing. Adolescents and parents agree that phones make their lives safer and more convenient but also mention disadvantages of cell phone use, especially the fact that they can result in irritating interruptions (Lenhart, 2010). Also, parents are now less likely than earlier years to say that the internet is a good thing for their adolescents. The number has decreased by a statistically significant amount from 67% in 2004 to 59% in 2011 (MacGill, 2007).

Adolescents' internet use is also different from what it used to be a few years ago. They are more likely to use the internet to keep in touch with friends and people they know from their offline worlds rather than with strangers which was very common in the early days of the internet (Wolak, 2003). Such usage patterns have also changed since technology is more common and youth are more likely to find their family and friends online or contact them on a cell phone than they were even five or ten years ago (Subrahmanyam, 2008). Therefore, information about technology usage, be it internet, phone or other media, is quickly outdated due

to continuous advancement. So it is important to note that research considered should be recent enough to be representative of current usage patterns.

Most recent forms of technology involve staring at screens for hours and this seems to be having an effect on the formation of interpersonal ties. Research from New Zealand in 2004 examined the effects of “screen time” on teen attachment to parents and peers. Their definition of “screen time” includes time spent on television, video gaming and computer use. It was found that more time spent playing video games as well as more time spent watching television was associated with low attachment to parents. Only more time spent watching television was associated with lower attachment to peers. For computer use, the risk for having a low quality attachment to parents increased by 5 percent per hour spent on the computer. More screen time was also associated with less time spent reading and doing homework. Conversely, spending more time reading and doing homework was linked to a better relationship with parents. (Richards et. al., 2010)

This study, published in 2010, is the only study that examines an effect of a type of technology on teen relationships. There have been no rigorous experiments up till 2008 published about how adolescents’ extensive use of electronic communication affects their relationship with their parents. However, some research indicates that it may be reinforcing communication between peers at the expense of parent-teen communication. Parents may not be knowledgeable enough about their children's online activities on sites such as the enormously popular MySpace. (Subrahmanyam, 2008)

Parents are increasingly trying to stay within the loop of their adolescents’ online lives (Subrahmanyam, 2008) and monitor their teenagers’ use of the internet. However, despite

parental controls allowed by many types of technology, there are increasingly more ways out of parental control as well, that give adolescents more and more autonomy. Social networking sites and other newer forms of communication are making it harder for parents to control and influence their children's online activities. By introducing privacy settings, websites help teenagers hide personal information from strangers, reducing problems such as online sexual predation. However, it also allows them to choose what information and activities they want to be visible to their parents and what they want to be hidden from them. (Subrahmanyam, 2008) Parents are increasingly excluded from their children's lives as newer forms of social networking make it harder for them to monitor their children's online activities (Subrahmanyam, 2008).

This study aims to examine the effect of the increased use of technology on adolescents' relationship with their parents. This is a very important question given that adolescents require a close relationship with and affection from their parents. This attachment to parents is important to their health and development (Richards et. al., 2010). Since there is no research published on this before except for the study conducted in New Zealand in 2004, there is an increased need to explore this issue given its importance.

As discussed earlier, there are many different variants of technological devices that take up adolescents' time. This study focuses on three types of technology, namely, computers, cell phones and video games. Self-report questionnaires given to 63 adolescents are used to investigate the amount of time spent on each type of technology and the relationship of each of these with closeness to parents. It is hypothesized that an increase in duration of use of each type of technology separately would lead to a decrease in closeness to parent. It is also hypothesized that the total duration of use of all three types of technology would also lead to a decrease in closeness to parent.

Method

Participants

The participants for this study were 63 students (38 male and 25 female) from the Bronx School of Law and Finance, a public high school in Bronx, NY. They were high school students in grades 9 to 11, with ages ranging from 14 to 18 (Mean age = 15.44). These teenagers were chosen to participate in this study because they were enrolled at the Bronx School. Consent to participate in the study was obtained verbally from participants.

Procedure

To obtain information about use of different types of technology and relationship with parents, an anonymous questionnaire was filled out by the participants. The questionnaire was handed out to the Bronx school students during advisory sessions in classrooms at school. Before they began filling out the questionnaire, they were informed about the purpose and use of the study, their anonymity and privacy was assured and their consent was gained. Each participant took about 10 minutes to complete the survey individually.

Measures

Each survey consisted of 37 closed-ended questions. Each question was either multiple choice or yes-or-no answer. It contained 9 questions about computer use, 11 questions about cell phone use, 1 question about video game use, 11 questions about relationship and closeness to a parent and 5 miscellaneous questions. Many of these questions were regarding possible confounding variables that might affect the independent variable of the study. For details of the questionnaire, refer to Appendix 2.

Results

The present study sought to explore the relationship between the amount of time adolescents spend on technology and their relationship with their parents. Data was analyzed using bivariate Pearson correlations between total time spent each day on computers, cell phones and video games and closeness to parent. Each of these types of technology was also individually correlated with closeness to parent. There was no significant correlation between total time spent on technology per day and closeness to parent. Also there was no significant correlation between time spent on cell phones or time spent on video games and closeness to parent. However, an examination of the number of hours spent on a computer per day and the rating of closeness to parent revealed a significant negative correlation between computer use and closeness to parent supported by Pearson's correlation coefficient, $r(58) = -0.263$, $p = 0.046$ (two-tailed)(Figure 1).

There were additional findings and trends observed in the data as well. It was found that the majority of teenagers own cell phones and have a computer at home. Only one participant reported not having a computer and seven (11.1%) reported not having a cell phone. It was found that the internet helped 27% of adolescents maintain a close relationship with their mothers and 20.7% with their fathers. On the other hand, cell phones helped 68.3% of adolescents maintain a close relationship with their mothers and 54% with their fathers.(Figure 2) Majority of participants reported that they generally maintained better relationships in person or on the phone compared to the internet (In person = 58.7%, phone = 31.7% and internet = 4.8%). It was found that most participants did not spend a great amount of time playing video games. 70.7% of the teenagers reported to spend less than 2 to 4 hours a day on video games and 34.5% reported to spend less than an hour or no time on them. (Figure 3) It was found that 63.5% of participants picked their mother as the parent they are closest to. 17.5% picked their father, 15.9% picked the

adult (other than mother or father) with whom they live and 3.2% picked their guardian. Also, in terms of preferred communication mediums, 58.7% said they have better relationships in person, 31.7% said they have better relationships on the phone and 4.8% picked online relationships.

Figures and Captions

Figure 1: Time spent on a computer each day and closeness to parent. There was a negative correlation between computer use and closeness to parent supported by Pearson’s correlation coefficient, $r(58) = -0.263$, $p = 0.046$ (two-tailed).

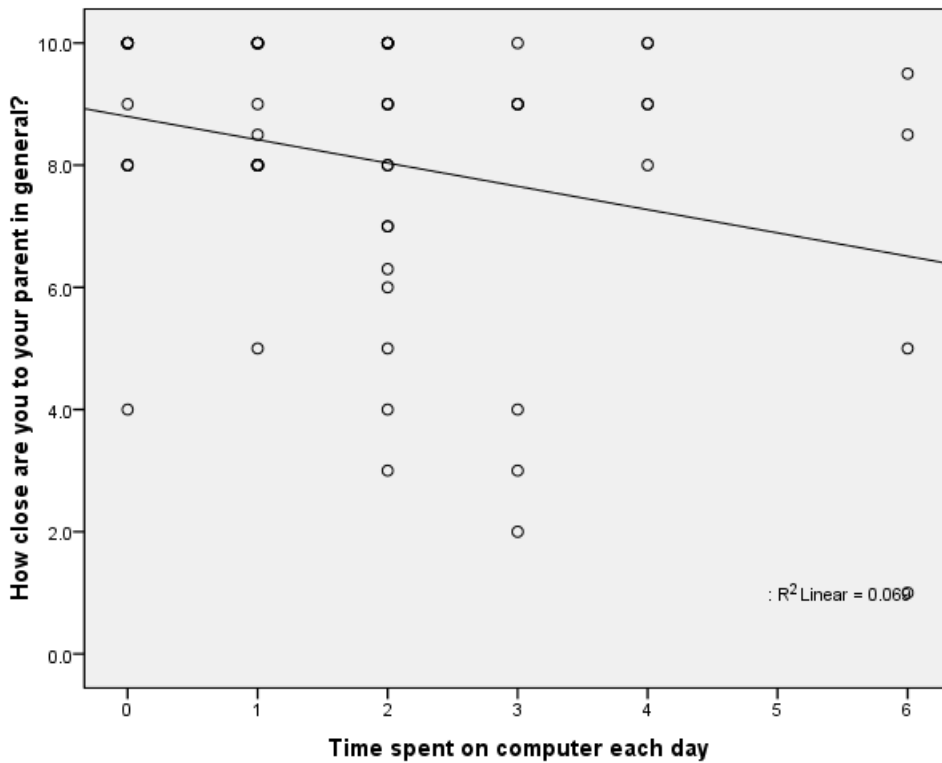
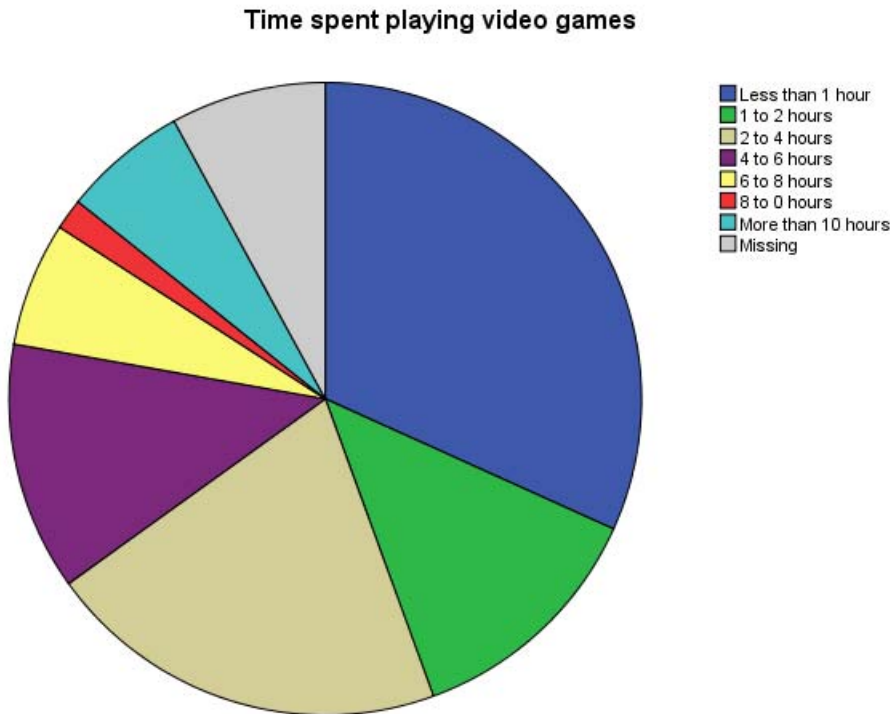


Figure 2: Percentage of teenagers that report whether internet and cell phones help them maintain a good relationship with their parents. Cell phones help more teenagers maintain good relationships with both their mothers and fathers compared to the internet.

	Relationship with mother	Relationship with father
Internet	27%	20.7%
Cell phones	68.3%	54%

Figure 3: Time spent playing video games. 70.7% of the teenagers reported to spend less than 2 to 4 hours a day on video games. 34.5% reported to spend less than an hour or no time on them. 13.8% spent 1 to 2 hours and 22.4% spent 4 to 6 hours. These calculations exclude missing values.



Discussion

The aim of the current study was to investigate the relationship between duration of adolescents' technology use and their relationship with their parents. Three main forms of technology were considered for the purposes of this study, namely, computers, cell phones and video games.

It was found that the total amount of time spent on all three types of technology combined did not have a significant correlation with closeness to parents. The same was found for duration of cell phone use and time spent playing video games when individually correlated with closeness to parent. A lack of significant result in the overall technology correlation could have been due to the lack of a significant correlation in two of its three factors when individually correlated with closeness to parent. Duration of computer use was the only type of technology use found to have a significant negative correlation with closeness to parent ($r(58) = -.263, p = 0.046$).

Computers and cell phones –in addition their numerous other uses – are used as communication devices whereas video games are not. The difference between the correlation results for computers and cell phones with closeness to parent may be due to the finding that the participants were more likely to use cell phones to communicate with their parents compared to the use of the internet. 68.3% participants reported that their cell phone helps them maintain a close relationship with their mothers and 54% with their fathers. Only 27% of adolescents said the internet helps them keep in touch with their mothers and 20.7% with their fathers.

Also, 15.9% of these participants reported being closest to the adult (other than their mother or father) with whom they live. Therefore, many of them do not live with their mother or

father. These teenagers are more likely to contact their parents through internet using their home computer.

The findings could mean that cell phones facilitated a relationship between adolescent and parent when they were not in close proximity. This is consistent with MacGill's (2007) findings that parents and adolescents find cell phones helpful and convenient because teens are able to communicate with their parents, let them know where they are and get advice. Adolescents say they feel safer with cell phone because they feel that they can contact their parent or get help whenever they need to (Lenhart, 2010). This would in turn lead to a better parent-teen relationship. The fact that an adolescent is always on the phone or texting at the dinner table may just be a very noticeable annoyance when parents and teens are in close proximity. However, it seems that ability to keep in touch when not in close proximity overrides this annoyance and leads to a healthier parent-teen relationship.

It may also be true as Lenhart's (2010) findings suggest that parents now consider cell phones to be less of a good thing for their children compared to a few years ago, but nonetheless the current findings suggest that its advantages outweigh the shortcomings. The main reason parents buy cell phones for their teenagers is so that they may be aware of their whereabouts (Lenhart, 2010) and this study suggests that it is fulfilling this purpose.

Recently, more and more parents are beginning to use cell phones also. So they know what is going on in their adolescent's life. Most adolescents' cell phones are on a family plan where usually a parent foots the bill (MacGill, 2007). This also helps parents monitor their children's usage when it comes to cell phones. With internet there is a lot more privacy now, and most parents are not as up to date with the latest features of their teenagers' favorite social

networking websites. So even if the parent learns how to use such sites to monitor their teens online, teens can choose which information and activities they want to hide from them (Subrahmanyam, 2008).

There was no significant correlation found between the amount of time spent on video games and closeness to parents. It is important to note that 70.7% of the teenagers who answered this question, reported to spend less than 2 to 4 hours a day on video games. 34.5% reported to spend less than an hour or no time on them. This shows that most of these teenagers did not spend a lot of time playing video games at all. This might be why video games were unrelated to their closeness to their parents.

Overall, it was found that computer and cell phone ownership was very high among adolescents. Only one adolescent out of 61 who answered the question reported not to have a computer at home and only 7 adolescents (11.1%) out of 53 who answered the question correctly reported not having a cell phone. Lenhart (2010) found 75% of teens owned cell phones whereas the current study only a year later found that 84.1% owned cell phones. The current studies' findings are consistent with Lenhart's findings and suggest that overall ownership of technology is increasing even more rapidly every year.

Some errors could also affect the results such as participants not understanding the questions or not paying attention to the wording. The survey was complicated and they may make mistakes in cases such as if they live with an adult other their parent, who the question is referring to.

Some errors could also have affected the results of this study. The study used surveys to gather information from adolescents. Self-report can often be flawed due to participants not

understanding the question or not paying attention to the wording. The survey was complicated and they may have made mistakes in certain cases such as if they lived with an adult other their parent, they might be unsure as to who the next question about “this parent” is referring to. There were many missing responses in the data collected for this study which may also have contributed to some errors in the findings.

Also, the sample was confined to one public school in a specific neighborhood in New York. A bigger sample would have been more representative of adolescents in the United States, and might have yielded better results. However, a bigger sample was not practical for this study, but it is suggested for future research that aims to examine the relationship between technology use and parent-teen relationships.

This research only looked at correlations between duration of technology use and relationship with parents. This topic has barely been studied so far and further research is needed to determine the direction of relationship between duration of technology use and relationship with parents. Perhaps more structured research that controls for affecting factors would be a better measure in determining a causal relationship. Furthermore, there is no research concerning how and why technology use may affect adolescent social interactions and relationships. Further research on this important topic should look at the psychological intricacies of associated with this correlation.

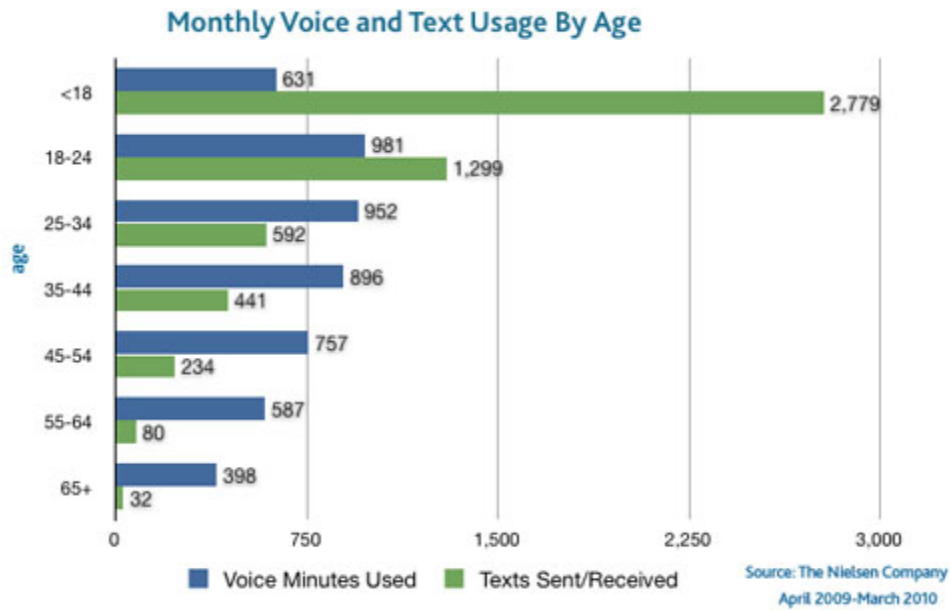
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APPENDIX 1

Young people under the age of 18 are the highest users of text messaging compared to all other age groups. The figure below is from the Nielsen Company as used by Bilton (2010).



APPENDIX 2

This survey is distributed by Sarah Khan, a student at Barnard College. The sole purpose of the questionnaire is a research project that is part of an Adolescent Psychology class at Barnard. This survey is completely anonymous and your privacy is guaranteed.

Thank you very much for participating.

Technology Use and Parenting Survey

Circle or check the **best** answer to each question:

1. Age: _____
2. Gender: ___Male ___Female
3. Do you have a computer at home? ___Yes ___No
4. How much time do you spend on a computer on average each day?
 - More than 10 hours
 - 8 to 10 hours
 - 6 to 8 hours
 - 4 to 6 hours
 - 2 to 4 hours
 - 1 to 2 hours
 - Less than an hour
5. What do you usually use the computer for? (Check all that apply):

<input type="checkbox"/> Facebook	<input type="checkbox"/> To play games
<input type="checkbox"/> Twitter	<input type="checkbox"/> Home work

- Email
- IM
- Skype or other video chatting
- To watch TV or Movies
- Other _____

6-11. Does the internet help you maintain a close relationship with: (Chose Yes or no for each category):

Close friend?	Boyfriend/Girlfriend?	Relative?	Sibling?	Mom?	Dad?
___ Yes	___ Yes	___ Yes	___ Yes	___ Yes	___ Yes
___ No	___ No	___ No	___ No	___ No	___ No

12. Do you own a cell phone? ___ Yes ___ No

13-16. If yes, how much time a day do you spend on your cell phone for each activity?

(Chose one answer for each column):

Texting	Talking	Internet	Other activities
___ More than 10 hours	___ More than 10 hours	___ More than 10 hours	___ More than 10 hours
___ 8 to 10 hours	___ 8 to 10 hours	___ 8 to 10 hours	___ 8 to 10 hours
___ 6 to 8 hours	___ 6 to 8 hours	___ 6 to 8 hours	___ 6 to 8 hours
___ 4 to 6 hours	___ 4 to 6 hours	___ 4 to 6 hours	___ 4 to 6 hours
___ 2 to 4 hours	___ 2 to 4 hours	___ 2 to 4 hours	___ 2 to 4 hours
___ 1 to 2 hours	___ 1 to 2 hours	___ 1 to 2 hours	___ 1 to 2 hours
___ Less than an hour	___ Less than an hour	___ Less than an hour	___ Less than an hour

17-22. Does your cell phone help you maintain a close relationship with: (Chose Yes or no for each category)

Close friend?	Boyfriend/Girlfriend?	Relative?	Sibling?	Mom?	Dad?
___Yes	___Yes	___Yes	___Yes	___Yes	___Yes
___No	___No	___No	___No	___No	___No

23. Do you think you have better relationships with people you talk to online or on the phone compared to people you meet and hang out with face to face? (Select one only)

_____ I have better relationships on the phone (texting and talking)

_____ I have better relationships online

_____ I have better relationships in person

24. How much time do you spend playing video games?

- a. More than 10 hours a day
- b. 8 to 10 hours
- c. 6 to 8 hours
- d. 4 to 6 hours
- e. 2 to 4 hours
- f. 1 to 2 hours
- g. Less than an hour

25. Do you have a sibling with whom you are very close? ___Yes ___No

26. Do you have a best friend/boyfriend/girlfriend with whom you share everything?

___Yes ___No

27. Pick a parent with whom you are closest:

___ Mom ___ Dad ___ Guardian ___ Adult with whom you live

For each of the following, circle or check one response:

28. Does your parent monitor your internet use?

___ Yes, entirely ___ Mostly ___ Somewhat ___ Barely ___ Not at all

29. Does your parent monitor your cell phone use?

___ Yes, entirely ___ Mostly ___ Somewhat ___ Barely ___ Not at all

30. Does your parent know who you talk to online or on your cell phone?

___ Yes, entirely ___ Mostly ___ Somewhat ___ Barely ___ Not at all

31. How well does your parent know you or understand you as an individual?

___ Yes, entirely ___ Mostly ___ Somewhat ___ Barely ___ Not at all

32. How often do you talk to this parent (e.g. have a discussion)?

- Don't talk to him/her much
- Talk once a month
- One a week
- Every other day
- Everyday

- More than once a day

33. Does your parent give you advice? If so, how often?

All the time Most of the time Sometimes Rarely Never

34. Do you take their advice? How often?

All the time Most of the time Sometimes Rarely Never

35. How often do you use your cell phone to talk to your parent?

All the time Most of the time Sometimes Rarely Never

22. How often do you use the internet to talk to your parent?

All the time Most of the time Sometimes Rarely Never

On a scale of 1 to 10 how close would you say you are to this parent in general? _____

Thank you again!