

**Relationships Between Digital Media Usage and Face-to-Face Interaction
Within Families**

Abstract

Digital media usage (DMU) is an area of increasing interest among many due to the potential effects it has on both face-to-face interaction (FFI) and the resulting effect on children's psychosocial development and interpersonal relationship development. It is known that increasing levels of digital media usage in various contexts have an effect on the face-to-face interactions in which a child participates in. So, there are still many unknowns regarding the generalized relationship between digital media usage and face-to-face interactions. Parental influences play a large role in the behavioral development of a child, but there are not many studies pertaining to the actual relationships between levels of DMU and FFI in a parent versus their child, especially the effects that one might have on the other. This study aimed to elucidate the relationships between children and their parent's DMU and FFI on a superficial level, with hopes to guide future research into behavioral transmission with respect to DMU. This was done through the use of a survey consisting of Likert scaled questions which then determined an individual's score for DMU and FFI. It was found that for $n = 79$ pairings of parents ($n_1 = 79$) and children ($n_2 = 79$) there was a negative association between FFI and DMU in children, while parents had a positive relationship. Parents had significantly lower levels of DMU than their children, while also maintaining significantly higher levels of reported FFI. From the results, future studies can be designed to simulate scores for DMU and FFI in the context of larger socially interactive systems outside of the home, including educational and occupational settings. This study can also be extended to a preschool, elementary school, and even the college setting when other environmental factors are taken into account.

Review of Literature

Why is digital media usage in children important?

The field of digital media and child development has identified many key impacts on the social, psychological, and even physiological development of children who now utilize digital media at increasingly staggering rates. Specifically, some studies show that children's brains and eyes are directly affected by specific blue light wavelengths and sympathetic nervous system stimulation, but others are undecided on whether the true short-term and long-term effects of this are harmful or beneficial¹. There are also many studies which outline the social behavioral changes of children^{2,4}.

Digital media can be anything from television shows, to computer websites, phones, tablets, and video games. This means that even if children do not own a cell phone themselves, they are subject to digital media viewing in a variety of settings which they are bound to encounter in most developed areas of the world. Different means of digital media are being used by different age groups, ranging from newborns to the elderly, and this usage continues to grow. Since 2007, mobile devices have become more and more popular and studies have found that digital media is now present in the homes of over 95% of Americans with children². On the surface, mobile devices are extremely appealing, especially to children, because they are easy to move and easy to obtain information, but there are other aspects which are not so obvious. Children love these devices and can even become so attached that they begin to forget other priorities and daily living activities³. Phones can lead to distractions from social interactions and have a negative association with the enjoyment of face-to-face interactions in conversation, undermining the benefits of the increased "connectivity" promoted by social media apps and websites⁴. On the positive side, with youth media usage being amplified, teachers are now able to use it to their advantage in the classroom. Professors can communicate, empower and teach their students through their phones⁵. On a related note, people cannot imagine their lives on a day to day basis without their mobile devices.⁶.

Video game consoles are another type of technology that can lead to positive and negative implications. Video games put children at risk of aggressive or dramatic outbursts as well as delayed social skill development due to a reduction in time spent in the physical presence of other children⁷. Over 90% of American teenagers are now playing video games, and the

substantial time spent could have negative effects⁸. For instance, violent video game play is directly associated with physical aggression and could easily be avoided by playing a less aggressive game or even doing another activity, such as playing outside or reading a book⁹. Increased aggressive thoughts and aggressive behaviors are attributed with the excessive video game usage for short- and long-term periods of time¹⁰. On the other hand, video games may help to develop basic perceptual and cognitive skills, and there are many studies which experiment with game-based learning and e-learning technologies. Indeed, the risks should be assessed before spending hours and hours on these screens¹¹.

Children who watch extensive television under two years old have experienced detrimental effects later in life, such as delayed speech development¹². Although watching unrestrained television is negatively associated with different developmental skills, television can also bring beneficial outcomes. Regarding toddlers, television can serve as a powerful way to provide educational programming for preschoolers, increasing word counts and other early life skills¹³. For people that are not able to hear, television can provide closed captioning, allowing these people to enjoy watching television¹⁴.

Similar to television, computers offer many uses to children of all ages. From distracting teens while doing their homework to helping teens complete their homework, computers are also impactful devices among students and children.

Possibly the most well-known use of digital technology is social media. Social media is ubiquitous in the lives of Americans, as 69% of the general public, including 88% of teens, use some type of social media platform daily¹⁵. The presence of mobile devices in a face-to-face interaction can have a negative effect on the quality of a conversation¹⁶. In addition to taking away from personal interaction, social media can cause lower self-esteem and drive self-doubt. For example, people are automatically quick to judge on a selfie posted on Instagram or Facebook. As a result, the person who posted the picture could open him or herself up to criticism and judgement¹⁷. Instead of feeling pressured to post pictures for approval and admiration, people can focus on the positive impacts of social media, such as educational technology^{18,7}. Conversely, teens can acknowledge the challenges and benefits of growing up in a digital age, which is emphasizing how social media can help to strengthen friendships and emotional support, while also leading to social pressure¹⁹.

Why does parental influence matter?

Digital media is affecting different generations and how parents influence their children's usage is very important when it comes to family dynamics²⁰. The parent-child relationship is very important in a family, and for everyone to properly communicate, parents must monitor how much time is spent on devices. With this study, parents can see how digital media is affecting their relationships with their children. This study raises awareness of the cognitive, emotional, and social impacts technology is having on families in the 21st century²¹. This study focused on examining at how parents influence their children through digital media usage. Parental influence has always been important for the health of a family, and parents must understand the factors and effects of digital media usage.

When children see parents using and viewing digital media, such as the internet, it can have an effect on their behavior as they try to model it²². Parents can act as role models for a variety of behaviors, but one which has not been studied extensively is the parental role model for digital media consumption and associated behaviors. Nevertheless, as children get older parents tend to loosen rules more and more until there are eventually no restraints on the children's digital media usage (DMU)²². With television, like many other sources of digital technology, parents have many different approaches on moderating their children's digital media usage. When children are young, an example is coviewing, with the parents sitting down and watching television with the child in order to mediate the content that is on the screen²³. In a study performed in 2015, it was shown that the quantity and quality of language used by parents in everyday conversation decrease during coviewing television with their toddler²⁴. Parental television viewing has been positively associated with their child's television viewing, meaning that the more the parental figure is watching television, the more likely the child is to watch more television²⁵.

The emerging technology and digital media platforms have presented new parental challenges. The latest devices and forms of technology are coming out so frequently that parents are just trying to do their best in helping their children adapt to all of the different forms of digital media. With all of the differences between the youth generation and their parents, adults are attempting to find the most effective parenting strategy that works for them²⁶.

Although parents are doing their best to adjust to the introduction of different types of technology, it is important that they don't interfere too much with their children's digital media lives. With television, smartphones, and computers, digital media is being used more than ever and family environments will likely influence how it is used²⁷. There is a negative association with parents that are in their children's digital lives, which can result in technoference. Technoference is the interruption in the children's well-being because of parental distraction or neglect²⁸. It was found that excessive digital media use in parents was associated with higher levels of technoference in parent-child relationships, as well as with greater levels of internalizing and externalizing problematic behavior (especially with mothers) in children, worse perceptions of co-parenting, depressive symptoms, and parenting stress²⁸. Therefore, it is important for families to find the balance in regulating digital media usage, while also having productive conversations to talk about issues to avoid technoference in families²⁹.

Research Gap

With regard to the study, the gap in this field is that although there is an adoption of a psychological perspective on how children should be interacting with digital media, there is a seemingly wide gap in our understanding of the influential role of parents in the context of their child's digital media use. This leads to the need for more comprehensive characterization of associated contextual factors such as the home environment, parental media use, and parental attitudes. This could influence the ability to increase awareness and adoption of family digital literacy policies thereby mitigating negative developmental effects³⁰.

Many studies are self-reported to assess qualitative and quantitative scoring assessment in each parameter being discussed. These studies are mostly survey based and therefore depend on the participant to provide answers for the researchers. However, when the information is reported, it is often the parents speaking on behalf of the child and themselves, which might not be entirely accurate and might therefore skew the data.

When completed, self-reported scores would allow the researcher to assign a score to each category or aspect of digital technology and having both perspectives of the parent and child is ideal. The Pew Research Center conducted such a study having both perspectives of the patterns of digital technology among teens where percentages, not scores were assigned³¹. For

each aspect of the survey, scores being assigned for each type of the digital media usage allow the researcher to see what areas of digital media usage are being the most impactful, analyzing the difference in opinions between the parent and the child. This can help to quantify the qualitative aspects of the study. Studies have been done separately assessing parents and children's perspectives on DMU and FFI. However, this study looks to tie together perspectives of personal DMU/FFI and family member's DMU/FFI.

Hypotheses

In this study, it was important to us that we identify any outstanding relationships between DMU and face-to-face interaction (FFI) between parents and children. We hypothesized that there will be significant differences between parent and child DMU and FFI. In addition, we hypothesized that parents and children with higher levels of DMU would have lower levels of FFI, and vice versa. Lastly, we wanted to understand whether or not parents and children would be able to accurately describe each other's levels of DMU and FFI, which could be achieved by discerning differences in self-reporting versus reporting on each other's DMU and FFI.

Methodology

a) Experimental Design and Tools

Participants completed a questionnaire based on a study led by Wartella et al. 2014. There are separate questionnaires for children and their parents. Additionally, a pre-survey statement attached to the two surveys was distributed. Survey questions were categorized into two distinct themes: Face-to-Face Interaction (FFI) and Digital Media Usage (DMU). First, generalized scores were given for FFI and DMU for each parent and each child. These scores were compared between parents of a particular child, as well as between parents as a whole and children as a whole (averaged).

b) Participants

The sample population consisted of students of various ages and their parents/guardians from suburban New York communities. Further details are discussed in the demographics subcategory of the results.

c) Recruitment of Participants and Procedures

For middle school participants, a live presentation was given to the student body to inform them of the study and discuss their role in completion of the survey consisting of Likert Scale questions. Following the presentation, consent forms were emailed home to parents, where the parents/guardians electronically sent back consent and their surveys. The parents/guardians input the child's student identification number into the appropriate question on their survey in order to link the data between their survey and their child's.

For the high school participants, a brief presentation was given to the student body of a suburban, New York high school about the study. Following the presentation, consent forms were emailed home to parents, where the parents/guardians electronically sent back consent for minors (age ≤ 17). After the consent form was electronically submitted through Microsoft Forms, the parents completed the survey. The child's student identification number was input into the appropriate question on their survey in order to link the data. An email was sent to parents reminding them to complete a consent form and fill out the questionnaire. After the parents electronically submitted the consent form and questionnaire, the students were prompted to complete their survey. The questionnaires for the high school students were not administered during the school day; they were to complete it on their own time.

For a mathematical model, Matlab and Microsoft Excel were used to develop numerous graphs. Figure 1 was imported from Microsoft Excel while Figures 3-5 were generated and imported from Matlab.

Results

Responses were summarized with descriptive statistics for both parent and child surveys. Values for DMU and FFI with respect to each and their perspective on their child or parent were calculated and summarized as well.

FFI was scored through questions 8, 9, 14(b-d), and 15 in the parent/guardian survey and questions 8, 9, 10, 11, 16(b-d) in the child survey. DMU was scored through questions 14(a,e), 16(f), 17, 18, 19 in the parent/guardian survey and questions 16(a,e), 17, 18, 19(f), 20(f), 21, and 22 in the child survey. Factors that affected each parameter included questions 10, 11, 12, 13, 21, and 22 in the parent/guardian survey and questions 7,12,13,14,15, 23, 24, 25, 26, and 27 in the child survey.

Demographics

Demographics included 95 responses from parents of 40-64 years of age with an average age of 48.3 years and 113 responses from children 10-18 years old. The average child was 14.4 years old according to parents, and 14.7 according to children. Regarding parent gender, 83% identified as mothers and 17% identified as fathers. There were 50.9% who identified as a “daughter,” and 49.1% who identified as a “son.” There was a total of 14 12th graders, 29 11th graders, 12 10th graders, 3 9th graders, 5 8th graders, 17 7th graders, and 12 6th graders with 52% female and 48% male respondents. Furthermore, 32% of children responded that they were the youngest child, 48% responded that they were the oldest child, 14% responded that they were the middle child, and 6% responded that they were an “only child.” For the child survey, children labeled their mothers and fathers as either “Parent/Guardian 1” or “Parent/Guardian 2.” In total there were 46 males (41.1%) and 66 females (58.9%) for Parent 1, and 65 males (58.1%) and 47 females (41.9%) for Parent 2. The responses are summarized in Figure 1 below.

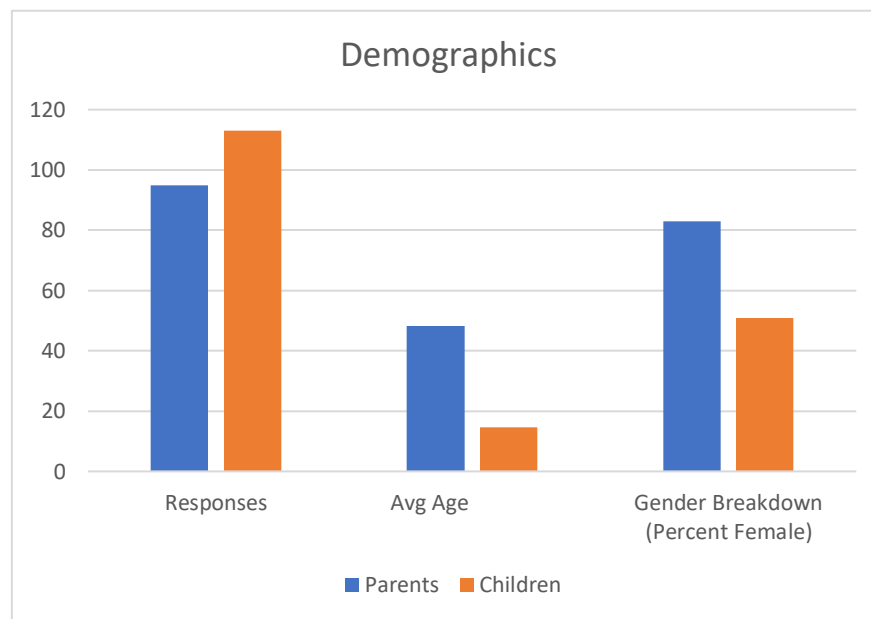


Figure 1

General Trends – DMU vs FFI

The scores for both FFI and DMU were calculated for the parents and children. Below are the average scores taken from the parent and child’s perspective. For example, DMU_C – CP would represent the DMU score that the child received. The CP stands for “Child Perspective” while PP symbolizes the “Parent Perspective.” Table 1 shows DMU scores and Table 2 shows FFI scores. As previously stated, the majority of Parent 1 was recorded as “Mother” by the child participant and the majority of Parent 2 was the “Father”. This is interesting to note because the child recorded P1 having a DMU scored 8% higher than P2, suggesting that they perceive their mother to spend more time on digital media. In addition, the survey was geared toward DMU questions, allowing less detailed answers regarding FFI.

Table 1

Perspective	Average Score [Minimum, Maximum]
DMU_C - CP	35.8 [23, 56]
DMU_C - PP	32.7 [13.7, 51]
DMU_P - CP	28.8 [18, 45]
DMU_P1 -CP	26.7 [15, 40]
DMU_P2 -CP	22.2 [4, 42]

Table 2

Perspective	Average Score [Minimum, Maximum]
FFI_C - CP	12.3 [0, 30]
FFI_P - PP	21 [14,28]

Below are FFI scores plotted with DMU scores for both parents and children. This provides clear evidence for support of the hypothesis that as DMU increases, face-to-face interaction levels decrease in children. There were also significant differences between both children and parents, with children on average having higher DMU and lower FFI while parents have higher FFI and lower DMU.

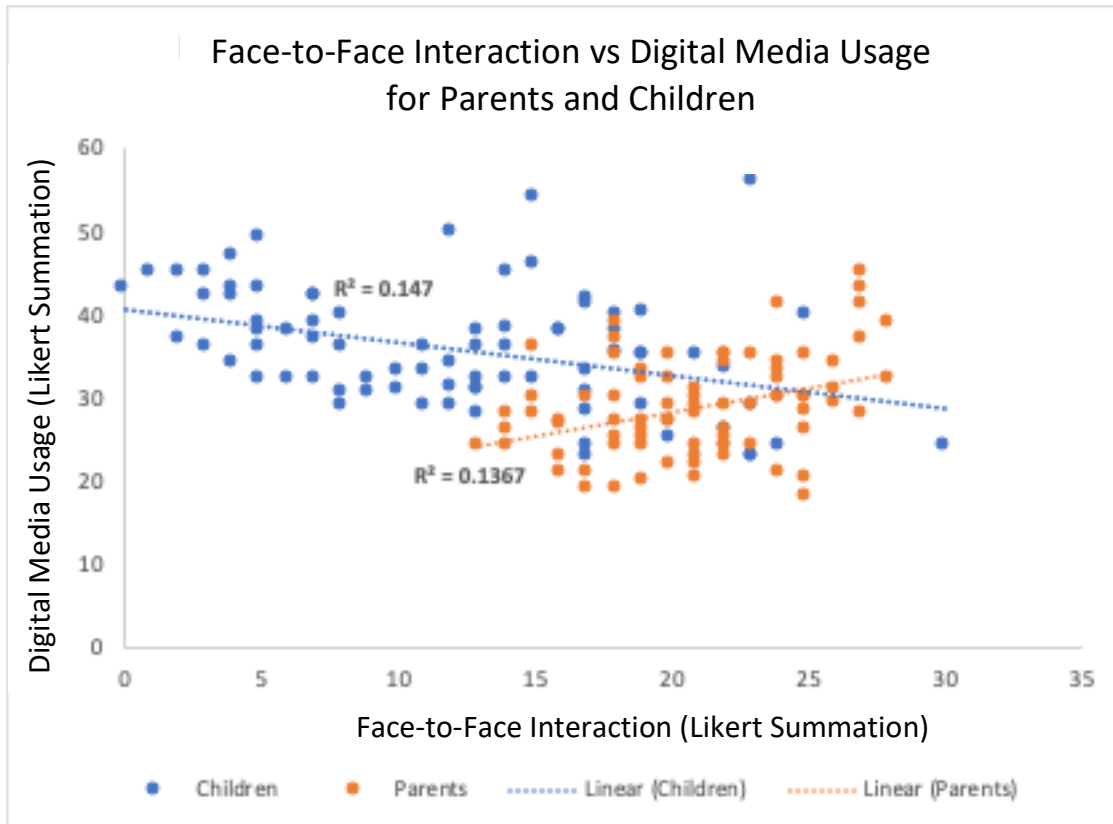


Figure 2

Figure 2 displays the plot of DMU vs. FFI for both parents (orange) and children (blue) from their own perspectives. There is a clear negative relationship which can be seen by the eye but contains considerable variability ($R^2 = 0.147$). The child perspective shows that as DMU increases, FFI decreases and vice versa. For parents, although seemingly similar, the trend is more of a positive relationship ($R^2 = 0.137$) which shows that as FFI increases DMU also increases. These are two discrete groupings where DMU is higher on average for children than it is for parents, and FFI is higher on average for parents than it is for children. Upon further analysis, it was found that children above the 50th percentile of DMU were found to have an average FFI which was below the global average ($p < 0.05$). On the other hand, children below the 50th percentile of DMU were found to have an average which was above the global average FFI ($p < 0.05$). For parents, there was no significant difference between levels of FFI from the above 50th percentile versus the below 50th percentile. FFI levels on their own show clear support for higher levels of FFI in parents versus their children.

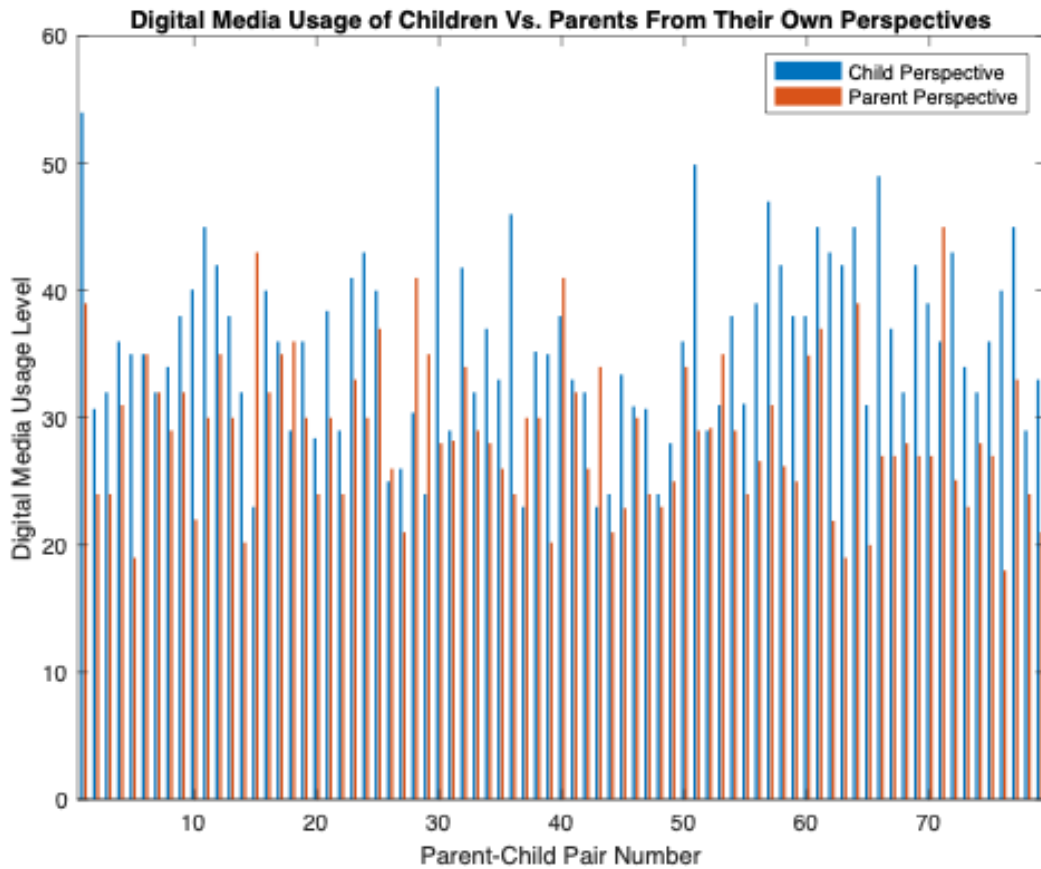


Figure 3

Figure 3 depicts the relationship between DMU of children versus parents from their own perspectives. There were significant differences ($p < 0.001$ for $n = 79$ pairs) which show that children have higher levels of DMU on average than their parents. DMU levels on their own show clear support for lower levels of DMU in parents versus their children. With an average difference of 7.01 there were verified significant differences in these values.

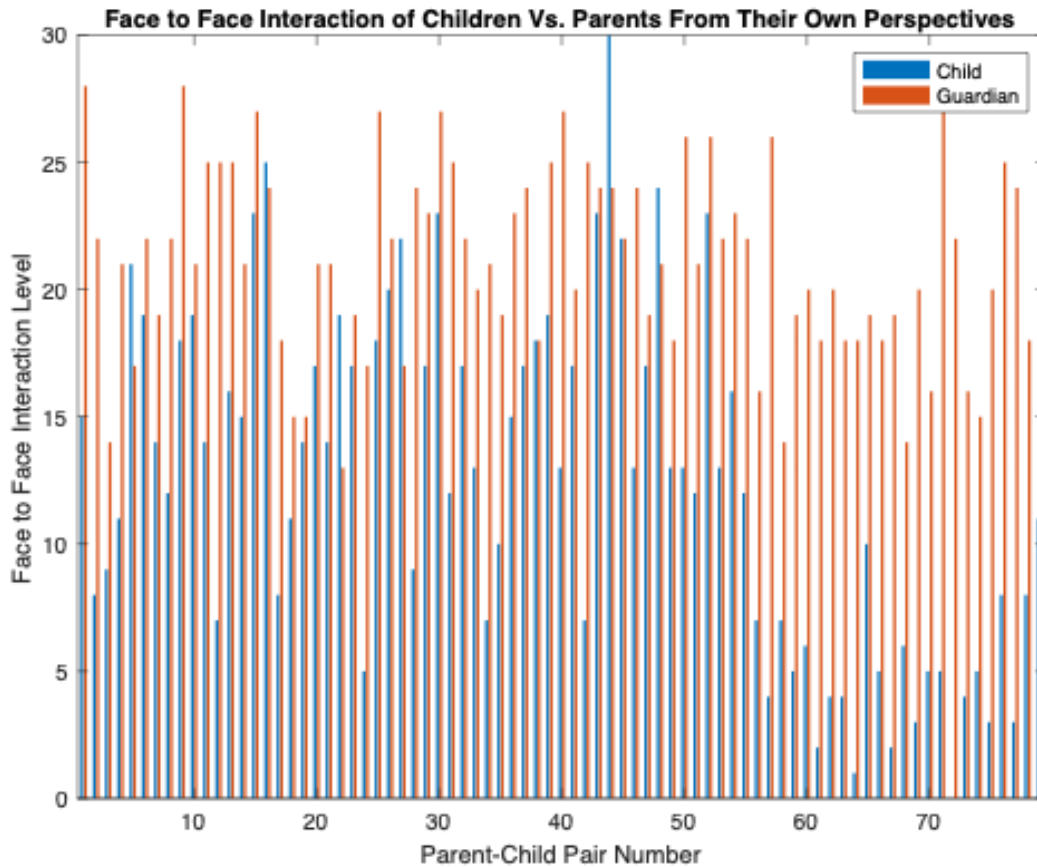


Figure 4

Figure 4 depicts the graph of FFI of the child for the parent-child perspective comparison. This showed a significant difference ($p = 0.006$) for $n = 79$ parent-child pairs. Perspectives on a single variable such as digital media usage of the child were recorded by both the parents and the children. In order to verify that the individual's perspectives of themselves was similar to their parent or child's perspective of them, these two opinions were compared. It was found that these perspectives showed only minor significant differences $p = 0.001$, with no distinction between whether or not parents tended to overestimate or underestimate their child's digital media usage. However, there was a significant difference of 8.67 between the averages of the FFI scores in the parents and children, suggesting the parents spend more time interacting face to face than their children. It is also interesting to note that there was a greater separation between the FFI with the parents and the children compared to the separation between the digital media usage.

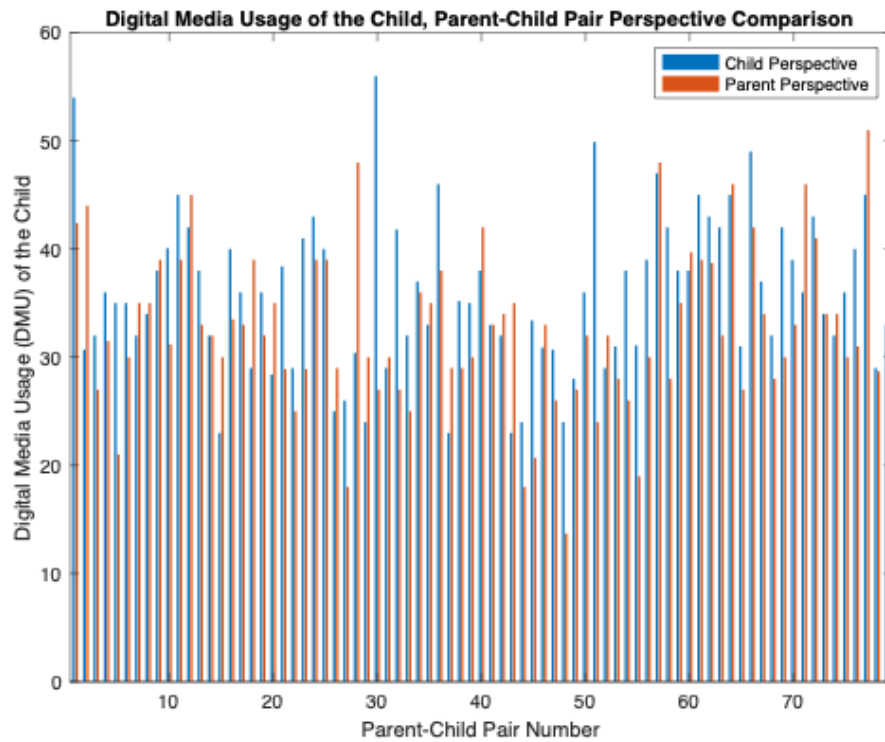


Figure 5

Figure 5 depicts the graph of DMU of the child for the parent-child perspective comparison. This showed a significant difference of $p = 0.006$ for $n = 79$ parent-child pairs. There was a small difference in perception with the scores of the children's DMU in both the parent and children survey. With an average difference of 3.16 there were verified smaller differences in these values meaning that the parents and children generally agreed on how much time the child is using digital media per day.

Question Specific Breakdown – Minor Findings

Throughout the two surveys, there were certain results that stood out. For example, there was a reported increase of time parents spent with their children from weekday to weekend. On weekdays, parents reported spending a little more than a few hours per day, while on weekends, parents reported spending half of the day with their children See Figure 6 taken from Parent Survey Questions 8 and 9.

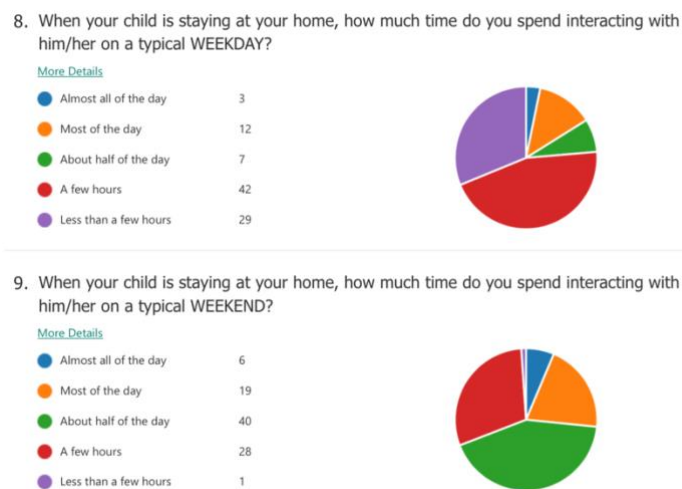


Figure 6

Also, parents responded that on average, their children spend more time on 6 out of 8 activities that they were questioned about. The only activities that parents self-reported spending more time on was “watching TV” (2.3 vs 2.1) and “Doing work online” (3.1 vs 1.3). Additionally, on average, parents recorded spending more than double the amount of time watching TV as time spent on their phone (1 hour 18 minutes vs 36 minutes). Parents recorded that their children spent more time watching TV than time spent on their mobile devices, but not to as much of an extent (1 hour 6 minutes vs 48 minutes). See Figure 7 and 8 taken from Parent Survey Questions 16 and 18.

16. Please indicate the hours spent by your child on the following activities each day

[More Details](#)

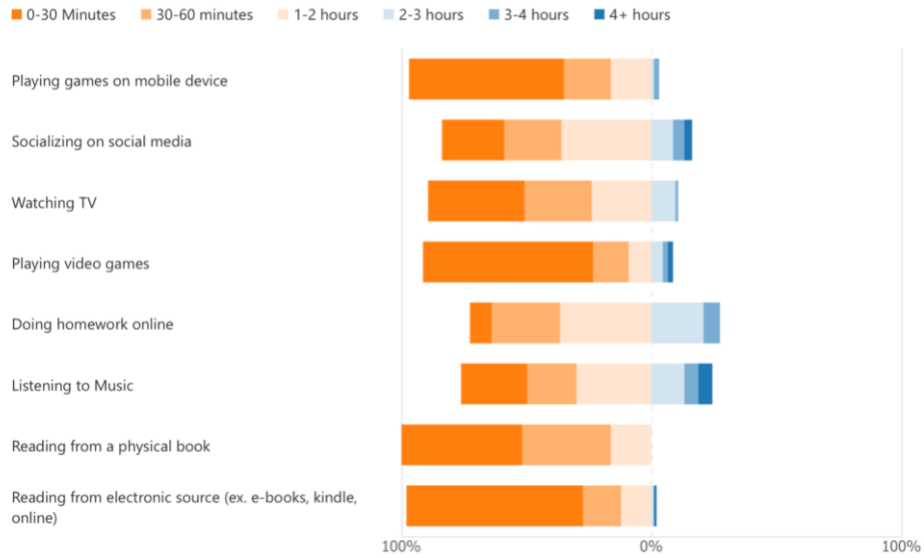


Figure 7

18. Please indicate the hours you spend on the following activities each day

[More Details](#)

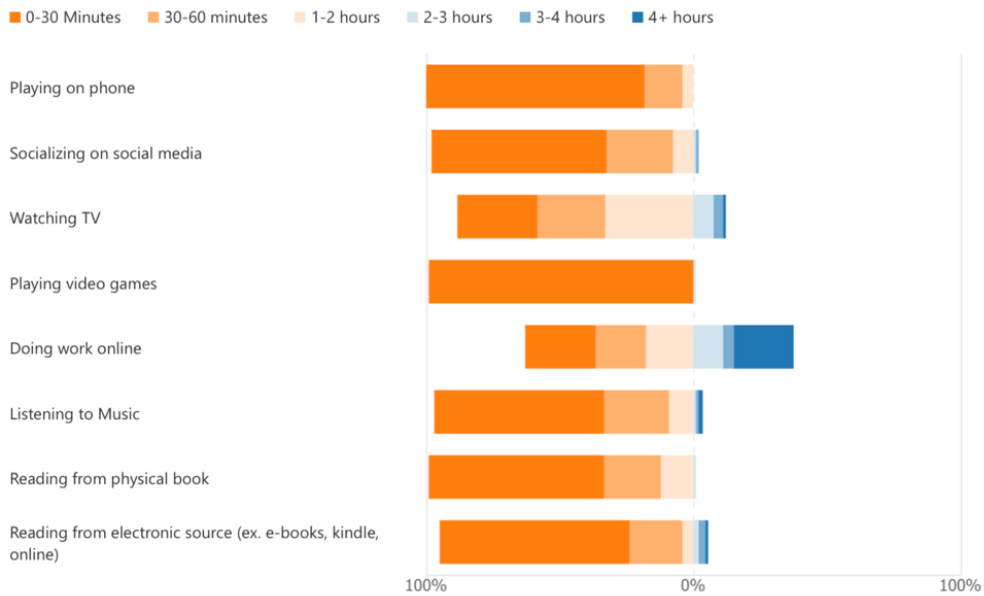


Figure 8

Regarding questions 21 and 22 on the parent survey, parents responded to disciplining their children equally regarding technology and without technology. In both instances, parents responded that they did not discipline their children very often (1.8 and 1.6), both in between “Yearly” and “Never.” Less than yearly technology influences the amount of DMU positively as seen in Question 26 on the Child Survey.

The last question of the Parent Survey asked about DMU playing a role in everyday life. Parents recorded that digital media played a slightly more negative role in theirs and their children’s lives, and slightly worse in their children’s than theirs (3.76 vs 3.62).

Conclusion

A main goal of this research was to spread awareness of DMU and FFI as data is collected on this increasingly pervasive subject. The data from this study provides us with a baseline dataset for self-reported DMU and FFI for parent-child pairings in two high schools and middle schools from different areas of New York from fall 2019 to spring 2020. Some of the notable findings from this study give us insight into the overall differences between parents and children of this generation, as well as the potential for gender differences, but the significance of this data is still to be determined. For example, although parents and children consumed digital media in relatively similar quantities, it was found that children view digital media as having a more positive impact on their lives, while parents tend to take the more negative perspective ($p < 0.05$). They also tended to use digital media for different reasons and in different contexts as well (see questions 19, 20, and 22-25). It was also found that mothers tended to use digital media slightly less than fathers in both self-reports and child reports of parent activity. Another major finding in this study was that parent-child pairs can act as a means to check self-reported accuracy in a way that could possibly increase the validity of the data. For children, there was a negative association between DMU and FFI. As DMU increased, FFI decreased. Interestingly enough for parents, when there was an increase in DMU, there was also an increase FFI. Both the parent and the child had similar perceptions on the amount of time the child was spending on DMU. On average, children self-reported more DMU while parents self-reported more FFI, which supports what was hypothesized.

It is important to keep in mind that many factors can influence responses and the data being collected, which is why our goal was to obtain data from both the parent and the child.

Understanding the way in which we technology is used is crucial to the success of family relationships. Having said this, it seems that there is a balance which must be attained between digital media usage and face-to-face interactions to help families function properly and to mitigate the negative effects, while enhancing the positive effects of using digital media.

Future Research

There were some minor flaws in question design that resulted in the need for omitted data in questions which included options like “N/A” and “Other” when there was a need for nominal data. Nevertheless, these minor flaws should not affect overall DMU and FFI calculations in any major ways. The main flaws in this study’s design that limit its accuracy and external validity truly begin with its inherent self-reporting bias. With self-reporting, there comes the potential for both social desirability bias and simply inaccurate recordings. This was partially remedied by the inclusion of the parent-child pair, and when compared on an individual pairing basis it was noted that most recordings showed no significant differences in DMU and FFI. The results of preliminary descriptive statistics have shown promise in revealing underlying relationships between parents and their children in the high school and middle school setting as well as in their daily activities with regards to DMU and FFI behaviors. These results can be useful in future studies aimed at determining behavior transmission rates between parent and child DMU as well as peer-to-peer DMU. Future studies can also be replicated with a more complex questionnaire that looks at a college and elementary school setting. In the future, direct impacts of parental DMU affecting child DMU would be extremely useful and impactful to study.

Bibliography

- ¹ Tosini, Gianluca et al. “Effects of blue light on the circadian system and eye physiology.” *Molecular vision* vol. 22 61-72. 24 Jan. 2016
- ² “The Common Sense Census: Media Use by Tweens and Teens | Common Sense Media.” *Common Sense Media: Ratings, Reviews, and Advice*, Common Sense Media, 3 Nov. 2015, www.commonsensemedia.org/research/the-common-sense-census-media-use-by-tweens-and-teens.
- ³ Srivastava, L. (2005). *Mobile phones and the evolution of social behaviour*. *Behaviour & Information Technology*, 24(2), 111–129.
- ⁴ Uhls, Yalda T. “Five Days at Outdoor Education Camp without Screens Improves Preteen Skills with Nonverbal Emotion Cues.” *NeuroImage*, Academic Press, 15 Aug. 2014, www.sciencedirect.com/science/article/pii/S0747563214003227.
- ⁵ Squire, K., & Dijkers, S. (2012). Amplifications of learning. *Convergence: The International Journal of Research into New Media Technologies*, 18(4), 445–464. doi:10.1177/1354856511429646
- ⁶ Öze, N.. "Communication and Devices: Face to Face Communication versus Communication with Mobile Technologies". *World Academy of Science, Engineering and Technology*, Open

Science Index 124, International Journal of Humanities and Social Sciences, (2017), 11(4), 995 - 1008.

⁷ Dunckley, Victoria L. "Screentime and Arrested Social Development." *Psychology Today*, Sussex Publishers, 13 June 2016, <https://www.psychologytoday.com/us/blog/mental-wealth/201606/screentime-and-arrested-social-development>.

⁸ Gentile, Douglas A., et al. "Internet Gaming Disorder in Children and Adolescents." *Philosophical Transactions of the Royal Society B: Biological Sciences*, The Royal Society, 1 Nov. 2017, doi.org/10.1542/peds.2016-1758H.

⁹ Prescott, Anna T., et al. "Metaanalysis of the Relationship between Violent Video Game Play and Physical Aggression over Time." *Proceedings of the National Academy of Sciences*, vol. 115, no. 40, 2018, pp. 9882–9888., [doi:10.1073/pnas.1611617114](https://doi.org/10.1073/pnas.1611617114).

¹⁰ Anderson, C. A., Bushman, B. J., Bartholow, B. D., Cantor, J., Christakis, D., Coyne, S. M., ... Ybarra, M. (2017). *Screen Violence and Youth Behavior. Pediatrics, 140(Supplement 2), S142–S147*.

¹¹ Eichenbaum, Adam, Daphné Bavelier, and C. Shawn Green. "Video Games: Play that can do Serious Good." *American Journal of Play* 7.1 (2014): 50-72. . VTLS. 24 Feb. 2019 <<https://archive-ouverte.unige.ch/unige:84313>>.

¹² Tanimura, M., Okuma, K., & Kyoshima, K. (2007). *Television Viewing, Reduced Parental Utterance, and Delayed Speech Development in Infants and Young Children*. *Archives of Pediatrics & Adolescent Medicine*, *161*(6), 618. doi:10.1001/archpedi.161.6.618-b

¹³ Baydar, Nazli et al. “Effects of an educational television program on preschoolers: Variability in benefits.” (2008).

¹⁴ Sillman, D. (1984). *Television Captioning for the Deaf*. *IEEE Transactions on Consumer Electronics*, *CE-30*(2), 62–65. doi:10.1109/tce.1984.356399

¹⁵ *Demographics of Social Media Users and Adoption in the ...* Pew Research Center, 5 Feb. 2018, www.pewinternet.org/fact-sheet/social-media/.

¹⁶ Misra, Shalini. “The iPhone Effect: The Quality of In-Person Social ...” [Http://Eab.sagepub.com/](http://Eab.sagepub.com/), 1 July 2014, journals.sagepub.com/doi/abs/10.1177/0013916514539755. Taylor, Samuel Hardman, et al.

¹⁷ “An Experimental Test of How Selfies Change Social Judgments on Facebook.” *Cyberpsychology, Behavior, and Social Networking*, vol. 20, no. 10, 10 Nov. 2017, pp. 610–614., doi:10.1089/cyber.2016.0759. Taylor, Samuel Hardman, et al.

¹⁸ Bavelier, Daphne, et al. “Children, Wired: for Better and for Worse.” *Neuron*, U.S. National Library of Medicine, 9 Sept. 2010, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3170902/>.

¹⁹ Anderson, Monica, et al. “Teens' Social Media Habits and Experiences.” *Pew Research Center: Internet, Science & Tech*, Pew Research Center: Internet, Science & Tech, 7 Jan. 2019, www.pewinternet.org/2018/11/28/teens-social-media-habits-and-experiences/.

²⁰ Coyne, Sarah M., et al. “Parenting and Digital Media.” *Pediatrics*, American Academy of Pediatrics, 1 Nov. 2017, pediatrics.aappublications.org/content/140/Supplement_2/S112.

²¹ Anderson, Daniel R., and Kaveri Subrahmanyam. “Digital Screen Media and Cognitive Development.” *Pediatrics*, vol. 140, no. Supplement 2, 19 Apr. 2017, doi:10.1542/peds.2016-1758c.

²² Özgür, H. (2016). *The relationship between Internet parenting styles and Internet usage of children and adolescents. Computers in Human Behavior*, 60, 411–424. doi:10.1016/j.chb.2016.02.081

²³ Dorr, A., Kovaric, P., & Doubleday, C. (1989). *Parent-child coviewing of television. Journal of Broadcasting & Electronic Media*, 33(1), 35–51. doi:10.1080/08838158909364060

²⁴ Lavigne, H. J., Hanson, K. G., & Anderson, D. R. (2015). *The influence of television coviewing on parent language directed at toddlers*. *Journal of Applied Developmental Psychology*, *36*, 1–10. doi:10.1016/j.appdev.2014.11.004

²⁵ Barradas, D. T., Fulton, J. E., Blanck, H. M., & Huhman, M. (2007). *Parental Influences on Youth Television Viewing*. *The Journal of Pediatrics*, *151*(4), 369–373.e4. doi:10.1016/j.jpeds.2007.04.069

²⁶ Sulaiman, Suad & Al-Muscati, Sura. (2017). Millennial Generations & Their Parents: Similarities and Differences. *International Journal of Psychological Studies*. 9. 121. 10.5539/ijps.v9n1p121.

²⁷ Lauricella, A. R., Wartella, E. A., & Rideout, V. J. (2015). Young children's screen time: The complex role of parent and child factors. *Journal of Applied Developmental Psychology*, *36*, 11–17. <https://doi.org/10.1016/j.appdev.2014.12.001>

²⁸ McDaniel, B. T., & Radesky, J. S. (2017). *Technoference: Parent Distraction With Technology and Associations With Child Behavior Problems*. *Child Development*, *89*(1), 100–109. doi:10.1111/cdev.12822

²⁹ Stockdale, L. A., Coyne, S. M., & Padilla-Walker, L. M. (2018). Parent and child technofence and socioemotional behavioral outcomes: A nationally representative study of 10- to 20-year-old adolescents. *Computers in Human Behavior*, 88, 219-226.

³⁰ Uncapher, M. R., Lin, L., Rosen, L. D., Kirkorian, H. L., Baron, N. S., Bailey, K., ... Wagner, A. D. (2017). *Media Multitasking and Cognitive, Psychological, Neural, and Learning Differences. Pediatrics*, 140(Supplement 2), S62–S66.

³¹ Jiang, Jingjing, and Jingjing Jiang. “How Teens and Parents Navigate Screen Time and Device Distractions.” *Pew Research Center: Internet, Science & Tech*, Pew Research Center: Internet, Science & Tech, 30 Nov. 2018, www.pewinternet.org/2018/08/22/how-teens-and-parents-navigate-screen-time-and-device-distractions/.