

Individual Lens Report

**AP Capstone: Seminar
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In the United States today, 78% of teenagers own a cell phone, and of those, 37% own a smartphone.¹ As extrapolated from the 2010 census, this means that about 608,188,763 teenagers between the ages of 13 and 17 own smartphones in the United States.² The question I will be answering in this paper is whether owning a smartphone has a negative impact on the lives of teenagers from the ages of 13-17 in the United States. I will examine this question through a scientific lens, addressing several different perspectives on this issue as well as the arguments against them. These perspectives relate to the negative and positive effects of smartphones on teenagers' education, cognitive development, and health, as well as the overall positive or negative effect owning a smartphone might have on the lives of teenagers.

One example of the benefits of a smartphone most often spoken about is the ways they can enable children to learn more easily, to improve their educational development and expedite the maturation of their brains. Using smartphones in class can help children in many ways, such as allowing them to tailor lessons to fit their personal needs and save them time while studying.³ This allows students with learning disadvantages to catch up to their peers, and students who can't focus in class to review at home, helping them to improve their school and homework, boosting their grades and increasing their chances to get into college. In a similar manner, the advancement of technology allows students who would otherwise be unable to take classes or who had no other access to education to learn new skills and pursue an education from a remote location.⁴ Additionally, if a student needs more time with a piece of text, or wishes to do more research on a certain topic, using a smartphone can let them do so, as shown in great detail by English professor Karen Bromley of Binghamton University.⁵ Smartphones also increase the ease of studying. In a survey taken by McGraw-Hill Higher Education, over sixty-seven percent of students surveyed said they used the time saved by using smartphones to sleep or study another subject.⁶ Using smartphones to study is faster and less labor-intensive than book research, allowing them to use their time more efficiently.

Despite these advancements, there are a significant number of scientists who have found evidence that the use of smartphones and other technology in the classroom has little or no effect

¹ Pew Research Center, "Teens and Technology 2013." March 13, 2013. Accessed January 13, 2014. http://www.pewinternet.org/files/old-media/Files/Reports/2013/PIP_TeensandTechnology2013.pdf

² United States Census Bureau, "2010 Census Report." pdf. <http://www.census.gov/prod/cen2010/briefs/c2010br-03.pdf>

³Williams, Lauren. 2014. "Smartphones a mixed blessing during study time." *University Business* 17, no. 1: 16. *Academic Search Complete*, EBSCOhost (accessed January 7, 2015).

<http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=95757672&site=ehost-live>

⁴QUILLEN, JAN. 2011. "Not Quite Mobile." *Education Week* 30, no. 15: S6-S7. *Academic Search Complete*, EBSCOhost(accessed January 6, 2015).

<http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=57468149&site=ehost-live>

⁵ Bromley, Karen. "Using Smartphones to Supplement Classroom Reading." *Reading Teacher* 66, no. 4 (December 2012): 340-344. *Academic Search Complete*, EBSCOhost (accessed January 10, 2015).

<http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=83711247&site=ehost-live>

⁶Williams, Lauren. 2014. "Smartphones a mixed blessing during study time."

on children and teenagers' learning. Some studies have found results that suggest the use of technology in classrooms has a negative effect on students' learning.⁷ One study experiment held in Indianapolis measured the effects of using smartphones to text in class on the academic performance of students.⁸ Participants were divided into two groups, both listening to a lecture, and randomly chosen participants were told to text each other a pre-written conversation while listening to the lecture. Afterwards, both groups took a quiz on what the lecture addressed. In both groups, not only did the non-texters feel more confident about their success, they significantly outscored their texting peers, showing that of students who used smartphones during class, those who used them to text understood less of the lesson and had less retention of what they did comprehend.⁹ Using smartphones during class has a negative effect on students' understanding of information, as well as their academic performance. The capability of the human brain to multitask depends on the ease of switching between two tasks, not carrying them both out at once, forcing the brain to alternately process two strains of different information.¹⁰ In a real-life learning situation, texting would distract students from learning, negatively impacting their understanding of the material as well as their grades. Forcing their brains to switch between the messages they're receiving from friends and the information they're receiving from their teachers has a negative impact on how much of either students truly take in. This may be why one particular argument against the use of smartphones in the classroom is texting. A 2012 study found that the use of smartphones to text has a detrimental effect on teenagers' writing and comprehension skills, giving them a lesser understanding of the English language.¹¹ The subjects' use of capitalization and word adaptation showed an evolved form of English apart from traditional usage and classic grammar and punctuation rules.¹²

Smartphones' effects on cognitive development are not widely agreed upon, however, especially where texting is involved. English professor Jon McWhorter draws a greater comparison between texting and speaking, rather than writing, explaining that any effect texting has on writing is negligible.¹³ Historically created as a visual form of speech, using short

⁷Charles Kenny, "The False Promise of Classroom Technology." *Businessweek*. November 11, 2013.

<http://www.businessweek.com/articles/2013-11-11/the-false-promise-of-classroom-technology>

⁸ Gingerich, Amanda C., and Tara T. Lineweaver. "OMG! Texting in Class = U Fail :(Empirical Evidence That Text Messaging During Class Disrupts Comprehension." *Teaching Of Psychology* 41, no. 1 (January 2014): 44-51.

<http://top.sagepub.com/content/41/1/44.full.pdf+html>

⁹ Gingerich, Amanda C., and Tara T. Lineweaver. "OMG! Texting in Class = U Fail :(Empirical Evidence That Text Messaging During Class Disrupts Comprehension."

¹⁰ Hamilton, Jon. "Think You're Multitasking? Think Again!" NPR, October 2, 2008.

<http://www.npr.org/templates/story/story.php?storyId=95256794>

¹¹Cingel, Drew P., and S. Shyam Sundar. 2012. "Texting, techspeak, and tweens: The relationship between text messaging and English grammar skills." *New Media & Society* 14, no. 8: 1304-1320. (accessed January 7, 2015).

<http://www.sciencedaily.com/releases/2012/07/120726122244.htm>

¹² Cingel, Drew P., and S. Shyam Sundar. 2012. "Texting, techspeak, and tweens: The relationship between text messaging and English grammar skills."

¹³McWhorter, John, "Is Texting Killing the English Language?" *Time*. April 25, 2013.

<http://ideas.time.com/2013/04/25/is-texting-killing-the-english-language/>

sentences and plain language, it was only later, as time and language developed, that writing diverged from speech. Texting, McWhorter hypothesizes, is a return to early writing, more alike to speaking than the lengthy contemporary writing we use today.¹⁴ Saying that all over the world, “people speak differently from the way they write, and texting [is] a way of talking with your fingers,” McWhorter adds that there is no definitive proof that texting ruins writing or comprehension skills, and that it is constantly developing further into a complex and nuanced form of communication. This theory, based on historical context and the defiance of societal perceptions, is plausible as a hypothesis, but lacking in empirical evidence. However, McWhorter’s ideas are partially supported by a study carried out by Beverley Plester, Clare Wood, and Victoria Bell, which suggests that there is a positive relationship between texting and literacy.¹⁵ Should this prove true, then it can be acknowledged that the use of smartphones to text is beneficial to teenagers, but without further research McWhorter’s theories cannot be taken as truth.

Another argument against the use of smartphones is that they have a negative impact on the health of teenagers. A survey carried out by the Pew Research Center found that extended use of smartphones or unlimited access to smartphones negatively impacted the sleep schedule of students.¹⁶ A number of those surveyed even mentioned sleeping with their phones beside their heads in bed, waking up due to their friends texting them or calling them. Due to these disruptions, students were found to have been negatively affected in terms of memory, attentiveness, and fatigue.¹⁷ In this way, not only does the use of smartphones negatively impact the health of teenagers, but it also negatively affects their schoolwork and daily life.

On the other hand, however, the use of smartphones gives teenagers fast and easy access to pertinent health information, such as information about medication, health hazards, and emergency and first aid information. This allows teenagers to respond quickly to emergencies and to improve their awareness of prevalent health conditions and epidemics, such as accurate information on ebola prevention and diagnosis,¹⁸ information on diabetes and obesity,¹⁹ and instructions on how to properly carry out first aid procedures in an emergency.²⁰ This access to

¹⁴ McWhorter, John. “Is Texting Killing the English Language?”

¹⁵ Plester, Beverly, Clare Wood, and Victoria Bell. “Txt msg n school literacy: does texting and knowledge of text abbreviations adversely affect children's literacy attainment?.” *Literacy* 42, no. 3 (November 2008): 137-144. *Academic Search Complete*, EBSCOhost (accessed January 16, 2015).

<http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=34933695&site=ehost-live>

¹⁶ HUTCHINS, AARON. “SLEEPING WITH THE ENEMY.” *Maclean's* 127, (October 14, 2014): 62-63. *Academic Search Complete*, EBSCOhost (accessed January 7, 2015).

<http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=98790692&site=ehost-live>

¹⁷ HUTCHINS, AARON. “SLEEPING WITH THE ENEMY.”

¹⁸ Diagnosis: Ebola (Ebola Virus Disease), Centers for Disease Control and Prevention, Accessed January 11, 2015. <http://www.cdc.gov/vhf/ebola/diagnosis/>

¹⁹ Diabetes Home, Centers for Disease Control and Prevention, Accessed January 11, 2015. <http://www.cdc.gov/diabetes/home/index.html>

²⁰ First Aid, Mayo Clinic, Accessed January 11, 2015. <http://www.mayoclinic.org/first-aid>

such information has a positive effect on teenagers becoming more aware of and more in control of their own health.

The research question I have attempted to address in this paper is whether owning a smartphone has a negative impact on the lives of teenagers from the ages of 13-17 in the United States. I chose to examine this question through a scientific lens. In order to accurately and comprehensively answer my research question, I examined several varied perspectives on the subject and their opposing viewpoints, as well as the positive and negative connotations of each. I examined the effects of smartphones on teenagers' education and learning, including the positive use of them to save time in studying,²¹ to research inside and outside of class, and to otherwise accommodate a student's personal educational needs.²² However, students were also found to use smartphones to text in class, which resulted in loss of information retention and comprehension²³. In regards to this perspective, I conclude that smartphones have both negative and positive effects on teenagers' education.

The second perspective related to the effects of smartphones on teenagers' understanding and usage of the English language, especially in regards to texting and its effects on grammar, punctuation, and word usage. Examined was evidence stating the texting has a negative effect on teenagers' comprehension of the English language²⁴ and evidence stating that texting has no effect on teenagers' grasp of the English language.²⁵ The former, due to a lack of evidence from their opposition, has a more reliable case. The third and final perspective examined was that of smartphones' effects on teenagers' health. While smartphones' effects on sleep schedules and daytime drowsiness were negative,²⁶ increased access to health information gives teenagers a chance to be educated and take care of themselves.²⁷ In this respect, smartphones have a positive impact on teenagers' health. Overall, smartphones had a greater negative impact on teenagers' health. As considered as a whole through the scientific lens, I must conclude that smartphones have an overall negative impact on teenagers' lives due to their negative effects on teenagers' health, literacy and education.

Reflection

Looking back on our project, I feel the dynamic between the three members of our group was excellent. At the very least, we each put in effort and got our work done on time. We worked together incredibly well, especially in comparison to the two other groups I had worked with

²¹ Williams, Lauren. 2014. "Smartphones a mixed blessing during study time."

²² QUILLEN, JAN. 2011. "Not Quite Mobile."

²³ Gingerich, Amanda C., and Tara T. Lineweaver. "OMG! Texting in Class = U Fail :(Empirical Evidence That Text Messaging During Class Disrupts Comprehension."

²⁴ Cingel, Drew P., and S. Shyam Sundar. 2012. "Texting, techspeak, and tweens: The relationship between text messaging and English grammar skills."

²⁵ McWhorter, John, "Is Texting Killing the English Language"

²⁶ First Aid, Mayo Clinic, Accessed January 11, 2015.

²⁷ HUTCHINS, AARON. "SLEEPING WITH THE ENEMY."

before this. Every day we would meet during class and work on our individual sections of the project, consulting with each other on any problems we found. We'd agree on what we'd each do later that day, and regroup the next morning to further discuss. Any issues between the three of us were rather quickly resolved, although occasionally I did feel as though Maya and I sort of ganged up on Emanuel, which I regret. However, more often than not we talked things through and found a compromise we could each live with. The division of labor was also vastly different from my prior group project experiences. Work was divided evenly, and we were each expected to finish on time. Before this project, I was used to bearing the brunt of responsibility in the group, and I usually ended up doing most of the work, so it was very nice to avoid that this time. All in all, I feel like our group worked well together and were very efficient.

I didn't have any particular approach to our research question at first. Originally, I wasn't very interested in the topic, and simply went along with it because it was the best formulated of our potential research questions. However, as time passed and I did more research, I found that the topic we had chosen was actually fascinating. Because of this lack of interest, I was able to approach our research question with an open mind for what must have been the first time ever. I had no pre-formed opinion on the subject, and thus could form a more unbiased conclusion in relation to my lens. I had chosen the Scientific lens, based solely on my preference for hard facts and scientific research, and found that initially, I had no idea what to write about and research. After a few decent Google sessions, I decided on three perspectives related to my lens: the topics of smartphones' effects on teenagers' education, literacy, and health. At first, I was going to discuss the idea of cancer being caused by smartphones via radiation or extensive use, but eventually decided that there was more opinion than data relating to the topic and that what data there was was inconclusive. After coming to this conclusion, I discarded the idea and focused on other topics. In regards to the educational perspective, I found a great deal of evidence relating to smartphones' aid in helping teenagers learn and it's potential for distracting, (mostly articles about the negative effects texting has on education), as well as several pieces that addressed both. Some of the information I used in my individual report, I left out of the team report. Depending on which perspective that information related to, I did so for one of several reasons, but most prominent was the idea that it wasn't vital for understanding the main points of our arguments. This was also a factor in my editing of the perspective dealing with literacy, especially regarding the reliability of McWhorter's theories. After rereading the article I had cited, I found that it was lacking evidence and support, and was forced to rewrite my conclusion regarding that perspective in both my individual report and our team report. One of several revisions I made to both reports, this is the one I found the most extensive to rewrite. In the end, I was forced to conclude that the entire perspective could not be properly judged due to a lack of evidence. However, I felt it was still important to consider, and so left it in both reports. My third perspective, regarding smartphones' impacts on health, is missing entirely from the team report for a different reason that parallels my decision regarding the literacy perspective. Despite coming to a concrete conclusion regarding the health perspective, I still felt it was my weakest

lens, with the least weight to its' evidence. This can be at least partially attributed to my earlier decision regarding the concept of smartphones causing cancer, and whether or not to include that aspect of the perspective in my report. By the end of our work on the team report, we had all found flaws and issues in our respective lenses, notably the debate over who got to address the issue of cyberbullying and it's causes and effects, but we ended up with a rather solid case for the use of smartphones by teenagers.

As I previously mentioned, my initial understanding of the problem was limited, and I had no real opinion one way or the other at the beginning of our research. But the more research I did, the more I understood that while our question seemed trivial at first it was, in fact, deserving of thought and consideration. The possible benefits and consequences of owning a smartphone can be silly, but they can also be unexpectedly serious. I feel as though my understanding of the problem we were attempting to address grew considerably over the course of this project, as did my regard for the other members of my group and my respect for the true nuances and subtleties of our research question.

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