

5-2013

The Anti-Social Phone

Eric Rollins

University of Southern Maine

Follow this and additional works at: <https://digitalcommons.usm.maine.edu/etd>



Part of the [Communication Technology and New Media Commons](#)

Recommended Citation

Rollins, Eric, "The Anti-Social Phone" (2013). *All Theses & Dissertations*. 4.
<https://digitalcommons.usm.maine.edu/etd/4>

This Open Access Thesis is brought to you for free and open access by the Student Scholarship at USM Digital Commons. It has been accepted for inclusion in All Theses & Dissertations by an authorized administrator of USM Digital Commons. For more information, please contact jessica.c.hovey@maine.edu.

UNIVERSITY OF SOUTHERN MAINE

Portland, Maine

The Anti-Social Phone

A Thesis Submitted in Partial Fulfillment of the

Honors Program Requirements

Eric Rollins

Dedication Page

Mom and Dad,

Thank you for always encouraging me to pursue my dreams. I could not ask for better parents. I love you both!

Professor Briggs, Houser, and Schmidt,

I want to thank the three of you for being patient with me over the last year. I am sure that I was the cause of several headaches, but through it all, you stuck with me and offered precious guidance along the way. I am incredibly grateful for your support.

Friends, Family, and Complete Strangers,

I want to thank you all for bearing with my persistent questions and discussions. This essay would not have been possible without you all!

THE LAST MAN ON EARTH WITHOUT A SMARTPHONE



SUDDENLY I REALIZED THAT I'M ALONE.



IT WASN'T ALWAYS LIKE THIS...



I CAN STILL REMEMBER FEELING ENTIRELY DIFFERENT.



BACK WHEN I JUST GOT IT, IT WAS THE FUTURE PERSONIFIED.



LATER, I GOT USED TO IT AND GOT COMFORTABLE, SO I DIDN'T PAY MUCH ATTENTION.



BUT I'M AWAKE NOW. I'M AWARE OF SOMETHING HUGE TAKING PLACE, SOMETHING I'M NOT A PART OF.



THERE ARE PEOPLE TODAY WHO NEVER FEEL ALONE,



BY THE TIME I'LL TEXT 'ON MY WAY', THESE PEOPLE HAVE ALREADY GOT THERE.



SO JUST KNOW THAT IF MY MESSAGES ARE SHORT, IT'S NOT BECAUSE I HAVE NOTHING TO SAY.

Table of Contents

Abstract.....	1
Introducing the Mobile Pandemic.....	3
Backstory	6
Smartphone Distraction.....	9
Behavior Amplification.....	12
Word on the Street	16
Communicating with the Boomers	19
The Changes that Made the Millennials who they are.....	24
Millennial Insights	27
A Brave New Communication.....	32
Conclusion	34
Work Cited.....	37

Abstract

After becoming aware of America's overuse of smartphones, through a mission trip to Togo, I became interested in the effect of smartphones on American communication. I performed a literature review in order to understand the detrimental effects of smartphones. I conducted informal interviews in order to substantiate the claims made in the research I reviewed.

My literature review primarily focused on a study at the University of Essex, called "Can You Connect with Me Now," an experiment by the University of Maryland entitled "The World Unplugged," and a study conducted by the University of South Carolina and National Chengchi University called "Staying Connected While on the Move: Cell Phone Use and Social Connectedness." These studies focused on smartphone distraction, smartphone dependence, and smartphone behavior amplification respectively.

In order to substantiate the claims and findings of these studies, I conducted informal interviews with people of the Baby Boomer and Millennial generations. I talked with these people about their experiences with smartphones, whether or not they found them distracting, how smartphones affect communication, and how smartphones can be improved. Responses varied greatly, but most of those I spoke with, especially the Millennials, seemed to acknowledge that smartphones are hurting how we communicate as Americans.

Although smartphones have been known to bring out the worst in people, they are by no means a detriment to society. In fact they are paradigm shifting, for they afford us possibilities to communicate in ways never before possible. However, smartphones can be quite disruptive, so in order to get the most out of them, society needs only to establish limits on socially acceptable behavior.

Introducing the Mobile Pandemic

However prevalent the iPhone is in our culture, we need to consider how our adoption of this device, and its smartphone brethren, have diminished the quality of our communication as Americans. What do I mean by diminished communication? Our smartphone use has caused us to become connected at the expense of our interpersonal relationships. Smartphones have made social media, news, and games so readily accessible that we have become more secluded and anti-social in our desire for instant gratification. Since face-to-face communication requires more focus than electronic communication, many of my generation tend to prefer communicating with their smartphones. Unfortunately, the popularity of smartphones has largely prevented us as a society from taking a critical look at our phone use.

In order to properly evaluate the effects of smartphones on American behavior, we must first understand some relevant terms. The PC Magazine Encyclopedia defines a smartphone as follows:

A cellular telephone with built-in applications and Internet access. In addition to digital voice service, modern smartphones provide text messaging, e-mail, Web browsing, still and video cameras, MP3 player and video playback and calling. In addition to their built-in functions, smartphones run a myriad of free and paid applications, turning the once single-minded cellphone into a mobile personal computer. (PC Mag)

As the PC Magazine Encyclopedia has pointed out, the smartphone is the fusion of the telephone and the personal computer. Much of the smartphone's power comes from its ability to utilize applications, or apps as they are more commonly called. Apps are programs that users can download onto their phones in order to supplement the stock functionality of their phones. There

are numerous apps available, and their functionality varies from social networking apps to video games to productivity apps.

In order to evaluate how smartphones affect our communication, we must first have a clear understanding of what it means to communicate. I view communication as the act of two or more individuals discussing various ideas, whether personal, professional, or academic. These conversations result in the development of relational bonds between individuals. Communication occurs through body language, writing, or speech. People communicate in myriad different ways, including in-person conversations, phone calls, letters, email, text messages, social media posts, and video calls. As time has gone by, we Americans have been provided with more and more ways to converse.

My name is Eric Rollins, and I am a software developer. I make apps for a living, so I have a vested interest in keeping smartphones around. I am not some Luddite who wants us all to go back to living without electricity. I believe that we, as a society, have become so accustomed to smartphones that we have lost track of their initial purpose: communication aides.

Instead of supplementing communication, smartphones have been used to replace many instances of face-to-face communication. I can recall numerous conversations that I have had with friends and family that have been interrupted by smartphones. It is not uncommon for me to be talking to a friend while one, or both of us, are texting other people. As a social experiment, I have stopped mid-sentence a few different times while talking to texting friends. It generally takes them a little while to realize that I have stopped talking. When they ask why I stopped, they are generally confused when I tell them that I stopped talking, because they stopped listening. I believe that my friends are confused, because it is becoming more sociably acceptable to not give our full attention to any one thing. The literature generally characterizes this phenomenon as a

form of distraction. Further on in this essay, I will discuss my field work that examines the phenomenon.

I have noticed that not everyone seems to use their cellphones in the same way. On the one hand, many of my outgoing friends use their phones to keep in touch via Facebook, Twitter, Snapchat, and Skype. On the other hand, some of my less sociable friends tend to spend hours on their phones playing Angry Birds, Temple Run, Fruit Ninja, and Logo Quiz. While neither of these behaviors is inherently wrong, an issue arises when these mobile activities hinder real life relationships. I will later describe the phenomenon known as behavior amplification, which is the phenomenon by which smartphone use enhances both introverted and extroverted tendencies to the point of a being faults. Smartphones amplify behavior by creating a condition in which users can interact or seclude themselves as much as much as they would like, and unfortunately, we, as Americans, can tend towards excess.

I have noticed that my peers, my parents, and my grandparents all have cellphones, and it did not take me long to figure out that these groups do not all use their phones in the same way. In order to get a realistic view as to how smartphones affect American communication, I examined the smartphone use of different generations. I found out that the most holistic picture of American smartphone use is an amalgamation of how the Millennial and Baby Boomer generations use their phones, and I will get into just what my fieldwork uncovered in that regard a little later on.

Backstory

Before I share with you how smartphones have changed communication as we know it, I want to make one thing perfectly clear. I am not here to solve the communications problems of our suffering society, but instead, I hope to speak with a sensible voice in order to lead a call to arms of sorts. As explained, I make my living designing software for smartphones and computers alike, so it is in my best interest to do whatever I can to increase the prevalence of smartphones. However, my message is nothing of that sort. I come to you not with a hidden agenda but to share a realization, a message of temperance. I am here to shine a light on a problem that we, as individuals, all know about, and yet we, as a society, have yet to tackle. Our smartphones are hurting our ability to communicate. It is time for us to take a step back and understand the nature of our problem and consider how we can work on solving it.

For quite some time, I have been struck by the disparity between the smartphone's intended purpose and its actual use. A device that is intended to allow us to communicate better than ever before has put us into a state of social seclusion. This fact was never quite as apparent as when I travelled to Togo, West Africa to help a team of missionaries and local workers build a hospital. I was certain that my time in Africa would be a time of technological cleansing, just me and nature. I was wrong.

When I landed in Togo, I realized that in most ways it was exactly what I imagined a third world country to be. We landed on a dirt tarmac. The roads were littered with potholes and although the roads were congested, there were far more dirt bikes than cars. The buildings all seemed half-finished, with rebar protruding from the rooves. The proverbial cherry was that almost all locals outside of Lomé, the capital, lived in huts. However, upon closer examination, I

realized that I had not escaped technology. Juxtaposed with the third world indicators, I saw signs that Togo was headed down the same technological road as the United States. Just off the dirt tarmac, I saw billboards for cellphones. On several huts, I saw satellite dishes. The Internet was also not nearly as hard to find as I had imagined it to be. I could not help thinking to myself, “Why do you want this technology? Is Westernization that appealing? Don’t you know the problems that smartphones and their ilk cause for us?” However, I cannot be certain that the Togolese have the same problems as we do in the West.

I was only there for three weeks, and from what I saw, the locals seemed to use their cellphones as more of an in-person socialization device than back in the States. On workdays, the locals and my team would have a short break around 10AM under a tree that was so big that it would take the arm spans of three men to wrap around. This tree was a community center of sorts. During our breaks, we would gather under this tree and socialize. Unlike the States, these workers were not secluding themselves via their cellphones. In fact, I often times saw the workers cracking up in laughter as they read messages, listened to songs, and looked at pictures on one another’s phones.

Beyond the social aspects, cellphones in Africa are also used as a productive tool. Tolu Ogunlesi and Stephanie Busari of CNN explain that cellphones are often used in Africa for mobile banking, activism, educational aid, entertainment, disaster management, agricultural business, and health care. While many of these uses exist in the United States as well, definitively missing from Ogunlesi and Busari’s list, as well as my experience in Togo, is any hint that cellphones cause communication issues in much of Africa. It would be unrealistic to say that there are no resulting negative effects on communication, but they were distinctly absent during my trip. The pessimist in me wants to say that either I did not see enough Togolese people

with cellphones in order to get a proper feel for their cellphone culture, or as cellphones become more prevalent in Togo, and all over Africa, their culture will become more American. However, I do not want to believe this. The optimist in me tells me that the Togolese, and much of Africa, has learned to incorporate cellphones into their lives without many of the negatives that we have in the West. Whether this somewhat idealistic fantasy is true or not, it leads me to believe that Western smartphone use can change for the better.

When I got back to the States, I made it my mission to figure out why more attention was not being paid to the fact that smartphones are hurting communication among Americans. For months, I have been keeping a notebook that reflects my research, interviews, and observations on smartphone distraction. This notebook started out as my notes on several articles and research papers that involved how smartphones affect behavior.

After reading research that substantiated my claims on smartphone distraction, I felt as though the research would come alive, to both to me and to my readers, if it was backed up by real world examples. So notebook in hand, I talked with people about their smartphone use whenever I got a chance. I talked to people on campus, at dinner parties, at church, in living rooms, at home, and on the road. In fact, during the time I was talking with people about their smartphone use, I was fortunate enough to go on a relief work trip down to New Orleans. My trip afforded me the opportunity to collect a wide variety of people's thoughts and observe cellphone use all down the East Coast. I figured that by bringing the opinions of many individuals together, I might be able to help wake up America to the fact that smartphone problems are not individual problems but rather cultural problems. Smartphones are brilliantly useful devices, but they are being abused, and that is what I wanted to show through a discussion of my field work and research.

Smartphone Distraction

Regardless of your thoughts on the merits of communicating via smartphone, I urge you to consider the effects of your smartphone on all of your relationships. I do not think that many people would argue that developing and maintaining meaningful relationships of any flavor takes concerted effort; so understandably, a persistent distraction would undoubtedly undercut efforts necessary to keep up these relationships. I believe that one of the most prevalent distractions in our society is the smartphone. It is not just me who thinks this either. I found a study that looked into this phenomenon. It was conducted by Andrew K. Przybylski and Netta Weinstein at the University of Essex, and it was called “Can You Connect with Me Now?” This study looked into how the presence of mobile communication technology influences face-to-face conversation quality.

Przybylski and Weinstein conducted two experiments. First, they formed pairs out of seventy-four strangers and for ten minutes had them discuss “an interesting event that occurred to [them] over the past month” (4). Half of the pairs talked at a table with a notepad sitting on it, and the other half talked with a cellphone sitting on the table. After performing exit surveys that measured relationship quality and partner closeness, Przybylski and Weinstein found that the “partners who got to know one another in the presence of a mobile phone...felt less close with their partners and reported a lower quality of relationships than partners who shared a conversation without a mobile phone present” (5). The researchers concluded that cellphones may serve as unconscious reminders of the totality of an individual’s social network, and as such, they may make it difficult to focus on any one individual while a cellphone is present. I would imagine that this situation is similar to hosting a party. In order to be social and not to

ignore any of your guests, you mingle. You split your time amongst your guests. Unfortunately, mingling comes at the expense of depth of conversation. While this experiment was done with limited numbers, the numbers demonstrate that we have become so attached to cellphones that we are distracted by their mere presence. I would recommend further study into this phenomenon, but for now, I would venture to say that it is not the cell phone that is inherently distracting but rather the fact that we have conditioned ourselves to see them as our constant connection to the world.

Furthermore, the second experiment that Przybylski and Weinstein conducted was a variation on the first. This second experiment differed by taking a new set of seventy-four strangers and not only alternating whether or not a cellphone was present, but they also had half of the participants talk about a serious conversation (the most significant event that happened to them in the last year) and had the others talk casually (their feelings on plastic Christmas Trees). They then performed exit surveys that measured relationship quality, partner trust, and partner empathy. Following the results of the first experiment, relationship quality, partner trust, and partner empathy were almost all down when the cellphone was present in conversation. However, this experiment did seem to find that these traits did not differ as much, and in some cases the measures were higher when the cellphone was present and the conversation was casual. Przybylski and Weinstein concluded that cellphone distraction may not harm the quality of idle chatter, but a cellphone's presence has a more profound effect when people are trying to maintain serious conversation. The exit surveys showed that participants felt less close to each other when both cellphones were present and the conversations were serious. Therefore, cellphone presence can hinder relationship growth. Like the first experiment, this second experiment needs more trials; however, these preliminary findings show that our constant

connection to phones may have made us more concerned with the breadth of our relationships than the depth.

I hope that we can learn from Przybylski and Weinstein. I am attempting to draw attention to the less desirable side of smartphones. I want to show that the smartphone has become so integrated into our lives that we constantly use/check it while it is with us, and when it is not, we are filled with a sense of withdrawal. I have no illusions about influencing people to abandon their smartphones. Instead, I hope that the readers of this essay will take time to consider how smartphones are affecting their own lives. I want culture to drive technology and not the other way around.

Behavior Amplification

Beyond the distracting properties of the smartphone, smartphones have the tendency to amplify behavior. “Behavior amplification” is a term that I coined in order to describe the phenomenon when an item or circumstance, such as a smartphone, causes an individual to exhibit more extreme characteristics of a preexisting demeanor. For example, I believe that fairly social people will use smartphones to broaden their social networks. However, introverts may very well use their phones to further seclude themselves. This may not seem like an issue at first, but consider the fact that if all smartphones are doing is amplifying what we already have, then they are creating just as many problems as they are solving. Extroverts tend to already have many friends; what they generally need help with is depth in relationships. Introverts already tend to avoid socializing; what they generally need is more face-to-face interaction. However, this is not what the smartphones offer these groups. The smartphone offers a way for extroverts to have an even wider network of friends at the expense of depth. The smartphone offers introverts a way to seclude themselves more from face-to-face interaction. Smartphones have become a monster of our own making. A coworker of mine equated this property, that I call behavior amplification, to a bullhorn. You can use a bullhorn to spew out the vilest of hate speech, but the same tool can be used to cheer on a local football team.

In order to cement this principle, I draw your attention to Ran Wei and Ven-Hwei Lo, of University of South Carolina and National Chengchi University respectively, who conducted a series of experiments in 2001. Their goal was to explore the “framework of gratifications sought and their relationship both to differential cell phone use and to social connectedness... [by] survey[ing]... Taiwanese college students” (Lo 2). These researchers thought that this would be

a great population to observe, because cellphone use has encompassed as much as 130% of the Taiwanese population between the ages of sixteen and sixty, and many people even have a second phone. This survey was conducted in order to see how the functionalities of smartphones supplement the traditional functionalities of a telephone. One of the main takeaways from this study was that the smartphone has become an essential tool for a modern social life.

The one aspect of this study that particularly interested me was their second research question, which is as follows “RQ2: What is the relationship between gratifications sought from the cellphone and the levels of social connectedness in terms of loneliness and shyness?” (7). In order to go about answering this question Wei and Lo, with the help of specially trained undergraduate seniors, passed out 1,050 questionnaires in order to get a better idea. The questionnaire had participants score thirty-four gratification items in regards to how much they use their cellphone for a given use. The general categories of these gratification items were information-seeking, social utility, affection, fashion-status, mobility, and accessibility.

I found it particular interesting that their research showed that loneliness and shyness both had a negative relationship on how frequently an individual would use a smartphone to show affection or for social utility. They used the UCLA Loneliness Scale “which emphasize[s] the cognitive aspect that a person believes that he or she has fewer initial social relationships than desired or achieved” (12). In order to measure loneliness, those surveyed were given a list of twenty emotions and were instructed to report how frequently they experienced them in their relationships (12). In regards to shyness, they define “it [as] referring to the discomfort and inhibition that may occur in the presence of others” (12). To measure their participants’ shyness they followed “a nine-item shyness scale [that] was employed following Cheek and Buss” (12).

As a result of these experiments, Wei and Lo found that there was a negative relationship between shyness/loneliness and social uses of smartphones. I believe that this shows that my initial suggestion, that smartphones amplify preexisting behavior, looks to be correct. With that being said, it seems as though that it is not the smartphone itself that is the problem but rather our own human tendencies.

Unfortunately, the previously mentioned negative examples of behavior amplification are not so easy to get rid of, for both extroverts and introverts seem to find the smartphone to be indispensable in their lives. The International Center for Media & the Public Agenda conducted an experiment between September and December of 2010 to confirm. The experiment involved asking nearly 1,000 students, from six continents and thirty-seven different countries, to give up all media for twenty-four hours (UMD). The experiment was dubbed “The World Unplugged.” The overwhelming finding of this study was that media, such as the Internet, cellphones, and laptops, were integral in the social lives of students all around the world. This study shows that we are putting more value on the medium, electronics, than the supposed goal, human interaction. In order to better make use of smartphones, and similar technologies, we need to reevaluate our purposes for using them.

What first evidenced this misguided dependence on technology was the fact that “a clear majority in every country admitted outright failure of their efforts to go unplugged” (The World Unplugged). Secondly, the study found that the overall opinion of the participants was that smartphones and similar media are “essential to the way they construct and manage their friendships and social lives” (The World Unplugged). The vast majority of the current generation can barely pull themselves away from their smartphones and other gizmos for twenty-four hours, so it thus seems unlikely that a member of the current generation would be able to properly

socialize with their peers if they swore off smartphones all together. Such technological starvation would be alienating to say the least.

Introverts can use their cell phones to escape, while extroverts can get so caught up socializing with their virtual friends that their real-world relationships fall into disrepair as evidenced by Wei and Lo's findings. It is paramount that we as a culture respect the power of the smartphone, because left unchecked, we can all get carried away. We need to find a balance in our usage that allows us to make use of the benefits of smartphones without losing ourselves in them.

Word on the Street

Soon after I got back from Togo, I began the process of working with the University of Southern Maine's Office of Research Compliance (ORC) in order to get approval to talk with people about smartphones. I pursued the approval of the ORC in order to substantiate the claims of the literature that I had already read. With the ORC's approval, I conducted informal interviews to show how my supporting literature relates to how people around me communicate.

To get the most widespread set of opinions, I made sure that the people that I talked with were either from the Millennial or Baby Boomer generations. I figured that gathering the opinions of those who have grown up with smartphones and those who were introduced to them late in life would produce the most widespread and holistic set of opinions on smartphone use across the country. Most my discussions, regardless of the interviewee's age, consisted of a set of fairly open-ended questions that were meant to spark dialogue about smartphones and about the evolution/degradation of communication over each interviewee's lifetime.

I started off my field research by simply asking the interviewee whether he or she thought that smartphones are distracting. You may think that a yes/no question is not a great way to start a conversation, but come to find out, people seem to be itching to talk about how smartphones are changing communication. Almost without exception, the interviewees would answer this question with much more than a yes or a no. They felt the need to defend their answer. Looking back, my discussions might have been more effective if I started by asking individuals to tell me about how smartphones have changed communication, rather than jumping right to distraction. However, I feel as though I gathered valuable information from my interactions nonetheless.

I would then ask the interviewee how smartphones have hurt communication. Just after that, I would ask them how the smartphone has improved communication. Almost all interviewees insisted that smartphones hurt communication and result in less meaningful relationships. This observation seemed to spout from the general consensus that smartphones are an alternative to face-to-face communication and without face-to-face communication relationships do not seem to be as meaningful. However, the interviewees did value the smartphone's ability to put them in contact with people who live far away and those that may not be seen on a day-to-day basis.

To drive home the two previous questions, I asked the interviewees if they thought it was possible to have a meaningful relationship using only a smartphone. Almost without exception, they agreed that such a relationship is not possible. Although many agreed that you could sustain a relationship with a smartphone, the consensus seemed to be that a relationship built strictly with a smartphone would lack the intimacy that comes with face-to-face communication and shared experiences.

I followed up this question up by asking if, in their lifetimes, they could think of a technology that made a similar impact to that of the introduction of smartphones. Many mentioned that the smartphone has resulted in the most dramatic change in their lifetimes, but I was told that similar effects were seen with the introduction of social media, instant messaging, pagers, answering machines, and television. Everyone gave their reasons, but I got the impression that the impact of smartphones has been a long time coming.

I generally finished my discussions by asking the interviewees if they could think of a way to improve smartphones in order to allow for better communication. I did encounter some clever ideas such as holograms and robots that would mimic a caller's movements and facial

expressions. However, most of those I talked with suggested that they could not think of a way that smartphones could be improved. In fact, most everyone suggested that it was how we use smartphones that needs to be improved. Maybe it is us who need the upgrade.

Communicating with the Boomers

So, why did I want to talk with Baby Boomers? Well, in order to make sense of what communication is today, I figured it best to start by looking at what it was yesterday. In order to gauge the impact of smartphones, I needed to look at what communication was like before their introduction, which could most effectively be done by looking to the Baby Boomer generation and how they grew up communicating. This generation, according to the U.S. Census Bureau, was born between the years 1946 and 1964(Census). This generation started out with the radio being over taken by the television (Halberstam 180) and they were responsible for things such as the invention of one of the earliest personal computers, the Apple II (Isaacson 92). Yet, they were well into adulthood when smartphones were introduced. With such dramatic shifts in technology and the fact that they grew up without smartphones, the Baby Boomers seemed like the right people to go to in order to see both how communication has changed and more specifically, how dramatically smartphones have changed the communication practices of long ago

I talked with many Baby Boomers about how technologies have changed over the last several decades. My talks with Baby Boomers were not always as formal as those that I conducted with the Millennials. It seemed harder to arrange a time to get them to agree to taking ten minutes plus for an interview, so oftentimes I gathered the opinions of the Boomers from less structured conversations. Those I interviewed ranged from a college professor to a pastor to a mobile home relocater. Although I talked with Baby Boomers of many different ages, most of those I talked with, for one reason or another, were men. Future studies could benefit from gathering more of a female perspective.

My time with Baby Boomers showed me that the introduction of technologies such as the answering machine, caller ID, the cell phone, and the Internet have dramatically changed how Baby Boomers have communicated over the course of their lives. Over the course of several discussions, I was told repeatedly of how technologies have changed communication over time, for better and worse. I believe that my generation should take heed.

Just like the interviews that I conducted cannot speak for an entire nation, the interviews that I conducted with the Baby Boomers cannot possibly represent an entire generation. However, I believe that by examining my conversations with the Baby Boomers more closely, we will be able to glean some interesting trends about how smartphones have affected communication. More specifically, I would like to draw your attention to one interview in particular. I will reference other conversations throughout the paper, but I found this one conversation to be fairly representative of the Baby Boomer generation, and it will give you a better sense of how the interviews went.

This informal interview was with a missionary from Alabama who was born in 1952. For the sake of this paper I will call him Thomas Adams. I met Mr. Adams on my trip to New Orleans. He is a tough old Southern gentleman from Alabama. He has spent his life as a pastor, a missionary, a youth group leader, and most recently, a disaster recovery relief coordinator. He leads groups of college students on reconstruction projects throughout the less fortunate areas of New Orleans. Thomas has seen some tough times, but nothing has been able to kill his eternally optimistic spirit. He was a first responder at Ground Zero on 9/11, and as a result he has developed Emphysema. On top of that, he has been in New Orleans almost nonstop since Hurricane Katrina. Thomas has seen the suffering and heartache of two of the worst disasters in recent American memory, and yet he does not let tragedy get him discouraged. In fact, these

events have compelled him to show love to those who are hurting. He attributes his upbeat attitude and desire to help people to the love that God has both for him and everyone he encounters.

Mr. Adams thought that smartphones can absolutely be distracting if you let them be. He mentioned how, on several occasions, he has found it hard to communicate with Millennials, because they will text in the middle of conversations. He said that such behavior makes him feel insignificant, and it gives the impression that the Millennials care more about digital communication than face-to-face communication. Thomas believes that smartphones have sped up communication to the point of it being a detriment.

Mr. Adams' experience seems consistent with Przybylski and Weinstein's study that I discussed earlier. The study concluded only how the presence of a cellphone can be distracting. The study failed to address specific ramifications of cellphone presence, such as Mr. Adams trying to compete for attention with a smartphone.

Mr. Adams said that he gets particularly frustrated when he sees people texting and driving, because he feels like no text is worth endangering the lives of those around you. He went on to say that people rely on all technology too much. He recounted a story about how a cashier had given him an extra \$20 in change, and despite telling her, she refused to acknowledge her mistake, because it was a computer that had told her how much change to give him. So after trying to reason with her, Thomas gave up and told the cashier's manager that the lady's drawer would be \$20 short at the end of the day. Mr. Adams gave the cashier's manager the \$20 and his business card. The next day, the manager called and thanked Thomas, because just as he said, the drawer was short. Thomas told me that he was stumped as to how we have gotten to the point as a society where we try to replace common sense with technology.

The missionary did not just have bad things to say about smartphones. He expressed to me how they are great assets both on the mission field and at disaster sites, particularly right after Hurricane Katrina. He said that smartphones have come in handy, because they allow survivors to stay in contact with friends, family, and the news, despite the chaos around them. He went on to say that he appreciates developments like Siri and other forms of hands-free communication, because it makes it safer to communicate while driving.

Mr. Adams believes that the smartphone has had the largest impact on communication in his lifetime; however, he did recall several other pieces of technology that have made similar impacts over time. He was most struck by the introduction of the beeper, because it allowed him to instantaneously hear from the youth of his church when they needed help or prayer. He believes that such functionality has allowed him to be a better leader and mentor.

When I asked how the smartphone could be improved. Thomas said that he believes that smartphones have gone far enough, and that it is time for us to start working on ourselves. He believes that smartphones, and technology in general, has become a crutch.

Thomas' thoughts on Millennials using smartphones as crutches seem to be consistent with the "The World Unplugged" study that I discussed earlier. The study found that those in college have a hard time escaping from technology for a day, but according to Thomas, the situation is worse. People cannot even break free from smartphones and their ilk long enough to have a proper conversation or to count back change. Something needs to be done.

As I said before, my field work, informally interviewing Baby Boomers, incorporated a myriad of different people, but many of them shared the same apprehension and appreciation for smartphones that Thomas expressed. However, many Baby Boomers have been alienated from Millennials by a lack of understanding of modern technology. For instance, I draw your attention

to the mobile home relocater that I mentioned earlier. I will call him Bill Trust. He is a vocal man with a dry sense of humor from Northern Maine. During my conversation with Bill, the iPhone's digital assistant, Siri, got brought up. Mr. Trust quickly responded, "What's a Siri?" My brother introduced Bill to Siri, while Mr. Trust and I were talking. Once familiar with Siri, Bill was impressed, but he was not convinced that anyone really needed a smartphone when you can get by just fine with a house phone, a map, and some common sense. Like Thomas, Bill believes smartphones are often used as crutches.

I also had the opportunity to talk with a couple from my church, who I will call Mr. and Mrs. Field. Mr. Field is an in-your-face extrovert, while his wife is distinctly more reserved and soft-spoken. When talking with Mrs. Field, she told me that anything beyond a basic cellphone intimidates her. However, Mr. Field was more into the state of the art smartphones in order to keep in touch with people via Facebook and Twitter.

Not only do these varying opinions show that Baby Boomers vary in their use of smartphones, but their smartphone use, and lack thereof, is somewhat consistent with the behavior amplification principles that I described earlier in Wei and Lo's research. Mr. Field seems to fit the implications of their study quite well through his extroverted personality and desire to communicate to numerous people via his smartphone and tablet. However, Mrs. Field is a little different than the expected result of Wei and Lo's study. According to their study, introverts are expected to use smartphones to escape face-to-face interactions, but Mrs. Field's timid personality has seemed to prevent her from adopting a smartphone all together. With this in mind, the information gathered from the behavior amplification study that I mentioned earlier could be built upon by testing whether introversion and extroversion have different effects on smartphone use for different generations.

The Changes that Made the Millennials who they are

So in general, I got the impression that the Baby Boomers believe, whether true or not, that they are rarely distracted by smartphones and similar technologies, but they believe that smartphones dominate the lives of Millennials at the expense of effective communication. Taking these impressions with several grains of salt, I investigated. I feel like we can only fix problems if we know how we ended up with the problem in the first place.

If such a dramatic shift has indeed happened between these two generations, I believe that we should be able to see the progressive introduction of technology into the lives of Baby Boomers. When I asked the Boomers for dramatic technological shifts in their lifetimes, I got responses such as the pager, the caller ID, the answering machine, the cordless phone, and the original cell phone. No matter the technology, each of the individuals I spoke with remembers a given technology, because it was a dramatic departure from the communication style of the time.

I asked the Boomers how these technologies changed how they communicated. The answering machine allowed people to indirectly vocally communicate. The caller ID allowed people to choose who they communicated to. The cordless phone gave people mobility, and the original cell phone gave them even more. Unfortunately, these technological changes had a dark side as well. The answering machine allowed people to be reached by people and organizations that they did not want contact with. The cordless phone meant that people could take phone calls at the dinner table, rudely interrupting quality family time. The original cell phone meant that the user was constantly reachable, which, for many, meant they were constantly distracted.

Although the Baby Boomers seem to admit only slight changes as a result of the technology developed during their lifetimes, it only makes sense that those of us who have spent

our whole lives with such technologies will act differently than those who did not have the technology until later. Not only have the Millennials grown up with the technology that was introduced mid-way through the lives of the Baby Boomers, but they have been raised by parents, and possibly even grandparents that treated such technologies as the norm. On top of that, the Millennials have had to deal with the introduction of even newer technology during their lives. Whether the Baby Boomers will admit it or not, I believe that communication-killing technology adopted by the Millennials has been more of a gradual process than the Boomers would care to admit.

That is not to say that I do not believe that smartphones have hurt the communication abilities of the Millennial generation. Far from it! However, like I said, the prevalence of the smartphone has been a process. The introduction of the cellphone gave Americans a taste of what constant communication looks like. Likewise the rising popularity of the Internet and computers made us accustomed to information overload. No, I believe that the Millennials' overreliance on smartphones is not entirely their fault, for the integration of technology has been happening for decades. For instance, take the rise of Apple and its omnipresence in American society. Apple's rise to power did not happen overnight. The first commercially successful Apple computer, the Apple II, sold 2,500 units in 1977 and just four years later, it was selling almost 1,000 times as much at 210,000 units in 1981 (Isaacson 92). More pertinently however, look at the increase in iPhone sales over the last five years:



Yes, iPhones have exploded over the last half of a decade, but this growth demonstrates a growing trend over the past few decades, not an isolated blip. I believe that a lot of the criticism laid on by the Baby Boomers may be a form of projection. Since it can be difficult to be critical about one's own practices, the Baby Boomers take their own bad habits and point them out in my own generation. Neither generation is innocent of communication issues, but I believe that the older generation takes issues that they have struggled with and identifies them in the Millennials.

Millennial Insights

Before we get into how the Millennials' opinions compare to the Baby Boomers', who are the Millennials anyways? Well, O'Reilly and Vella-Zarb claim, "the first of them were born in the early 1980s [, and] the last [of them] will arrive in the next few years, [early 2000s]." (O'Reilly 2). Readers should take note that the Millennial generation became accustomed to the Internet, smartphones, and iPods early on. On top of that, the technological advances of the Baby Boomers are considered givens, for in general, the Millennials have rarely communicated without them.

So what do the Millennials have to say about the effect of smartphones on their communication? Well, believe it or not, the Millennials do not seem to have any trouble in admitting that they have a problem with their smartphone usage. However, their responses seem to have a sense of helplessness to them. They seem to believe that since most of society has come to expect constant and instantaneous communication, they cannot possibly make any difference by making individual changes. However, the Millennials have mixed opinions as to what exactly constitutes overuse of smartphones. Since the Millennials seem to differ more on their opinions regarding smartphone usage and how it affects communication, I will summarize a few of their interviews rather than using the representative interview that I used for the Baby Boomers.

One interviewee that seemed to represent the majority opinion of the Millennials was a female speech therapist from Northern Maine who was born in 1982. For the sake of this paper, I will call her Ilsa Richards. I met Ilsa through some friends of mine who used to go to my church. My friends had me over to play some board games, and they introduced me to their friend from

out of town, Ilsa. Ms. Richards, who, being the likeable gal she is, was more than willing to talk with me about her thoughts on the effects of smartphones on communication after having only just met me.

When I asked Ilsa if smartphones are distracting, she told me that they were sometimes distracting, but she quickly added that they do not have to be. In fact, Ilsa believes that it is how we handle smartphones, and similar technology, that is the problem. She went on to say that smartphones only make distracting behavior more accessible, but we, in the end, are the ones who make use of them.

Ms. Richards explained that our smartphone culture has made the Millennial generation's social norms less formalized than older generations. She appreciates the instantaneousness that the smartphone offers, because it allows her to communicate with people that it might otherwise be difficult to get ahold of, such as a friend in Afghanistan or a friend who works an opposite shift.

Ilsa freely admits that smartphone culture has its faults though. She sees that people seem to subconsciously check their phones, because they have gotten hooked. This observation of Ilsa's seems to be consistent with the World Unplugged study that showed that a large number of Millennials can hardly stand being apart from their phones. It is unfortunate that Ilsa's experience has been worse than the study though, for not only, as mentioned before, do Millennials constantly check their phones, but many Millennials seem to put more importance in their digital communication than they do in their face-to-face communication. Ilsa mentions that she gets particularly annoyed when someone she is talking with face-to-face starts texting. She told me that she will stop talking when this happens and will only continue when she has the

other person's attention. It was no surprise to me when Ilsa told me that relationships cannot be built via smartphone.

Ilsa asserted that relationships can be sustained over a phone, but she went on to say that relationships require shared experiences, and you cannot get those over a smartphone. Ilsa feels as if you need to be able to see how a person interacts in a group to truly understand who that person is. She also said that relationships are built over meals, playing board games, going to baseball games, and spending time together outside. She feels like technology will never truly be able to simulate those experiences.

I got a somewhat different take on the smartphone communication of the Millennial generation from an Afghani-native computer science student who was born in 1984. For the sake of this paper I will call him Asra Busi. I found Asra's opinions particularly interesting, because he spent his early childhood out of the States.

Asra claimed to not find smartphones as much distracting as much as he finds them obnoxious. He appreciates the fact that smartphones, and their incorporation of email, has made communication more structured, concise, and documented.

However, Mr. Busi believes that smartphones were better when they just offered the ability to make phone calls and text messages. He believes that the other features have made smartphones disruptive. He claims that the disruptive smartphone has detracted from the frequency of face-to-face interaction and therefore hurt the quality of relationships. Asra seems to have experienced the findings of Przybylski and Weinstein. Both in the study and in Asra's own life, the very presence of smartphones seems to hinder conversations.

There does not seem to be much argument as to the benefits and drawbacks of smartphones among Millennials. They agree that smartphones allow them to contact people that

they would not be able to communicate with otherwise. They agree that it is obnoxious when smartphones interrupt face-to-face communication. However, they do not agree on how smartphones stand as an effective form of communication. Many that I interviewed agree with Ilsa. They believe that smartphones are not a replacement for face-to-face communication, and that they cannot possibly replace the experiences you will end up having when you are with another person. A few people that I interviewed saw the smartphone and its various forms of communication, such as calls, texts, and social media, as about equal to face-to-face communication. They rationalized texting in the middle of a face-to-face conversation as acceptable, because just as you would not ignore a friend who walked up to you while you were in the middle of a conversation, you do not ignore a text. Fewer people believed that you could have a perfectly fulfilling relationship with just a smartphone. In fact, Ned Wright, an engineering student that I talked to, told me that he is more comfortable talking to some people that he only communicates with electronically, because he feels like he can be more open with them.

I gained a few insights from my discussions with Baby Boomers and Millennials. My talks largely reflected my research in that smartphones are hurting relationships, and yet we cannot seem to tear ourselves away from them. Still, we are not doomed to declining communication standards, for as many people that I talked with realized, smartphones are only distracting if you let them be. We each have the power to control how we use our cellphones. We may not see our behavior as contributing to society's use, or misuse, of technology, but I see the situation as similar to recycling. You may not see how much difference it will make, in the grand scheme, between throwing a soda can in the trash versus recycling it, but the problem is that everyone thinks that way. Recycling has become more prevalent lately, because after decades of

work, people realized that every little bit helps. Similarly, change will only happen in regards to smartphone behavior, if everyone makes a conscious effort to not allow their smartphones to control them.

A Brave New Communication

As I conclude my discussion on the effects of the smartphone on American communication practices, I want to emphasize the fact that the development of the smartphone is not inherently bad, nor is indirect communication. There is definite merit in building relationships over the phone. What I tended to see in my interviews was that this new form of communication was being used as a replacement for pre-existing forms of communication, rather than as a tool to supplement what you already have. I believe that cellphones, and more recently smartphones, have ushered in an entirely new form of communication unlike anything that we have seen before. However, forever with the grain of salt, I must again caution that this form of communication, like all others, has its place, and we should be careful not to abuse it.

To emphasize the more beneficial side of smartphones, I turn to Dr. John McWorther, an American linguist. In 2012, he gave a TED Talk entitled “A Surprising New Language – Texting” in which he described texting as an entire new paradigm in human communication. To illustrate this paradigm, he reviewed the basics of human communication. He started by reiterating the fact that there are two forms of communication: writing and speech. Speech is casual and loose, whereas writing is deliberate and structured. He illustrates his point by saying that, “no one in Rome talked casually like Virgil and Cicero wrote...or if they did, they didn’t date much.” He emphasizes the fact that you can, however, speak like writing. Most formal speeches are done in such a fashion. He pondered that if there’s such a thing as talking like writing, why would there not be a form of writing like talking. Until recently, we could not conveniently and rapidly exchange text. However, as McWorther put it, “Texting isn’t writing at

all. Texting is fingered speech.” He went on to say that calling texting bad writing is like calling the Rolling Stones bad because they do not use violas.

I believe that that the take away of McWorther’s talk is that texting, and by extension cellphones, have given us a form of communication that was never before possible. Not wrong, just different. It may be jarring to think that people now consider indirect communication, such as texting, to be a valid way of maintaining relationships, but consider why such communication practices may alarm you. Could it be that it is because you see texting as cold and emotionless? From my interviews with the Millennial generation, I believe that Millennials view their textual communication as more of a social experience. I had mentioned earlier that Ned Wright had described this situation well when he said that he feels that people are often times overly wrapped up in their phones, because they equate text conversations to face-to-face conversations. Ned’s comments back up McWorther’s idea of texting being “fingered speech” Ned went on to say that just as long pauses in physical communication may cause listeners to become uneasy, so do long pauses in textual conversations. This phenomenon might explain why so many Millennials are constantly checking their phones.

I believe that I can safely extend McWorther’s message to many smartphone functions, such as social media apps, apps that transcribe spoken words, and even apps that translate. These functions all allow users to use text to communicate in ways never before possible. So to say that cellphones themselves are ruining human communication would be grossly misguided, for we are communicating more now than ever. We, as Americans, may misuse the technology that has been presented to us; however, we do so because smartphones are still relatively new. With diligent effort, we can build social norms that allow us as to unlock the powerful new form of communication made possible with our smartphones.

Conclusion

Alas, the smartphone has undoubtedly affected us Americans, but why should we care? Well, as we have seen, technology has been affecting us for generations. Now more than ever, modern technology, the smartphone specifically, has proved to be incredibly distracting. Beyond that, smartphones unfortunately have the tendency to amplify our poorer qualities. Smartphones are far from a detriment to our society, but in order to get the most utility from them, we need to take into consideration how smartphones can degrade our relationships.

Conversations started as a strictly, face-to-face endeavor. If you wanted to convey an idea to someone else, you had to invest the time to explain it face-to-face. That is no longer our only option, because as we have gone from speech, to writing, to the telephone, to the Internet, and beyond, our conversations have diversified. I believe that technology directly affects how we as a species communicate. Our communication in turn affects our aspirations, our relationships, and our quality of life. In order for us to have technology work for us, and not the other way around, we need to evaluate how communication technology currently affects our lives and how this interaction can be improved.

The evolution in communication technology has given us the ability to talk over long distances, to collaborate with any number of people, and to open our eyes to a world of culture. Innovation has not been without its faults though. As much as technology has made us more efficient and connected, it has also isolated and distracted us. In order to appreciate the impact that technology has made on us, we need to look not only at how time has changed technology but how our behavior has changed with it.

In order to properly appreciate technology's effect on how society communicates, we need to take a step back and look at how we use technology every day. Take my life as an example. On a regular basis, my coworkers and I, in Brunswick, Maine, work collaboratively with offices in New York City and Washington D.C. It is not uncommon for me to contact my professors from my kitchen table. I also frequently talk to my family, who live all over the state. Technology connects us.

My life is by no means the only beneficiary of technology. Take collaborative projects as an example. The pace of global communication used to be limited by the speed of a horse. The invention of the train greatly increased the speed at which we could communicate but not so much as the invention of the telephone and subsequently, the Internet. No longer are we confined to any sort of geographic region for our interactions. Just recently it was reported that Governor LePage has been communicating with the Chinese government about exporting Maine lobster to them. Electronic communication has allowed such transactions to take place. It is not just commerce that has been affected. By virtue of the Internet, education has transcended its historical borders. People from around the world can take classes in clinical anatomy, robotics, Spanish, and art history from the comfort of their living rooms. Personal computers, webcams, smartphones, and email have all worked together to allow us as a society to make better use of our global resources.

Today, technology has opened up the world in ways that seemed to be science fiction only one hundred years ago, but this same technology has also served to shrink society's mental image of Earth. Istanbul no longer seems like an alien city when it no longer takes a seemingly endless series of planes, trains, and automobiles to make contact with someone there. Webcam conversations make it almost as easy to talk with someone halfway around the world as your

next door neighbor. The shrinking of the globe also appears to have decreased racial and cultural tensions, for it allows individuals to work with people from around the world on a daily basis. Constant exposure diminishes ignorance, and with less ignorance there is less hate. A shrunken image of our world also changes our communication with those we already know. People are more apt to move further away from friends and family, because they know that distance will not prevent communication. Maintaining a long distance relationship, typical of military or college life, is no easy task, but modern technology allows couples to stay together when circumstances force them apart.

Technology is not all sunshine and rainbows though. Over utilizing communication technologies can have dire effects. Numerous people die every year because of drivers who are distracted by their cell phones. Chances are that that is not too shocking to you. The problem is that people use their cell phones despite knowing how dangerous it is. We have become so attached to our gadgets that not even mortal danger can dissuade us from unplugging. Since even the prospect of death cannot pull us away, it should be no surprise that many of us allow our electronics use to harm our relationships with friends and family. Spending time with others now often consists of a group of people, each using his or her preferred device, communicating with others that are not present and ignoring the people that they are physically with. Such changes in communication techniques are nothing new though. The evolution of technology from telegraph to email and beyond has caused people over the years to become less personable.

Communicating with technology does many things. It broadens our horizons and yet shrinks the world. It increases productivity and yet it distracts us. It connects us and yet it isolates us. In order to keep the best parts of technological communication and prune the rest, we must look at how it can improve areas of our lives instead of becoming a pursuit in and of itself.

Work Cited

Agger, Ben. "ITime: Labor and Life in a Smartphone Era." *Sage* (2011): n. pag. *OneSearch*.

Web. 17 Oct. 2012.

"Definition of Smartphone." *PC Magazine Encyclopedia*. PC Magazine, n.d. Web. 3 Nov. 2012.

<http://www.pcmag.com/encyclopedia_term/0,1237,t=Smartphone&i=51537,00.asp>.

"Facts for Features: *Special Edition* Oldest Baby Boomers Turn 60! - Facts for Features & Special Editions - Newsroom - U.S. Census Bureau." *Census Bureau Homepage*. N.p., 23 Jan. 2006. Web. 14 Mar. 2013.

<http://www.census.gov/newsroom/releases/archives/facts_for_features_special_editions/cb06-ffse01-2.html>.

Halberstam, David. *The Fifties*. New York: Ballantine Books, 1994. Print.

Hanuka, Asaf. *The Last Man on Earth without a Smartphone*. 2011. Graphic. The RealistWeb. 9 May 2013. <<http://realistcomics.blogspot.com/2011/09/week-67-messaging-blues.html>>.

iPhone Unit Sales by Quarter (000s). 2012. Graphic. Business InsiderWeb. 9 May 2013.

<<http://static4.businessinsider.com/image/50104de669beddc21100000c-960/chart-of-the-day-iphone-unit-sales-july-2012.jpg>>.

Isaacson, Walter. *Steve Jobs*. New York: Simon & Schuster, 2011. Print.

"John McWhorter: A surprising new language – texting," Youtube. TED, 26 Jun. 2012. Web 1 Mar. 2013

"Maryland in News." *Maryland in News*. University of Maryland, Dec. 2010. Web. 03 Nov. 2012. <http://newsdesk.umd.edu/Journalism/Unplugged_Page2.cfm>.

"NSC Estimates 1.6 Million Crashes Caused by Cell Phone Use and Texting." *NSC Estimates*

- 1.6 Million Crashes Caused by Cell Phone Use and Texting*. National Safety Council, 12 Jan. 2011. Web. 03 Nov. 2012.
- <<http://www.nsc.org/Pages/NSCEstimates16millioncrashescausedbydriversusingcellphonesandtexting.aspx>>.
- Ogunlesi, Tolu, and Stephanie Busari. "Seven Ways Mobile Phones Have Changed Lives in Africa." *CNN*. N.p., 14 Sept. 2012. Web. 4 Nov. 2012.
- <<http://www.cnn.com/2012/09/13/world/africa/mobile-phones-change-africa/index.html>>.
- O'Reilly, Brian, and Karen Vella-Zarb. "Meet The Future." *Fortune* 142.3 (2000): 144-168. Business Source Complete. Web. 30 Apr. 2013.
- Oulasvirta, Antti, Tye Rattenbury, Lingyi Ma, and Eeva Raita. "Habits Make Smartphone Use More Pervasive." *Springer* (2011): 10-114. *OneSearch*. Web. 17 Oct. 2012.
- Przybylski, Andrew K., and Netta Weinstein. "Can You Connect with Me Now? How the Presence of Mobile Communication Technology Influences Face-to-face Conversation Quality." *Journal of Social and Personal Relationship* (2012): 1-10. *Sage*. Sage, 19 July 2012. Web. 03 Nov. 2012.
- <<http://spr.sagepub.com/content/early/2012/07/17/0265407512453827.full.pdf+html>>.
- Stavrinos, Despina, Katherine W. Byington, and David C. Schwebel. "Distracted Walking: Cell Phones Increase Injury Risk for College Pedestrians." *Elsevier* April 2011 42.2 (2011): 101-07. *ScienceDirect*. Web. 3 Nov. 2012.
- Tossell, Chad C., Philip Kortum, Clayton Shepard, Laura H. Barg-Walkow, Ahmad Rahmati, and Lin Zhong. "A Longitudinal Study of Emoticon Use in Text Messaging From Smartphones." *Elsevier* (2011): 1-5. *OneSearch*. Web. 17 Dec. 2012.

Wei, Ran, and Ven-Hwei Lo. *Staying Connected While on the Move: Cell Phone*

Use and Social Connectedness. London: Sage, 2006. Web.

Womack, Brian. "Google Says 700,000 Applications Available for Android." *Bloomberg News*.

Bloomberg, 29 Oct. 2012. Web. 4 Nov. 2012.

<<http://www.businessweek.com/news/2012-10-29/google-says-700-000-applications-available-for-android-devices>>.

"The World UNPLUGGED." *The World UNPLUGGED*. University of Maryland, Dec. 2010.

Web. 03 Nov. 2012. <<http://theworldunplugged.wordpress.com/>>.