Are You Controlled by Media: Learning Media Literacy in the Digital Age?

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Abstract

Before Google, Siri, and Alexa, there were librarians; if you wanted accurate information you would have to leave the comfort of your own home and head to your local public library. In New York, it is still possible to inquire with a librarian who uses the phone, Internet chat, email, text, or snail mail to answer research and reference questions. However, this is an outdated and time-consuming practice. The year 2007 changed how we ask, receive, and view information forever; it was the year the iPhone was introduced to the world. Personal devices were soon in the hands of people young and old, allowing them to search for anything within seconds. Technology is playing a larger role in our lives every day. In 2009, the Pew Research Center revealed 93% of youth aged 12 to 17 are online, and 71% have a cell phone (Jones, 2009). Ten years later, Pew conducted another survey which shows 81% of Americans say they use the Internet daily. The interconnectedness of the Internet has opened our world to endless information moving at speeds we cannot fathom. Every day we work, socialize, shop, read, watch, learn, and connect through digital space, which is far beyond traditional media such as television, newspapers, magazines, and radio. Until the mid-2000s we would get the majority of our information from print sources like newspapers. Today, digital technology is embedded in our daily lives and these changes have profoundly affected us. In this paper I will discuss the history of the Internet, the effects of the Internet, teaching media literacy for a democratic society, and the growing concerns about e-waste.

Are You Controlled by Media: Learning Media Literacy in the Digital Age?

The history of the Internet began in the 1960s as a tool for scientists and the military to send messages to each other. This allowed multiple computers to communicate on a single network. From this life-changing invention emerged the creation of message boards where people could post images, leave short comments, and connect with others all over the world (Greenfield, 2015). How did we go from a simple communication device to a life-changing force called the Internet? We need to consider two questions; what came before it and what influenced its creation? It started in 1836 with the invention of the telegraph. The telegraph revolutionized communication by using Morse code, which is a series of dots and dashes used to communicate between humans (Marshall, 2019). It was not until 1858, when the first transatlantic cables were invented, that you could communicate with people across the ocean. On August 16, 1858, Queen Victoria sent the first public message across the cable to President Buchanan which took sixteen hours to send. Over time, politicians, businessmen, and others who could afford the expensive service could send short messages (National Mag Lab, 2014). In 1878, the invention of the telephone came to fruition, quickly followed by the creation of the first telephone line, the first switchboard, and the first telephone exchange. Just three years later, almost 49,000 telephones were in use (Elon University, 2019). The USSR launched Sputnik in 1957 which was monumental for its time. It was the first satellite and manmade object to orbit the Earth; "The only cargo onboard Sputnik was a low-power radio transmitter, which would broadcast a beeping noise at regular intervals. This beeping could be heard by radio listeners around the world" (National Geographic, 2013). This was the beginning of global telecommunications. The Sputnik launch led to the creation of National Aeronautics and Space Administration, NASA, and it ushered in new political, military, technological, and scientific developments (Garber, 2007). Satellites play an important role in transmitting much of today's media data. Satellites have taken

on incredible importance for a variety of different vital functions in society, including; predicting

the weather, search and rescue operations, collecting data about atmospheric temperatures, sea

surface temperatures, forest fires, volcanic eruptions, and global vegetation analysis (NCEI,

2019). The European Space Agency estimates 8,650 satellites have been launched since the

1950s and of these, about 4,700 are still in space, but of those, only 1,800 are still functioning

(Torrieri, 2019).

In 1969 the Internet was born. ARPANET was an early computer network developed by

the U.S. Department of Defense's Advanced Research Projects Agency. It connected a computer

at the University of California in Los Angeles with a computer at the Stanford Research Institute

in Menlo Park, California. The message "LOGIN" was sent from the UCLA computer, but the

Stanford computer only received the note's first two letters (Computer History Museum, 2019 &

Andrews, 2019). A few years later, people began to communicate over networks, which resulted

in the invention of email by Ray Tomlinson in 1971 (Left, 2002). Throughout the 1970's the

Internet improved with global networking, communication, and multi-user interactive gaming.

During the 1980s the advancements of desktop workstations opened up accessibility to more and

more people. The Internet then expanded in the 1990s and the first Internet dial-up, surfing the

Internet, and commercialization were introduced. This not only expanded communication around

the world, it also allowed us to shop on websites like Amazon or eBay and order pizza online

from Pizza Hut (Marshall, 2019). The Google search engine was launched in 1997 and Napster

began to allow people to download music in 1999, changing the music industry entirely. Another

big shift occurred in 2001 with the birth of Wikipedia. The following year, BitTorrent launched

their site where anyone could download any kind of media they wanted for free, changing the

way we handle global media distribution. In 2003, Myspace launched as a social network and

Facebook for university students soon followed in 2004 (Phillips, 2007). YouTube joined the

game in 2005 and 2006; Facebook abandoned their college-only approach and allowed anyone to

join (Lanxon, 2010).

The expansion of the Internet has connected the world like never before. During the 2020

COVID-19 pandemic, communications satellites helped keep people in remote regions connect

with employers, customers, doctors, teachers, friends, and families. GPS satellites are providing

essential navigation services to hundreds of thousands of truck drivers working to help deliver

all-important medical supplies, manufacturing supplies, and food (Satellite Industry Association,

2020). All these technological advancements are incredible tools with endless possibilities to

improve our lives by providing vital information at our fingertips. Growing research reveals that

these technologies are affecting all of us around the world; some advancements have been

transformative for society such as health mapping, education opportunities, and communication

options, whereas others are taking a toll on humankind and the environment.

Effects of the Internet.

The phrase "Google it" has become part of mainstream American language and culture.

In 2018, Nielsen Total Audience Report found that American adults spend over 11 hours per

day interacting with media, varying from television, movies, radio, gaming, Internet, and

application use (The Nielsen Company, 2018). The convenience and necessity of these

technologies have never been more apparent than now, allowing us to stay connected and safe

throughout the 2020 pandemic. People now have the ability to use applications from their

smartphones to do tasks that would have required individuals to leave the comfort of their

homes. During the pandemic, many states issued *Stay At Home* orders to flatten the curve of

COVID-19, closing many businesses and allowing curbside pickup or deliveries only available

through Internet applications using personal devices. Many services were altered to comply with

the order and for the convenience of the consumer groceries and other essential items could be

purchased and dropped off at the front door, money could be deposited and transferred digitally,

restaurants continued with takeout orders, meetings were conducted using new applications like

Zoom, and people were able to stay up-to-date on the latest COVID-19 outbreaks. These positive

technology attributes have been life-changing for the world but the online information we

interact with might not be what the rest of the world is viewing.

We have a technology connected global world. It is hard to be objective on the Internet

when many citizens feel that large social media corporations have too much power over content,

privacy settings, and who has access to their data, etc. In fact, 88% of Americans believe that

social media companies have at least some control and 62% believe they have too much control

over the mix of news that people see on their sites due to algorithms (Shearer & Grieco, 2019).

Data is often twisted in such a way that it is causing people to have a skewed view of reality. In

2011 during a TEDtalk, Eli Pariser, Internet activist, pointed out a dilemma with algorithms and

filters on Internet platforms which he calls filter bubbles. Search engines such as Google and

other platforms like Facebook use many signals to collect data on what people search for, they

then use this data to personalize the user's results. Pariser asked his friends to search for the word

"Egypt" to show the difference in the outcome even though they are using the same word. Friend

one had politically driven results and friend two had leisure and travel results. These platforms

are personally tailored to each individual, filtering out information the user does not interact

with, and consequently narrowing their point of view in the Internet world. Pariser states "the

Internet is showing us what it thinks we want to see but not necessarily what we need to see." He

goes on to say "instead of a balanced information diet you can end up surrounded by information

junk food," which leads to narrow mindedness (Pariser, 2011). Filter bubbles are causing people

to be narrow-minded without necessarily realizing it, filtering out valuable information without

our permission through mechanical algorithms. Only being able to see what the algorithm is

programmed to allow us to see is dangerous and this can cause significant consequences because

it does not provide egalitarian viewpoints.

The Internet and media are unfortunately causing some major negative effects on

society's well-being. One negative effect is depression amongst social media users due to

cyberbullying (DeHue, Bolman, & Völlink, 2008; Erdur-Baker, 2010; Gillespie, 2008). Children,

as well as adults, have been affected not only by depression, but also aggression, dangerous

sexual behavior, substance abuse, eating disorders and academic challenges (Strasburger, Jordan,

& Donnerstein, 2010). Body shaming or distorted body image disorder has been on the rise since

the birth of the Internet. Instead of only seeing billboards or print advertising occasionally, we

now stare at our screens constantly, seeing altered, unrealistic images regularly. Females who are

avid readers of fashion and beauty magazines in early adolescence are more likely to suffer from

a distorted body image during their teenage years (Hogan, 2008). On the Internet, there are more

than one hundred pro-anorexia websites that not only encourage disordered eating, but offer

specific advice on purging, severely restricting caloric intake, and exercising excessively

(Borzekowski, Schenk, Wilson, Peebles, 2010). Teen and pre-teen girls as young as nine years

old begin to come into contact with advertisements, which target weight-loss products and hone

in on adolescent insecurities and naiveties. Children at this age do not know how to navigate or

recognize the difference between credible and non-credible sources. They are often easily

persuaded by well-constructed strategies, which can include the message's purpose, target

audiences, and subtext (Hobbs, Broder, Pope, & Rowe, 2006). Now, more than ever, it is crucial

that we educate our students about media literacy before we raise a generation of students consumed by technology.

Besides technology raising considerable concerns regarding information bubbles, it is also affecting student's ability to handle slight delays in the time that they receive information. Sarah Churchwell is a senior lecturer in American Literature and Culture at the University of East Anglia. She states that, "Students' thinking habits change dramatically: if information is not immediately available via a Google search, students are often stymied. But of course what a Google search provides is not the best, wisest, or most accurate answer, but the most popular one" (Naughton, 2010). In 2009, The American Educational Research Association presented their research in San Diego, California at their annual conference, stating that social media users study less and generate lower grades (Abaleta et al., 2004). Doctor Aryn Karpinski conducted a study to see whether there is a correlation between the time spent on Facebook and the academic performance of students. Her findings show that more time spent on Facebook results in slightly lower grades. In Karpinski's study, the average Facebook user had a GPA of 3.0 to 3.5, while the non-Facebook user had a GPA of 3.5 - 4.0 (San Miguel, 2009).

Media Literacy.

Exposure to various media alone does not guarantee that we actually grasp or comprehend the intended meaning of the content. In order to equip our students with the necessary tools to succeed in this day and age, educators should be compelled to recognize that these technologies provide both positive and negative consequences for our students and that technology is here to stay. Instead of sticking to the ways of the past, teachers need to devote time to teaching our students how to safely navigate various media platforms (Considine, Horton, & Moorman 2009). Media literacy education should be a mandatory part of every

school's curriculum because it allows students to develop critical thinking skills, teaches them

how to interpret various forms of media, and helps them learn how to succeed in the rapidly

changing 21st century.

Definition of media literacy.

The Intersection of Digital and Media Literacy states to be media literate is to have: The

ability to identify different types of media and understand the messages they are sending.

The key concepts for media literacy is that media is constructed; that audiences negotiate

meaning; that media have commercial, social, and political implications; and that each

medium has a unique aesthetic form that affects how content is presented (2018).

In other words, media literacy is the study of content interpretation, being able to navigate the

digital realm. It is imperative that we teach this valuable skill to our students as we cultivate

global citizens that can navigate this new world of technology. "Media literacy teaches [students]

to think critically, to be a smart consumer of information and products, to recognize point of

view, create media responsibly, identify the role of media in our culture, and understand the

author's goal as to control the interpretation of what they see or hear rather than letting the

interpretation control them" (Common Sense Media, 2019). One thing all this media has in

common is that someone created it for a reason. Children and adults need to understand how to

analyze the media they are viewing and ask themselves who made it and why.

Teaching Media Literacy for a Democratic Society.

Media literacy is an essential skill to possess in the age of the Internet. In our

contemporary world, it should be considered just as important as traditional literacy. It is

beneficial for finding truth in a world that is saturated with information. Everyone must become

media literate to be effective global citizens; it is important to be able to decipher and decode the

media with which they interact. As a consequence of not being media literate, individuals can be

manipulated and misinformed easily. In a recent Pew survey conducted in the summer of 2019,

more than half of the adults in the United States use social media to get their news regularly. The

survey reported 73% of Facebook users obtain their news through that social platform, as do

71% of Twitter and 62% of Reddit users. Over half of the U.S. adults say that one-sided,

inaccurate information is a very extensive problem when it comes to news on social media.

People are wary about the accuracy of digital information after the 2016 United States

presidential election. After a thorough investigation, it was discovered that Russia was

manipulating tens of millions of social media users by targeting them with advertisements, fake

news sources, self-generated content, and other intentional strategies. Russia targeted users based

upon factors including race, gender, religion, interest, and politics. Russian sources attempted

voter suppression by using social media to spread misinformation. They used images to tell

people to avoid lines, encouraging voters to cast their ballot via text or tweet from home, all of

which are invalid ways to vote (S. Rep. No. 116-XX, 2019). This is one of many unsettling

patterns that resulted in the majority of society being unsure of what to believe when it comes to

getting accurate news from any media source.

Visual Literacy in Our Media.

Not only is media literacy vital to a democratic society, visual literacy is also paramount

to global citizenship. Visual literacy is defined as the ability to investigate and interpret meaning

from information presented in the form of an image. It is said a picture is worth a thousand

words, but what actually happens when we look at an image in an advertisement online? Our

experiences, personal biases, judgments, and overall outlook on the world can determine how we

perceive and interpret the image. In turn, the image can alter our way of thinking in ways that

manipulate our understanding without our awareness. Due to the "technological developments in the past few years, we are bombarded by images, views, write-ups, and videos that seek to sway us to a particular way of thinking" (Moffat, 2019). As a result, the viewer needs to take a discerning approach while analyzing the screen. It is difficult to make educated decisions when you are playing a rigged game: "Most often people create media to influence you in one particular way" (Moffat, 2019). It is becoming rare to find media with both sides of the argument presented.

Strategies for teaching media literacy.

There are an increasing number of resources and strategies which are becoming available for educators to facilitate the teaching of media literacy and visual literacy in the classroom without adding more subject content to their curriculum. There are numerous books, websites, and video-links from all over the world promoting the importance of teaching media literacy from all over the world. Many of the resources have full lessons, engaging activities, or just helpful prompting questions to guide students to think critically about what they are retaining. One website resource is Prodigy; this site has ten activities for teaching media literacy with a simplified printable list of the ten exercises for quick and easy reference. One activity deconstructs advertising language, including how advertisers can influence viewers to make decisions through word choice and writing techniques. An example of a deconstructed advertising lesson would be to ask the students to consider the advertisement assertion:

> "our cola has more taste" is an unfinished claim. After hearing or reading it, your
> students should ask: "More taste than what?" Once they grasp the concept, hand out
> stacks of magazines and online ads you've printed to groups of students. Each group
> should explore the resources they've received, identifying two to four ads that use

specific claims. After, groups can share their findings with the class. Ideally, out of curiosity after completing this exercise, students will begin to analyze ads they see (Guido, 2017).

An activity such as this can help students not only understand how to interpret various forms of texts but also evokes deeper critical thinking skills. It encourages students to ask questions about the world around them which empowers them to make conscious decisions.

The Media Spot is an organization that was established in 2001. The Media Spot promotes media literacy for K-12 curriculum development and has created a Media Literacy Scope & Sequence template to help vertically integrate the use of technology and media to guide your school vision and build towards a media competent community. Google is also making an effort to help educate the world on media literacy by creating the *Be Internet Awesome Curriculum* for educators which has five topic areas: Share with Care (*Be Internet Smart*), Don't Fall for Fake (*Be Internet Alert*), Secure Your Secrets (*Be Internet Strong*), It's Cool to Be Kind (*Be Internet Kind*), and When in Doubt, Talk It Out (*Be Internet Brave*). Google (2019) has created a hands-on digital safety practice game called Interland for children to put to use the lessons they have learned from *Be Internet Awesome*.

Another helpful resource is a website called TechInCtrl. They provide a variety of tools dedicated to empowering teachers on the topics of media literacy, Internet safety, and digital citizenship. They offer free standards-based lessons, inquiry-based engaging activities, and collaborative opportunities (TechInCtrl, 2019). TechInCtrl provides subject-specific lesson plans and ideas that any teacher can utilize in their classroom. It also includes interactive videos and advertising samples using the five key techniques of advertising.

A non-profit organization called Common Sense Media was started in 2003 with the mission of ensuring each child's digital well-being in today's fast-paced technology world. Their goal is "to call attention to the outsized influence of media and tech on kids' lives and to empower families with the information they need to be advocates for their children." Common Sense Media suggests using key questions when teaching media literacy such as:

> Who created this media? Why did they make it? Who is the message for? What techniques are being used to make this message credible or believable? What details were left out, and repeatedly asking why do you think that? How did the message make you feel and why do you think that (Daunic, 2017).

Common Sense Media also has suggestions for older students who are writing a persuasive essay. One of their suggestions encourages students to create documentary videos to express their opinions on community policing. Daunic, the founder of Common Sense Media explains:

> This project helps students convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content. Students learn to produce videos using iMovie, accessing found video and images connected to text. Students learn how when translating their writing into video format, their image choices can change the message (2017).

Being aware of information bias is key to becoming a digitally competent and ethically dispositioned citizen in a world dominated by technology. Because media literacy is vital to a democratic society, a plethora of books are available to help guide teachers by adding mini media literacy lessons right into their existing curriculum. One book, *The Teacher's Guide to Media Literacy: Critical Thinking in a Multimedia World*, guides teachers regarding how to integrate media literacy by layering it into their current curriculum across all levels. As an

educator, I teach media literacy in my classroom because I believe it is crucial for all students to understand what it is to be media literate, why it is important, and to provide them with strategies to navigate their digital world. In return, teaching my students about media literacy will help my students become better artists because they will have a more in-depth understanding of how to influence and communicate through different mediums.

One example of a media literacy lesson that I created for my classroom is an engaging project regarding advertisements. At the beginning of the lesson, students are asked to analyze two cereal boxes to determine their marketing strategies. I ask students to give their first reactions to box #1 (Cheerios) and box #2 (Lucky Charms). I then ask which cereal they would pick and why? During this discussion, I help the students identify key media literacy components using prompting questions (Who? What? Why?, etc.). Then, I define and discuss media literacy using a PowerPoint with additional advertisements. I use these ads to help define how to be media literate and why it is important. Next, I show the students my advertisement example of the HiveAlert feature for a cell phone. The electromagnetic radiation produced by cell phones has been connected to the theory of colony collapse disorder (CCD) which negatively affects honey bees (Santhosh Kumar, 2018). When a person is near a registered beehive, HiveAlert will send a notification to the user's phone instructing them to turn their device off. When the user is safely far enough from the beehive, the phone will automatically power back on. After viewing the teacher example, in pairs, students discuss the media literacy strategies used in the teacher model and share it with the class. Students will then create an advertisement for a new cell phone feature that helps humankind using the media literacy knowledge they gained during the lesson. Once their advertisements are complete, students will present in small groups and explain the purpose behind their features and the strategies utilized for marketing. (See Appendix A)

Anyone can see that media literacy is an important skill in an ethical society. It is a subject that is just as important as teaching children their ABCs. It is imperative that we educate our students about media literacy and its influence because it provides the necessary tools to navigate a media-saturated world.

E-waste

Another important consideration in response to technology is the growing concerns over Electronic Waste, otherwise known as e-waste. Advanced innovations in technology, an increase in technology users, and ever-shortening replacement cycles for new devices are causing concerns with the amount of e-waste that is continuously being accumulated. Our society wants the latest and the greatest products with no real regard to what happens to the technology when it has finished serving its technological lifespan. E-waste is waste which consists of discarded electronic products such as computers, televisions, appliances and cell phones (Merriam-Webster 2020) and is classified into six different categories by the Partnership on Measuring ICT for Development: Temperature Exchange Equipment, Screens, Lamps, Large Equipment, Small Equipment, and Small IT (Baldé et al., 2015a). In 2016, it was reported that all the countries combined in the world generated 44.7 million metric tons of e-waste annually which is close to 4,500 Eiffel Towers each year. From all that e-waste, only 20% was documented as having been collected and disposed of properly. The rest of the 80% of e-waste is not documented. Of that 80%, only 4% of the e-waste in the higher income countries is destined for landfills or incinerated and the other 76% of e-waste is unknown. Undocumented technology waste is likely traded, dumped, or recycled under subsidiary conditions (Baldé et al., 2017). E-waste is expected to increase to 52.2 million metric tons by 2021.

Backyard recycling or improper dismantling methods, which can cause severe damage to humans and environmental health is what is happening to most of the undocumented e-waste. These hazardous methods of improper dismantling are appealing due to their extremely low cost. These backyard recyclers hire unskilled, low wage manual labor in the form of rural migrant men, women, and children as well as display a blatant disregard for dangerous working conditions and improper disposal of toxicities. Some of the inadequate techniques include physically dismantling electronics without proper safety gear, removing components by burning them over coal fire grills, recovering gold and other metals in open-pit acid baths, melting plastics without proper ventilation, mass open-air burning to extract metals and dispose of unwanted materials, and dumping of unusable hazardous waste into rivers and fields (Chi et al., 2011).

Jim Puckett is an environmental health and justice activist who has spent many years fighting for stricter e-waste regulations. Puckett is the Executive Director and Founder of the nonprofit group called Basel Action Network, or BAN, which investigates and analyzes the underground trade world of e-scraps. In 2015, Puckett's group secretly inserted mini GPS systems into different e-waste devices, then passed the items off to recyclers to watch where the electronics traveled to. Instead of recyclers processing e-waste domestically, it was sent to Hong Kong which led to uncovering a huge conspiracy of falsified documents. These GPS devices helped expose recycling companies who claimed they were ethically disposing of e-scraps to only discover they were in it for the larger profit with no regard for the impact that they were having on the entire world (Lecher, 2019).

Two studies have demonstrated high levels of heavy metal and toxic substances in e-waste workers and children in Guiyu, southeast China due to intense backyard recycling of

electronics. It was revealed that not only were the e-waste workers exposed to immense toxicity levels in the dust, but they brought the dust into their homes, spreading the poison to other family members. Bone disease, neurological, digestive, and respiratory problems are all linked to the toxic dust (Leung et al., 2008). Since the United States government has not properly regulated e-waste nationwide, nearly all e-waste can be lawfully shipped overseas to developing countries. Currently, only 25 states have passed some form of legislation to regulate electronic dumping but further restrictions are needed before our world is buried in e-waste (United States Environmental Protection Agency, 2020).

Conclusion

The Internet has come a long way since its inception in the 1960s; it has evolved from a single-use technology to a global enterprise. The Internet has revolutionized the way in which we teach, shop, communicate, relax, and obtain information. However, the constant onslaught of digital media has also created a negative ripple effect around the world. Filter bubbles, targeted advertising, mental, physical, and educational problems, as well as e-waste, are on the rise. Without intervention, we will continue down a slippery slope of conformity and naivety governed by those in power. Media literacy education is the key to student success in the 21st century. We need to provide our students with the necessary tools to navigate through a constant bombardment of information, images, and bias. A progressive education must help students interpret information beyond face-value and not be persuaded by the hidden agenda of large companies. As educators, it is our job to help students learn to think critically about the world around them, especially in the digital realm. We must adapt to the fast-paced, ever-changing planet, and learn to harness our ability to decipher and interpret meaning from various media sources. If it is our goal to create well-rounded, free-thinking global citizens, we must first focus

our attention on the elephant in the room and learn to harness the effects of technology before

technology learns how to further control us.

References

Abaleta, A. B, Centaza, S.M, & Calimlim, M. E. (2004). *Impact of Social Networking on the Academic Performance of College Students* in (Unpublished Dissertation). Arellano university, Pasig, Philippines.

Andrews, E. (2019, October 29). *Who invented the Internet*. History.com
https://www.history.com/news/who-invented-the-internet

Baldé, C.P., Forti V., Gray, V., Kuehr, R. & Stegmann, P., (2017) The Global E-waste Monitor United Nations University (UNU), International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Vienna.https://collections.unu.edu/eserv/UNU:6341/Global-E-waste_Monitor_2017__electronic_single_pages_.pdf

Baldé, C. P., Kuehr, R., Blumenthal, K., Gill, S. F., Huisman, J., Kern, M., Micheli, P. and Magpantay, E. (2015a). E-waste statistics: Guidelines on classifications, reporting and indicators. Bonn, Germany, United Nations University, IAS - SCYCLE. Borzekowski, D. L. G., Schenk, S., Wilson, J. L., & Peebles, R., (2010, December 10). *e-Ana and e-Mia: A Content Analysis of Pro–Eating Disorder Web Sites. American Journal of Public Health,* 100(8), 1526–1534. doi.org/10.2105/AJPH.2009.172700

Chi, X., Streicher-Porte, M., Wang, M., Reuter, M. (2011, April). *Informal electronic waste recycling: A sector review with special focus on China, Waste Management,* Volume 31, Issue 4, 2011, Pages 731-742, ISSN 0956-053X, https://doi.org/10.1016/j.wasman.2010.11.006.

Common Sense Media. (2019, October 20). *What is Media Literacy, and Why is it Important?* Retrieved from https://www.commonsensemedia.org/news-and-media-literacy/ what-is-media-literacy-and-why-is-it-important

Computer History Museum. (2019, Oct 27). *What Happened on November 21st*. Retrieved from

    https://www.computerhistory.org/tdih/november/21/

DeHue, F., Bolman, C., & Völlink, T., (2008). Cyberbullying: Youngsters' experiences and

    parental perception. *CyberPsychology & Behavior*, 11(2), 217-

    223.https://doi.org/10.1089/cpb.2007.0008

Daunic, Rhys (2017, September 22). *Use this Flexible Approach to Build Students' Critical*

    Thinking and Literacy Skills. Retrieved from

    https://www.commonsense.org/education/articles/4-ways-to-integrate-media-literacy-in-

    the-classroom

Elon University School of Communications. (2019). *Imagining the Internet*. Retrieved from

    https://www.elon.edu/e-web/predictions/150/1870.xhtml

Gantz, W., Schwartz, N., Angelini JR., Rideout, V., (2007). *Food for Thought: Television Food*

    Advertising to Children in the United States. Kaiser Family Foundation. Retrieved from

    https://kaiserfamilyfoundation.files.wordpress.com/2013/01/7618.pdf

Garber, S.(2007, October 10). Sputnik. NASA. https://history.nasa.gov/sputnik/

Google. (2019, October 15). *Digital Safety Resources*. Retrieved from

    https://beinternetawesome.withgoogle.com/en_us

Greenfield, S. (2015). *Mind Change*. New York: Random House.

Guido, M. (2017, November 2). *Teaching Media Literacy: Its Importance and 10 Engaging*

    Activities [+ Downloadable List]. Retrieved from

    https://www.prodigygame.com/blog/teaching-media-literacy/

Hobbs, R., Broder, S., Pope, H., & Rowe, J. (2006). How adolescent girls interpret weight-loss

    advertising. *Health Education Research*, 21(5), 719-730. doi:10.1093/her/cy1077

Hogan, MJ., Strasburger, VC., (2008). Media and Prosocial Behavior in Children and

Adolescents. *In: Nucci L, Narvaez D, eds. Handbook of Moral and Character Education.*

Mahwah, 537–553. doi:10.1542/peds.2013-2656

TechInCtrl. (2019, October 15). *Media: Between the Lines.* Retrieved from

https://teachinctrl.org/media-literacy/

Jones, S., Fox, S., (2009). *Generations Online in 2009.* Retrieved from

https://www.pewresearch.org/internet/2009/01/28/generations-online-in-2009/

Kaiser Family Foundation (2010, January 20), *Generation M2: Media in the Lives of 8- to 18-*

year-olds. Retrieved from https://www.kff.org/other/event/generation-m2-media-in-the-

lives-of/

Kozlowska, H. (2014, December 31). *Librarians were the Original Google.* Retrieved from

https://qz.com/318991/heres-what-people-did-before-they-could-google-things/

Lanxon, N. (2010, January 22). *The 50 Most Significant Moments of Internet History.* Retrieved

from https://www.cnet.com/news/the-50-most-significant-moments-of-internet-history/

Lecher, C. (2019, December 4). *American Trash.* The

Verge.https://www.theverge.com/2019/12/4/20992240/e-waste-recycling-electronic-

basel-convention-crime-total-reclaim-fraud

Left, S. (2002, March 13). *Email Timeline.* The Guardian.

https://www.theguardian.com/technology/2002/mar/13/internetnews

Leiner, B. M., Cerf, V. G., Clark, D. D., Kahn, R. E., Kleinrock, L., Lynch, D. C., & Wolff, S. S.

(1997). The past and future history of the Internet. *Communications of the ACM*, *40*(2),

102-108.

Leung, A., Duzgoren-Aydin, N., Cheung, K., & Wong, M. (2008). Heavy Metals Concentrations

of Surface Dust from e-Waste Recycling and Its Human Health Implications in Southeast

China. *Environmental Science & Technology*, *42*(7), 2674–2680.

https://doi.org/10.1021/es071873x

Marshall, D. (2019, November 1). *History of the Internet: Timeline.* Retrieved from

http://www.internetvalley.com/archives/mirrors/davemarsh-timeline-1.htm

Merriam-Webster. (2020). E-waste. In *Merriam-Webster.com dictionary*. Retrieved from

https://www.merriam-webster.com/dictionary/e-waste

Moffat, K. (2019, Oct. 16). *The Importance of Media Literacy.* Retrieved from

https://ylai.state.gov/importance-media-literacy/

Moore, ES., (2006). *It's Child Play: Advergaming and the Online Marketing of Food to

Children.* Kaiser Family Foundation. Retrieved from

https://kaiserfamilyfoundation.files.wordpress.com/2013/01/7536.pdf

National Centers for Environmental Information National Oceanic and Atmospheric

Administration (2019, November 19). *Satellite Data.* Retrieved from

https://www.ncdc.noaa.gov/data-access/satellite-data

National Geographic (2013, December 17). *Oct 4, 1957 CE: USSR Launches Sputnik.* Retrieved

from https://www.nationalgeographic.org/thisday/oct4/ussr-launches-sputnik/

National Mag Lab. (2014, December 10). *Transatlantic Telegraph Cable – 1858.* Retrieved from

https://nationalmaglab.org/education/magnet-academy/history-of-electricity -

magnetism/museum/transatlantic-telegraph-cable

Naughton, J. (2010, August 14). *The Internet: Is it Changing the Way We Think?* Retrieved from

https://www.theguardian.com/technology/2010/aug/15/internet-brain-neuroscience-

debate

Pariser, E. (2011). *Beware online "filter bubbles".* Retrieved from

https://www.ted.com/talks/eli_pariser_beware_online_filter_bubbles#t-151290

Pew Research Center. (2019, July 9). *Newspaper Fact Sheet.* Retrieved from

https://www.journalism.org/fact-sheet/newspapers/

Phillips, S. (2007, July 25). *A Brief History of Facebook.* Retrieved from

https://www.theguardian.com/technology/2007/jul/25/media.newmedia

San Miguel, R. (2009, April 14) *Study on Facebook and Grades Becomes Learning Experience*

for researcher. Retrieved from

https://www.technewsworld.com/rsstory/66805.html?wlc=1286985671&wlc=128719

Santhosh Kumar, S. (2018). Colony Collapse Disorder (CCD) in Honey Bees Caused by EMF

Radiation. *Bioinformation*, *14*(9), 521–524. https://doi.org/10.6026/97320630014521

Satellite Industry Association.(n.d.) *The Satellite Industry During The COVID-19 Pandemic.*

Retrieved May 2020. https://sia.org/covid-19/

Shearer, E. and Grieco, E. (2019). *Americans Are Wary of the Role Social Media Sites Play in*

Delivering the News. Retrieved from https://www.journalism.org/2019/10/02/americans-

are-wary-of-the-role-social-media-sites-play-in-delivering-the-news/

S. Rep. No. 116-XX (2019).

Strasburger, VC., Jordan, AB., & Donnerstein, E. (2010). Health Effects of Media on Children

and Adolescents. *Pediatrics*, 125(4), 756-767. Retrieved from

https://www.researchgate.net/profile/Victor_Strasburger/publication/41656411_Health_E

ffects_of_Media_on_Children_and_Adolescents/links/5480738e0cf25b80dd723719/Heal

th-Effects-of-Media-on-Children-and-Adolescents.pdf

The Nielsen Company. (2018, July 31). *Time Flies: U.S. adults now spend nearly half a day*

interacting with media.

Nielsen.https://www.nielsen.com/us/en/insights/article/2018/time-flies-us-adults-now-

spend-nearly-half-a-day-interacting-with-media/.

Torrieri, M. (2019, March)*. The Gravity of Space Debris.* Retrieved from

http://interactive.satellitetoday.com/via/march-2019/the-gravity-of-space-debris/

United States Environmental Protection Agency. (2020, May 19). *Regulations, Initiatives and*

Research on Electronics Stewardship. https://www.epa.gov/smm-electronics/regulations-

initiatives-and-research-electronics-stewardship

Wells, G. and Seetharaman, D. (2017, November 1). *New Facebook Data Shows Russians*

Targeted Users by Race, Religion, Politics. Retrieved from

https://www.wsj.com/articles/russian-ads-targeted-facebook-users-by-profile-1509563354

Appendix A

Phones that Change the World
Melissa Anys
5th Grade
4- 50 minute class periods

Outcome Statement- *The students will create an advertisement for a cell phone with a new, innovative design that helps humanity. By the end of this lesson, the students will have gained critical thinking design skills as well as have an understanding of media literacy. This lesson is important at this age level because it is imperative to teach media literacy to develop responsible digital citizens.*

Objectives-
The learner will:
1. Create an advertisement for a new cell phone feature that helps humanity.
2. Research advertisements.
3. Analyze and evaluate the effectiveness of media.
4. Apply advertising techniques to persuade the audience.
5. Understand and apply the vocabulary and concepts of the lesson.

Criteria-
- 8" x 12" poster
- Title of cell phone feature
- Explanation of cell phone feature
- Include graphics, text, intentional color for focal point
- 3 thumbnail sketches
- Craftsmanship
- Presentation of final product

Visual Art Standards –
VA:Cr1.1.5a Combine ideas to generate an innovative idea for art-making.
VA:Cr2.2.5a Demonstrate quality craftsmanship through care for and use of materials, tools, and equipment.
VA:Re8.1.5a Interpret art by analyzing characteristics of form and structure, contextual information, subject matter, visual elements, and use of media to identify ideas and mood conveyed.
VA:Cn11.1.5a Identify how art is used to inform or change beliefs, values, or behaviors of an individual or society.

Integrated Standards –
3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
LS4.D: Populations live in a variety of habitats, and change in those habitats affects the organisms living there.

Universal Design for Learning and Presentation Diversification –
Multi-Sensory Consideration –
- **Interpersonal-** Making a product to improve humankind, through partner and small group work
- **Verbal**- Using words and text to persuade the audience
- **Naturalistic-** Sharing research of the effects of technology on the environment
- **Visual-** Viewing images, PowerPoint, advertisements
- **Auditory-** Listening to iPhone sound effects

Mind Style/Presentation Consideration –
- **Sequential**- Printed PowerPoint for the tables, printed advertisements
- **Novel**- Materials choice, iPhone sound effects, cereal boxes, e-waste

Anticipatory Set – As students are walking in, cell phone sound effects are being played in the background. The teacher is trying to greet students but is very distracted and keeps getting interrupted by the cell phone in their hand. The teacher apologizes for the cell phone distractions and asks the students what they thought when they saw their teacher being bombarded by notifications.

The teacher polls students and asks them the following questions:
1. Who has a cell phone?
2. Do you like having one? Why?
3. Do you have notifications turned on?
4. How often do you receive notifications?
5. How does receiving notifications affect your mood or thinking?
6. What are the positive and negative aspects of having a phone? The teacher will compile a list on the whiteboard.

Materials/Tools –
● Paper
● Pencils
● Markers
● Crayons
● Colored Pencils
● Scissors
● Construction paper
● Glue
● Magazines
● Print advertisements

Resources –
What is Media Literacy?
https://www.youtube.com/watch?v=GIaRw5R6Da4
Media Minute Introduction: What is media anyway?
https://www.youtube.com/watch?v=bBP_kswrtrw&list=UU_jQ4vYf-WPf4_5eSdGABWQ&index=24
Media Minute: Media have commercial implications
https://www.youtube.com/watch?v=RdkH0GwJy6A&list=UU_jQ4vYf-WPf4_5eSdGABWQ&index=23
iPhone sound effects
https://www.youtube.com/watch?v=o3x8CPo5GBY

Concepts and Vocabulary –
● Media Literacy
● Compositions/Layout
● Manipulate
● Humanity

- Graphic Designer
- Five Stages of Design Thinking
- Elements of Art
- Principles of Design
- Focal point
- Complimentary colors
- E-waste
- Sustainability

Procedures –
Day One-
As students are walking in, cell phone sound effects are being played in the background. The teacher is trying to greet students but is very distracted and keeps getting interrupted by the cell phone in their hand. The teacher apologizes for the cell phone distractions and asks the students what they thought when they saw their teacher being bombarded by notifications.

The teacher polls students to see who has a cell phone and if they like having one and why? Students discuss the positive and negative aspects of having a phone. The teacher will compile a list on the whiteboard.

The lesson continues with the teacher asking questions like, "What do you think happens to your old phone/computer/printer/tablet when you get a new one?" This leads the teacher into a discussion about e-waste and its effects on the environment using a PowerPoint with visual aids. We will transition to a discussion on how beehives are being affected by cell phone radiation. Teacher poses the question, "What would happen if we created technology for cell phones that would help the environment? What are some of the negative impacts on the environment?" The class has a group discussion. The teacher shares an example of a feature that would alert the user to turn off the device when a beehive is nearby. Students are to brainstorm features for a cell phone that would help better humanity. "What are some of your ideas? Turn and talk to a partner about some potential ideas." The class will dialog different concepts from each team.

Students will continue to brainstorm and sketch out their cell phone feature ideas for the remainder of class. 3 sketches are due by next class.

Day Two-
When students walk in, they will notice two cereal boxes sitting in the front of the room. The teacher asks students to give their first reactions to box #1 (Cheerios) and box #2 (Lucky Charms). The teacher asks which cereal they would pick and why? During the discussion, students are guided to identify key media literacy components (colors, images, messages, fonts, text, etc.) and connect them to the elements of art and principles of design.

The teacher will then define and discuss media literacy using a PowerPoint with additional advertisements and use these ads to help define how to be media literate and why it is important.

The teacher will show their advertisement example of the HiveAlert feature for their cell phone. In pairs, students discuss the media literacy strategies used in the teacher model and share out with the class.

The teacher shares the five stages of design thinking using a PowerPoint and explains how they will rework their three thumbnail sketches incorporating the five stages. Students will then create an advertisement for their cell phone feature (from previous lesson) using the media literacy knowledge they gained during the lesson. Students will get the choice of materials to use (crayon, color pencil, marker, construction paper, etc.)

Teacher circulates, monitoring student practice. Teacher provides feedback through praise and questioning.

Day Three-
Students work independently on the given assignment. Teacher circulates, monitoring student practice. Teacher provides feedback through praise and questioning. During the last ten minutes of class, students partner up and practice their presentations for tomorrow. They take turns presenting and providing constructive criticism using the rubric.

Day Four-
Students are given 15 minutes to complete their cell phone advertisements and prepare for their small group presentations (groups of 5) about their chosen cell phone feature. Each student is given a minute to explain their feature and discuss their design choices to persuade the audience to want their product. Students provide feedback to each other while the teacher circulates around the room and poses questions to students.

Students will evaluate and analyze the effectiveness of their peer's advertisement designs using a simple rubric to guide them on their reflection. Teacher will assess them using the same rubric.

Closure -
- What media literacy components did you use to grab your audience's attention?
- Why is this feature relevant to humanity? Who is it trying to help?
- If the audience changed, how might you change your design to influence that audience?
- Share three new vocabulary words and 1 new concept you learned.

Accommodations - Wearing a microphone for hearing impaired students.

Assessment – Students will evaluate and analyze the effectiveness of their peer's advertisement designs using a simple rubric to guide them on their reflection. Teacher will assess them using the same rubric.

Name:_____

Phones that Change the World - Rubric

Criteria	Superior 4	Satisfactory 3	Developing 2	Needs improvement 1
Create an 8in x 12in advertisement for a new cell phone feature that helps humanity and includes the title of the phone feature & explains what it does.				
Use effective design techniques to persuade the audience.				
Complete and rework three thumbnail sketches				
Craftsmanship				
Present advertisement using vocabulary and concepts learned.				
Total:				

Teacher Comment:

_____

_____

_____

_____

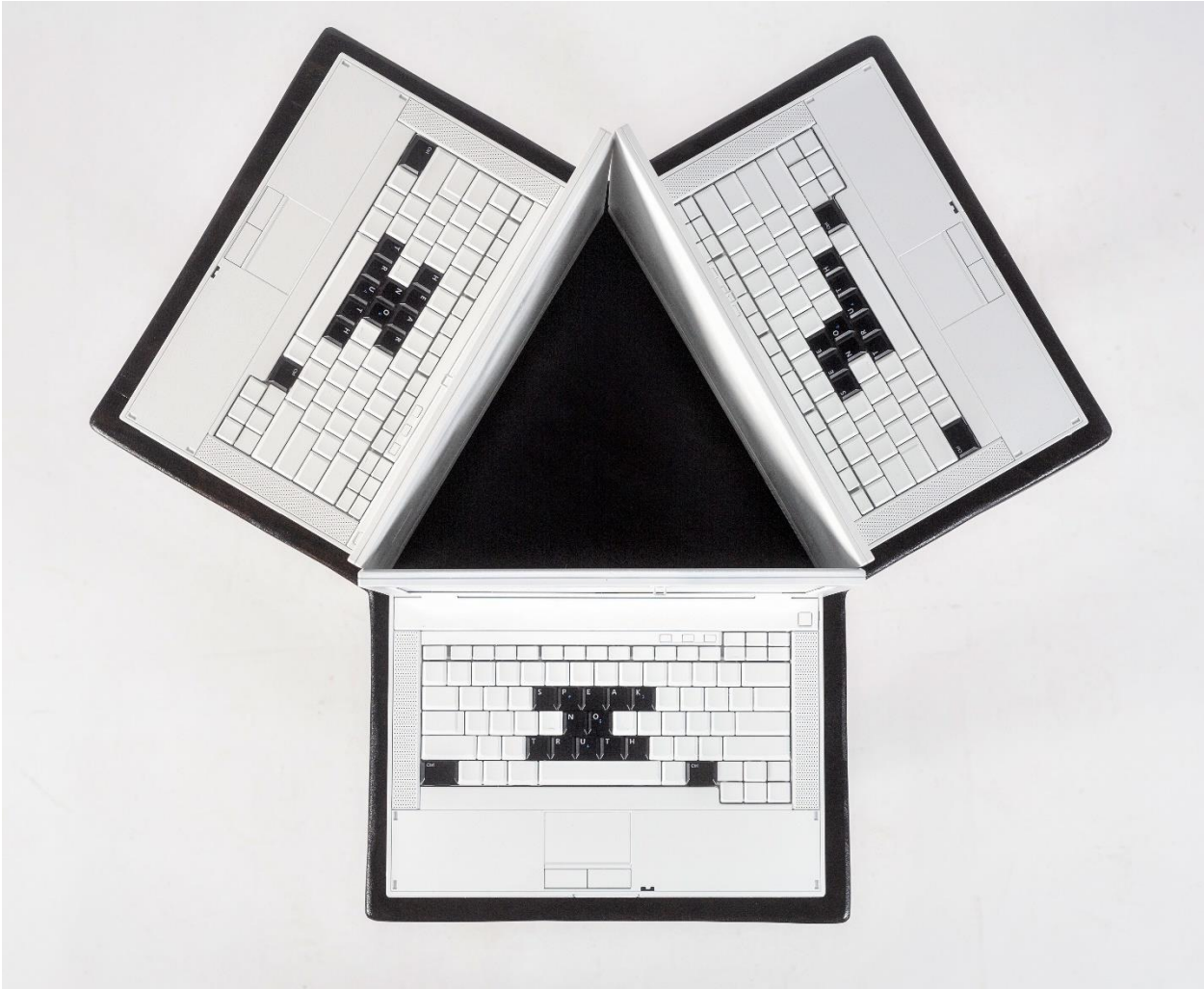Appendix B

Deception

Appendix C

Deception

Appendix D

Bonsai

Appendix E

Bonsai

Appendix F

Priorities

Appendix G

Priorities