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**THE ATTENTION CRISIS OF DIGITAL INTERFACES
AND HOW TO CONSUME MEDIA MORE MINDFULLY**

by
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**SUBMITTED TO SCRIPPS COLLEGE IN PARTIAL FULFILLMENT OF THE
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1. Introduction

Eric Barker, in an article for *Ladders*, writes about how humans can supposedly increase their attention spans. Barker states, “Focus is a lost art. Research shows we check our phones up to 150 times a day — about every six to seven minutes that we’re awake.”¹ I think about my recent trips to the library that prompted me to leave my phone in my dorm room across campus. Doing so made it easier for me to focus while finishing my work, uninterrupted by the urge to check Instagram or respond to friends. Why is it so hard for technology users to avoid the temptation of digital distractions? As a college student who has grown up in a digitized world, I often feel overwhelmed and anxious about the habits I have formed with technology. There are countless moments where the only solution to my constant addiction to online information and interaction is physical separation. As a media studies major, I have become increasingly knowledgeable about the positive and negative impacts of the digital age through media studies theory and history. In the process of developing a capstone project, I discovered that I was hungry for new insights about potential solutions our society can employ to benefit from the capabilities of digital devices while minimizing distractions and other consequences caused by overuse.

Digital forms of media are monopolizing individuals' attention spans, utilizing visual strategies that demand our interactions. Throughout the history of media technology, mediums have become increasingly immersive, presenting more information than ever before. The user interface designs of digital platforms can damage our ability to focus and distribute attention in

¹ Barker, Eric. “Increase Your Attention Span: 5 Secrets from Neuroscience.” *Ladders | Business News & Career Advice*, Ladders | Business News & Career Advice, 31 Mar. 2018, www.theladders.com/career-advice/this-is-how-to-increase-your-attention-span-5-secrets-from-neuroscience.

meaningful ways. Through analysis of our digital media consumption, this paper ultimately proposes mindful practices that help us lead more balanced lives and thrive in the digital age.

2. Transitioning from Print to Digital Media

It is crucial to examine the history of technologies and forms of reproduction in understanding the rise of digital media. In *The Work of Art in the Age of Mechanical Reproduction*, published in 1936, Walter Benjamin proposes that “the aura” of works of art are compromised and devalued by mechanical reproduction. Benjamin describes what he believes was a slippery slope that started with lithography and led to analog photography and film. The graphic mediums of mechanical reproduction Benjamin references all precede digital technology, but raise many relevant questions about art and media reproduction today. Hand printing techniques eventually gave way to digital printing technologies. The use of images in the media is not a strictly digital concept: “Lithography enabled graphic art to illustrate everyday life, and it began to keep pace with printing.”² The histories of woodblock printing, lithography, and film photography are interconnected with the development of digital mediums. Correspondingly, computers superseded older printing methods such as typewriters and mechanical presses.

Benjamin argues that as the methods of reproducing visual graphics began to develop, graphic art became a product on the capitalist market that was more accessible to the masses. Therefore, graphic art became available in “daily changing forms.” With the emergence of digital technology, the reproduction of media content continues to expand so that in 2018,

² Benjamin, Walter. *The Work of Art in the Age of Mechanical Reproduction*. Prism Key Press, 2010. Page 219.

communities are absorbing information and visual content in changing forms not just daily, but constantly. On smartphones and other similar devices one has the ability to switch efficiently from sending text messages, to reading a book, and then to watching videos. The digital interfaces of smartphones contain a wide array of functions and applications. Wider audiences can now afford digital technology, and gain unlimited access to online media platforms.

Benjamin also writes, “Just as lithography virtually implied the illustrated newspaper, so did photography foreshadow the sound film. The technical reproduction of sound was tackled at the end of the last century.”³ Just as lithography “virtually implied the illustrated newspaper,” photography and film led to the development of digital media imagery and video. When the internet arrived, information started being distributed much more quickly and in larger volumes. Internet sites employ components of image, video, and text to tell stories and communicate internationally. To bridge the connection between analog printing and the internet, one can consider internet pages as “reproductions” on countless users’ screens. Internet pages start out as original creations that are then “published” online, released into the public eye and viewed by users in many locations.

Print media still exists but continues to decline as online platforms routinely present new ways of accessing and sharing information. Printed magazines were once a primary medium for people to engage in media culture and access visual imagery. Today, the function of those magazines has been superseded by new forms of internet platforms and social media applications. In a *New York Times* article titled, *The Not-So-Glossy Future of Magazines*, M. Scott Brauer writes that “Magazines have sputtered for years, their monopoly on readers and

³ *Ibid.*

advertising erased by Facebook, Google and more nimble online competitors.”⁴ An example used in the article is *Time Inc.*, the American mass media corporation founded in 1922. The revenue of *Time Inc.* has been declining since 2011 and the company is transitioning to a model focused on distribution of digital media. Time has also realized that digital forms of distributing information are more popular and profitable than print media.

Apple News is an example of a digital platform most magazine companies now use to distribute media and reach wider audiences. “‘We wanted News to be the place where you read all the stories from your favorite publications,’ Eddy Cue, Apple's senior vice president of Internet software and services, said at the Worldwide Developers Conference keynote”⁵ in 2016. Today, the Apple News application on the iPhone includes over 2,000 publications and is read by 60 million monthly readers, according to Cue. Meanwhile, *Statista* released results from a study that concluded, “Magazine retail sales have dropped from about 103 million in the end of 2014 to about 75 million by the end of 2016.”⁶ Print magazines still exist, but their popularity is declining as online platforms present new and more accessible ways of sharing information.

Many authors provide research findings that help explain the frequent enhancement of technology and the nature of its evolution. Media critics Jay David Bolter and Richard Grusin, in Remediation: Understanding New Media, split the concept of remediation into two subcategories that are separate, yet rely on each other: immediation and hypermediation, in order to explain human development of technologies. Remediation is the term Bolter and Grusin employ to

⁴ Ember, Sydney, and Michael. “The Not-So-Glossy Future of Magazines.” *The New York Times*, The New York Times, 23 Sept. 2017, www.nytimes.com/2017/09/23/business/media/the-not-so-glossy-future-of-magazines.html.

⁵ Silverberg, David. “Inside IOS 10: Apple Makes News App More Accessible & Better Organized, Adds Alerts.” *Apple News and Rumors since 1997*, AppleInsider, 14 June 2016, www.appleinsider.com/articles/16/06/14/inside-ios-10-apple-makes-news-app-more-accessible-better-organized-add-s-alerts.

⁶ Fuller, Steve. “Topic: Magazine Industry.” *Statista*, www.statista.com/topics/1265/magazines/.

describe society's tendency to replace old forms of media or electrical gadgets with new, "advanced" functions. The critics argue that society is constantly finding pleasure in remediation, searching for new ways to advance existing technology.

A common technology innovation is the erasure of the medium itself--making the content or experience of a device as realistic as possible. This is the concept of immediation. Bolter and Grusin declared that, "the logic of immediacy dictates that the medium should disappear and leave us in the presence of the thing represented."⁷ Many digital technologies strive to become as immersive as possible, and immediate the experience of a screen. Virtual reality devices are meant to immedate by creating a fantasy world for users. Hypermediacy, on the other hand, is the appeal of making the user of a device more aware of a medium through another medium. An example of hypermediation is the creation of tabs or multiple screens on internet applications, making the user aware that their experience is facilitated by the technology at hand.

Hypermediacy and immediacy are actively intertwined in the era of digital technology. The concept of immediation supports the trend of immersive technology, and assumes that humans naturally desire virtual realities. Virtual reality devices such as the Oculus Rift are not the only inventions that strive to immedate. The iPhone, while providing a tactile experience where the user is aware of the screen, is meant to have an immersive quality where users forget their outside surroundings. On a smaller scale within the digital medium, elements such as embedded videos and moving digital images capture the human eye and create mental escape into the virtual world. The iPhone also hypermediates with its user interface design, which brings content to the user through pages and notifications that "pop up" and create a multiplace of

⁷ Bolter, Jay David, and Richard Grusin. *Remediation: Understanding New Media*. MIT Press, 2003.

screens. The user interface design of a smartphone demands attention through hypermediation, constantly stimulating the user without dissolving users' awareness that they are using a device.

Digital technologies have redefined existing technologies with the emergence of new forms such as computer applications and virtual worlds. In his book titled The Language of New Media, Lev Manovich defines "new media objects," a term he uses to describe

"cultural objects; thus, any new media object--whether a Web site, computer game, or digital image--can be said to represent, as well as help construct, some outside referent: a physically existing object, historical information presented in other documents, a system of categories currently employed by culture as a whole or by particular social groups."⁸

Manovich proposes that representation of "outside referents" in new media is more abundant than ever before. This abundant representation refers to the increasing scope of materials one can view and experience online. Outside referents are limitless and will continue to grow in volume as the internet compiles more and more information each day. An online article for *Entrepreneur* by Miriam Rivera discusses how Google has changed the world. The search engine took the "vision of putting information in the hands of the general public and put it on steroids, creating a virtual library akin to those found only in sci-fi movies in 1998."⁹ Once reliant on libraries and physical archives, humans now have virtual resources. "New media objects" have become boundless due to the internet's public reach. These new media objects expand faster than any one human can possibly absorb. Humans are constantly shaping and participating in digital culture, foreshadowing the continuous use of digital mediums into the future.

⁸ Manovich, Lev. *The Language of New Media*. MIT Press, 2010.

Page, Ruth, et al. *Researching Language and Social Media A Student Guide*. Taylor and Francis, 2014. Pages 10-43.

⁹ Rivera, Miriam. "How Google Has Changed the World." *Entrepreneur*, Entrepreneur, 29 Sept. 2016, www.entrepreneur.com/article/283085.

3. Analysis of Key Features and UX Design of Digital Media

The smartphone is a sophisticated computer that promotes multitasking. It functions as a combination of all of its analog predecessors, allowing users to not only read personal messages but also access an abundance of visual content and writing online. The success of digital technologies such as the smartphone in providing many functions and presenting information results from leveraging user experience and user interface design. User experience (UX) design is focused on enhancing user satisfaction with a product, and has been adapted by companies as core to enhancing digital technologies. The engineering of digital interfaces is known as user interface (UI) design. User experience design and user interface design can be combined to make digital technology as intuitive as possible.

Ann Quito, a designer and founding director of Design Lab, wrote an editorial for *Quartz* about internet addiction due to “dark UX,” a facet of user interface design which may lead to social problems. Dark UX refers to any deliberate design tactic that provides an experience that does not benefit users or put their needs first. To contextualize the drastic effects of dark UX, Quito quotes the U.S. National Institute of Health:

“Internet addiction is associated with poor health and obesity, social isolation and even brain damage, and the U.S. National Institutes of Health classifies internet addiction as a social disorder that causes “neurological complications, psychological disturbances, and social problems.”¹⁰

¹⁰ Quito, Anne. “Designers Are Using ‘Dark UX’ to Turn You into a Sleep-Deprived Internet Addict.” *Quartz*, Quartz, 24 Aug. 2017, qz.com/1058674/facebook-news-feed-design-and-dark-ux-are-turning-us-into-sleep-deprived-internet-addicts/.

Anyone who has binged on Netflix or has struggled to walk somewhere without looking at their phone is affected by internet addiction to some degree. The results of this study are particularly alarming because many technology companies are designing internet interfaces to fixate users and benefit monetarily. The prevalence of internet addiction points directly at various UX design tactics that effectively intoxicate its users. The next portion of the paper discusses some of the specific procedures within the field of UX that draw in and guide users.

Quito argues that design is a “crucial element in making websites and apps more addictive,”¹¹ presenting the results from professors Ofir Turel and Atoine Bechara in their 2016 neurological study comparing Facebook addiction to cocaine addiction. Turel and Bachara call the Facebook homepage, or News Feed, a “slot machine for the brain.” The success of applications such as Facebook relies on the simplicity and immersive designs of the interface. Internet platforms are designed to capture viewer attention just as casino games are, making it harder and harder for users to exit. Turel and Bachara explained to *Quartz*, “When the interaction is smooth and requires no thought or difficult-to-remember steps, the behavior will more likely and easily become automated and rewarding.”¹² As the interface designs for digital media become simpler, the amount of content available increases correspondingly. This dichotomy ultimately can sabotage human focus and results in digital media maintaining power over the attention economy and its consumers.

¹¹ Quito, Anne. “Designers Are Using ‘Dark UX’ to Turn You into a Sleep-Deprived Internet Addict.” *Quartz*, Quartz, 24 Aug. 2017, qz.com/1058674/facebook-news-feed-design-and-dark-ux-are-turning-us-into-sleep-deprived-internet-addicts/.

¹² *Ibid.*

David C. Evans, in his book titled Bottlenecks: Aligning UX Design with User Psychology, speaks to the psychological dimensions of attention, memory, and social influence that determine whether or not users will be receptive to a product. Evans' book provides psychology-based strategies that could potentially be used to perpetuate online distractions. Analyzing the methods and thought processes of UX designers helps explain how digital interfaces are used to achieve product success while damaging users' attention spans. Evans mentions psychologists David Green and John Swets, who coined the "signal detection theory." The signal detection theory hypothesizes that we constantly adjust our to attend to certain information and ignore other information based on an algorithm.¹³

In the digital age, many people's minds have been trained to filter out certain types of matter while honing in on other matter. For example, most people want to check their main email inbox and ignore the "spam" folder. Going online always presents certain risks, such as coming across unwanted content in pursuit of information. Mixing "good memes," or material that people want to view, with "bad memes" still attracts users because they are willing to risk exposure to unwanted content if it means achieving their online goal. An example of a "bad meme" would be an advertisement for a product that a user isn't interested in. Creators of interfaces strategically incorporate distracting material such as advertisements into other content, knowing that users will continue to access the platform regardless. This allows the product or platform to drive profit.

Another key aspect of digital UX design is the ability of designers to create interfaces that are comfortable to use or instinctive to users. One way interfaces are more intuitive to users

¹³ Evans, David C. *Bottlenecks: Aligning UX Design with User Psychology*. Apress, 2017.

is through the imitation of previous mediums. The interfaces of digital mediums are representations of older mediums, but transcend their print predecessors and rewire the relationships between humans and media. Manovich recalls the representation of these older mediums in new ones:

“The World Wide Web of the 1990s foregrounded the page as a basic unit of data organization (regardless of which media types it contained), while Acrobat software applied the metaphor of ‘video playback’ to text-based documents.”¹⁴

Webpages are essentially designed to look like printed magazines and other prior forms of media. The UX design of the smartphone, however, brings even more emphasis to visual imagery and multitasking than older mediums. Social media applications in particular provide image-saturated experiences and become more popular for doing so. For example, Instagram has grown exponentially in worldwide users, expanding from one hundred million users in February 2013 to one billion users in June 2018.¹⁵ Print mediums such as magazines provide one activity: to read articles and look at visual content. Smartphones allow users to do this while also providing the option to switch fluidly between platforms with other functions, keeping each one open simultaneously. This is multitasking in the digital age: weaving in and out of different applications rapidly.

Covering the scope of different social media attributes is often elusive, but the term refers to a specific type of internet platform. Researching Language and Social Media provides a guide to scholarly analysis of social media, discussing topics such as Internet research ethics and

¹⁴ Manovich, Lev. *The Language of New Media*. MIT Press, 2010.

Page, Ruth, et al. *Researching Language and Social Media A Student Guide*. Taylor and Francis, 2014. Pages 10-43.

¹⁵ “Instagram: Active Users 2018.” *Statista*, www.statista.com/statistics/253577/number-of-monthly-active-instagram-users/.

linguistics. Generally, social media refers to “the range of tools and technologies that began to be developed in the latter years of the 1990s and became sites of mainstream internet activities in the first decade of the twenty-first century.”¹⁶ The earliest known social media platform is the 1978 Bulletin Board System. Ward Christensen and Randy Seuss, two men from Chicago, launched what would eventually spiral into the World Wide Web: the first public dial-up bulletin board system which served as a digital meeting space. Today, social media includes vast networks such as Twitter, Snapchat, and Reddit. Twitter is an example of a site, albeit advanced in aesthetic and capabilities, that still resembles certain features of the bulletin board system.¹⁷ For example, one can “pin” tweets to their profile, and tweets are essentially posts to the public eye. Unlike the first bulletin board system, most social media platforms allow users to upload images.

The addition of moving images to historically static forms of media has revolutionized the ways people communicate and interact with one another online. Online articles are accompanied by graphic design and moving parts such as videos and GIFs. Fernando Alfonso, a writer for *The Daily Dot*, covered a history of GIFs, which refer to “looped sequences made from video captures of movies or TV shows, distributed in blogs, [but] not integrated into the page design surrounding it.”¹⁸ The first GIF dates back to 1987--half a decade before the World Wide Web skyrocketed (Limer).¹⁹ GIFs last only a few seconds and are muted. Many blog posts, articles, and social media posts on the internet include GIFs to convey emotions, humor, or ideas.

¹⁶ Page, Ruth. *Researching Language and Social Media: a Student Guide*. Routledge, 2014.

¹⁷ Gilbertson, Scott. “Feb. 16, 1978: Bulletin Board Goes Electronic.” *Wired*, Conde Nast, 14 Jan. 2018, www.wired.com/2010/02/0216cbbs-first-bbs-bulletin-board/.

¹⁸ III, Fernando Alfonso. “The Animated History of How the GIF Came to Be.” *The Daily Dot*, 15 June 2017, www.dailydot.com/upstream/gif-history-steve-wilhite-olia-lialina-interview/.

¹⁹ Limer, Eric. “Why After 30 Years, the GIF Is Still Unkillable.” *Popular Mechanics*, Popular Mechanics, 27 Mar. 2018, www.popularmechanics.com/technology/a21457/the-gif-is-dead-long-live-the-gif/.

GIFs have become a common way of interacting with others on digital interfaces. The GIF is meant to enhance internet users' experiences by making text content more visual. Sometimes standing alone as a message itself, GIFs signify shared meanings and feelings between users.

The discussion above illustrates how advances in UX/UI design are a root of internet addiction. User interfaces are perpetually advancing the visual aesthetic of online platforms and creating cultural shifts in the digital sphere. Mainstream digital media employs visual components that strongly influence human mind. Of course, continued advances in technology will result in even more attractive ways for us to absorb information online. This obsession with our online lives, however, can have negative impacts on how each of us functions and thrives in the world. The next section discusses the information overload that results from our dependence on digital media interfaces.

4. Information Overload

It is easy to become overwhelmed by the amount of information available digitally. There are ongoing tasks that one can complete online, putting pressure on people to learn, absorb, and see as much as as possible. While it can be beneficial to have easy access to worldwide information, this is simultaneously distracting, causing individuals to spend less quality time on one task or one set of information. Walter Benjamin, in the discussion of analog reproduction, states, "Making many reproductions substitute a plurality of copies for a unique existence" (Benjamin 221). While Benjamin's writing referred mostly to reproducing works of art, a very similar phenomenon can be observed in present-day digital media. Just as Benjamin theorizes

that mass reproductions sacrifice “unique existence” of art, the mass reproductions of digital media can sacrifice the unique experience of processing information in-depth.

Media is more international than ever, connecting many diverse users and providing a vast expanse of visual content. Some platforms have been remediated to gain popularity through offering a larger range of content categories. Apple News, while a useful tool to give people live coverage of global events, can lead individuals to slice up their time and attention on multiple topics. Introduced earlier in this essay are Lev Manovich’s theories of new media objects, which he says construct “a system of categories currently employed by culture as a whole or by particular social groups.”²⁰ The Apple News application is the spitting image of such a “system of categories,” providing international news and highlighting topics that large groups of people are interested in. Apple’s platform packs many different channels into one application, from *National Geographic* to *CNN*. Within these channels are countless topics that present enough information for users to stay on the platform for countless hours.

As a result of the abundance of information online, more people are reading headlines instead of reading articles thoroughly. Farhad Manjoo, a writer for the online magazine *Slate* turned to data analytics to investigate the number of people reading articles to conclusion.

Manjoo writes,

“I asked Josh Schwartz, a data scientist at the traffic analysis firm Chartbeat, to look at how people scroll through *Slate* articles...Schwartz’s data shows that readers can’t stay focused. The more I type, the more of you tune out. And it’s not just me. It’s not just

²⁰ Manovich, Lev. *The Language of New Media*. MIT Press, 2010.

Page, Ruth, et al. *Researching Language and Social Media A Student Guide*. Taylor and Francis, 2014. Pages 10-43.

Slate. It's everywhere online. When people land on a story, they very rarely make it all the way down the page. A lot of people don't even make it halfway."²¹

Chartbeat's findings that people do not read articles start to finish calls attention to the habits that readers are forming online. Before the internet, individuals had less selection of media that they could access at one time due to the physicality of print mediums. On the internet, however, users have an overwhelming amount of applications and information available to them. They tend to spend less time thinking about whether sources are credible, and by moving from topic to topic they may miss the opportunity to focus on one topic and learn that topic thoroughly.

The Social Factor, a business that specializes in helping brands acquire more social media engagement, released an online article titled "Marketing to Millennials." Discussing the average attention span of millennials, the article talks about the specific strategies that their business uses to help clients target younger internet users.

"The millennial generation has been inadvertently trained to digest an extremely high frequency of information, but the volume of the information must be condensed. With platforms like Twitter that limit the character count, your average 20-something is used to getting information quickly and to the point."²²

The Social Factor's work capitalizes on millennial tendencies to look at large volumes of information in one sitting. However, the media company proposes an important observation: millennials lose interest if the information they are viewing is not concise. This is apparent in the design and objectives of many social media applications. Most contemporary media platforms do not aim to keep users interested in one page or one topic for long lengths of time. Instead, social

²¹ Manjoo, Farhad. "You Won't Finish This Article." *Slate Magazine*, Slate, 6 June 2013, slate.com/technology/2013/06/how-people-read-online-why-you-wont-finish-this-article.html.

²² "Marketing to Millennials | Social Factor." *Social Factor Marketing to Millennials Comments*, socialfactor.com/marketing-millennials.

media platforms present many different selections of information, encouraging users to browse and optimally become dependent on the platform.

Information overload is transforming our daily routines across the world. As we pay more attention to the expanse of the digital world, we inevitably sacrifice focus on other priorities and quality face to face human interaction. The next section of this paper discusses the concept of the attention economy in relation to the abundance of digital content. Despite the many benefits of internet capabilities, such as more widespread accessibility to education, it is important to delve deeper into the risks and repercussions of our ever increasing use of digital media.

5. The Attention Economy

Readings on the transformation of the attention economy in the digital age provide helpful context on the detrimental effects of the internet on focus. Many media researchers and analysts have described features of the digital attention economy and its impact on how society absorbs and shares information. Smartphones have become a dominant medium for communication, and therefore individuals are learning to process information differently from prior generations. This portion of the paper discusses the value of attention and highlights the ways that digital technologies are directing our attention.

Matthew Crawford, in his book titled The World Beyond Your Head, describes attention as a resource that is limited and valuable in a capitalist society. Crawford explains why it is important to analyze patterns of human attention in the digital age: “Attention is the thing that is most one’s own: in the normal course of things, we choose what to pay attention to, and in a very

real sense this determines what is real for us; what is actually present to our consciousness.”²³

All changes in society flow from the decisions that humans make with their time and effort.

Acknowledging the value of attention provides the framework for the argument that we should be more aware of what we focus on while using digital technology.

Claudio Celis Bueno, author of *The Attention Economy: Labour, Time and Power in Cognitive Capitalism*, uses the term “attention economy” to portray the development of attention through the concepts of value, labor, and time. He writes,

“Inventions such as the Internet, e-mail, databases, digital television, social media, and so on, together with the radical informatization of the process of production of commodities have created both an abundance of information and a demand for new forms of organizing and allocating attention.”²⁴

I am particularly interested in the point Celis Bueno makes about “new forms of organizing and allocating attention” in relation to social media usage. It can be all-consuming to access a plethora of resources and visual content online. The multiverse of the online world has been utilized by individuals and big corporations alike to promote ideas, products, and stories. The visibility of advertisements on the internet can divert the attention of users. Crawford argues that “we find ourselves the objects of attention-getting techniques that are not only pervasive, but increasingly well targeted,”²⁵ creating a need for each of us to find ways to consciously minimize unwanted distractions. Large and small corporations alike have exploited the magnetic pull of digital mediums. When individuals give their attention to advertisements and branding,

²³ Crawford, Matthew B. *The World beyond Your Head: How to Flourish in an Age of Distraction*. Penguin Books, 2016. Pages 1-40.

²⁴ Bueno, Claudio Celis. *The Attention Economy: Labour, Time and Power in Cognitive Capitalism*. Rowman & Littlefield International, 2017. Pages 10-150.

²⁵ Crawford, Matthew B. *The World beyond Your Head: How to Flourish in an Age of Distraction*. Penguin Books, 2016. Pages 1-40.

intentionally or unintentionally, they become a part of a digital labor force. By viewing and interacting with content, one is giving power and authority to the platform that released it.

New strategies are being used by technology companies to obtain more control over the attention economy. An article by *Vox* reveals the hidden manipulation techniques that are keeping technology users, especially youth, addicted. Chavie Lieber writes,

“Big tech now employs mental health experts to use persuasive technology, a new field of research that looks at how computers can change the way humans think and act. This technique, also known as persuasive design, is built into thousands of games and apps, and companies like Twitter, Facebook, Snapchat, Amazon, Apple, and Microsoft rely on it to encourage specific human behavior starting from a very young age.”²⁶

Persuasive design uses psychology to influence and change attitudes or behaviors of product users. This is particularly beneficial for addictive social media applications, where UX/UI designers can determine exactly what features get users to pay more attention to their product. Technology companies have access to data surrounding technology usage, patterns, and trends, which enables them to craft new strategies that attract audiences in increasing numbers. Users are, for the most part, unaware of how their data will be used in persuasive design studies. There is also a lack of awareness about the digital distractions designed with persuasive psychology to trap our attention.

The user interfaces of applications are constantly being updated based on ways to make the product not only more intuitive, but more addictive. Lieber compares the claims of persuasive technology with the concerns of users:

²⁶ Lieber, Chavie. “Psychologists Are Speaking out against Tech Companies That Use Psychology to Lure Kids in.” *Vox.com*, Vox Media, 8 Aug. 2018, www.vox.com/2018/8/8/17664580/persuasive-technology-psychology.

“While defenders of persuasive tech will say it can have positive effects, like training people to take medicine on time or develop weight loss habits, some health professionals believe children’s behaviors are being exploited in the name of the tech world’s profit.”²⁷

By analyzing how and where users dedicate their attention, technology companies have the power to influence the attention economy and control how people occupy their time. The field of persuasive technology is endangering the privacy of individuals’ personal information and commoditizing human data. It raises the question of whether or not youth should have more security online and reveals the failure of the current attention economy to adequately protect consumers.

The Nadja Ghausi, the Vice President of Marketing for a technology company known as Prezi, wrote an article for *Entrepreneur* that challenged the theory that human attention spans are shrinking. Instead, Ghausi argues that human attention spans are evolving to be more attracted to certain types of tasks, entertainment, and content. Ghausi writes,

“Multitasking millennials seem to struggle the most with distraction, compared to business professionals from other generational groups in the workforce. The *State of Attention* study found that more millennial professionals have had to watch, read or listen to something again due to dividing their focus between two pieces of content.”²⁸

On top of struggling to stay focused on one task at a time, the same study revealed that millennials also have difficulty retaining the content they attempted to absorb while their attention is divided. A leading cause of this, Ghausi suggests, is that visual storytelling has been the driving force in millennials’ lives, and millennials are becoming “downright conditioned to use visually intensive social media apps like Instagram and Snapchat as their go-to

²⁷ *Ibid.*

²⁸ Ghausi, Nadja. “Sorry, Goldfish: People's Attention Spans Aren't Shrinking, They're Evolving.” *Entrepreneur*, Entrepreneur, 19 Oct. 2018, www.entrepreneur.com/article/321266.

communication tools.”²⁹ These “visually intensive” platforms are programming users to be more inclined to pay attention to images over text, and have created a tendency of users to skim material. More attention is being given to the digital media that is short in length, easily accessible, and full of visuals. Brands are paying attention to the usefulness of visual storytelling in attracting millennials and have devised new marketing strategies accordingly.

Analyzing the effects of digital media on our attention spans underscores the need for more conscious technology consumption. The previous sections of this paper have provided an overview of the evolution of digital mediums and the addictive qualities that jeopardize our ability to focus and absorb or analyze information effectively. In the next section, this paper discusses the mindful procedures that we can adopt in order to minimize negative effects on our concentration skills, and increase the quality of our digital interactions.

6. Becoming More Mindful About Digital Technology

Digital media will inevitably continue to be a huge part of our daily lives, impacting how we interact and share information as a society. Smartphone applications function as the most useful platforms for personal and commercial opportunities across the globe. However, individuals need to make a conscious effort to be more responsible or mindful about their consumption of digital media. By minimizing multitasking and overall time spent online, individuals will gain a stronger ability to internalize content more in-depth and have more time and focus for singular topics. This can also result in better focus or presence in situations

²⁹ Ibid.

unrelated to the use of digital technology. As discussed below, there are a number of mindful practices that individuals can carry out when using digital technology.

In Bottlenecks: Aligning UX Design with User Psychology, David C. Evans predicts that there will never be a total abandonment of digital media. There are many benefits of the internet despite its intentionally addictive nature. Many online resources are creating positive societal changes that should not be overlooked--for example, more people have access to educational tools. Evans writes,

“the surest way to shield our working memory was simply to ignore all digital media; just turn away, turn off, and log out. We could abandon any effort to distinguish between good and bad memes and just decide they’re all bad. But the cost of doing this would have been missing out and failing to take advantage of the internet to achieve our goals. Some sort of balance was much more reasonable.”³⁰

Rather than concluding that the internet inherently corrupts our minds, we should strive to “take advantage of the internet” in achieving their goals as Evans argues. Taking advantage of digital technologies, rather than condemning them completely, is a pragmatic approach to a more sound relationship with technology.

In November 2017, Chamath Palihapitya, former president for user growth at Facebook, advised the public against frequent use of social media applications. Palihapitya expressed tremendous guilt for helping Facebook acquire over two billion users during his time at the company. *BBC News* quoted Palihapitya from a talk at an event run by the Stanford Graduate School of Business: “‘We have created tools that are ripping apart the social fabric of how society works,’ he told the audience. He advised people take a ‘hard break’ from social media,

³⁰ Evans, David C. *Bottlenecks: Aligning UX Design with User Psychology*. Apress, 2017.

describing its effect as ‘short-term, dopamine-driven feedback loops.’³¹ The former Facebook employee exposed the profitable technology company as a source of disruption in our communities, and warned about social media addiction. As technology companies leading social media continue to grow their profits and power to influence society, it is important to be proactive about taking “hard breaks” from social media as Palihapitya suggests.

Due to societal pressures and other factors, many have a difficult time deleting their social media long-term or getting rid of their technologies entirely. Ravi Chandra, in an article titled “How to Use Social Media Mindfully and Wisely” for *Mindful*, encourages people to take healthy, intermittent breaks if they cannot give up social media permanently. Chandra mentions the findings of researcher Morten Tromholt of Denmark, who discovered:

“after taking a one-week break from Facebook, people had higher life satisfaction and positive emotions compared to people who stayed connected. The effect was especially pronounced for ‘heavy Facebook users, passive Facebook users, and users who tend to envy others on Facebook.’³²

It can be a powerful practice to take intermittent breaks from the digital world, whether it is a social media application or a virtual game that is especially addictive. Whether it is a few days, a week, or a whole month, reducing digital media intake is key to better mental health and a better-functioning attention span. An action as simple as temporarily deleting the Facebook application for iPhone can help reclaim significant time throughout the day. Deleting the Facebook application might make it more apparent to users that the time they spend on the

³¹ Sini, Rozina. “‘You Are Being Programmed,’ Former Facebook Executive Warns.” *BBC News*, BBC, 12 Dec. 2017, www.bbc.com/news/blogs-trending-42322746.

³² Chandra, Ravi. “How to Use Social Media Wisely and Mindfully.” *Mindful*, Mindful, 22 Aug. 2018, www.mindful.org/use-social-media-wisely-mindfully/.

application regularly takes time away from other priorities. It can bring a sense of liberation for users as they find other ways to spend free time and minimize distractions on a daily basis.

Author and journalist Daniel Sieberg coins the term “digital diet” in his analysis of how to stop digital addiction. In an article for *The Washington Post*, Sieberg discusses his own struggle with digital distractions and the areas of his life that were neglected as a result. Sieberg writes about four steps to “I say it is time to make peace with all our gadgets and fold them into our lives more effectively. We need a strategy that that puts us back in control, rather than letting technology overwhelm us.”³³ Step one that Sieberg mentions is to “Rethink,” which prompts technology users to reflect on the leisure time that they spend on their devices for entertainment and imagine what could be accomplished instead. Sieberg speaks to the argument this paper mentioned earlier about multitasking online:

“Even multitasking — the preferred excuse of the gadget-obsessed — isn’t all it’s cracked up to be. A study published in the journal *Science* in April 2010 found that performing multiple simultaneous tasks leaves the brain somewhat baffled (the phrase “jack of all trades and master of none” comes to mind), while a 2009 Stanford University study found that massive multitaskers are easily distracted and have a hard time sorting out irrelevant information.”³⁴

While reflecting on digital technology usage, one should be particularly attentive to the urge to multitask. Constant multitasking is an unfocused state of mind that hinders tangible productivity and concentration.

Multitasking also poses a potential threat to the security and integrity of information. In our frenzy to read something and move onto the next topic, there is less contemplation about the

³³ Sieberg, Daniel. “The Digital Diet: How to Break Free of Your Smartphone and Other Gadgets.” *The Washington Post*, WP Company, 27 May 2011, www.washingtonpost.com/opinions/the-digital-diet-how-to-break-free-of-your-blackberry-smartphone-and-other-gadgets/2011/05/16/AGJy8nCH_story.html?noredirect=on&utm_term=.6053d4737846.

³⁴ *Ibid.*

source and trustability of the material. Social media and the general accessibility of the internet make it possible for people to post fallacies, whether or not they intend to. This in turn can surface ethical concerns because the quality of information that we consume shapes our permanent ideologies. Exposure to information that is incorrect or dishonest puts users at risk as they tend to share it or use it, believing it to be true. When a user takes the time to inspect a source of information and think about it more methodically, the problem can be greatly reduced or eliminated. Mindfulness online includes the conscious effort to slow down and investigate the information presented to us.

Another one of Spielberg's suggestions is to write down boundaries for technology usage and set limits on when people can expect to hear from you via smartphone. Writing down these rules will make it easier to follow through and create visible reminders of your goal. Putting the written reminders somewhere visible on a regular basis is also helpful. For example, if one tends to be glued to a smartphone at breakfast, a note should be posted somewhere in the kitchen. Spielberg recommends several online sites and applications that help to manage internet time more effectively: "There's the Web 2.0 Suicide Machine, which assists in eliminating your various social network profiles. The management software RescueTime breaks down where all those computer minutes go and helps limit your time online."³⁵ RescueTime is created for laptops and desktop computers. It is focused on helping people find more balance in their lives and has many free features such as reports on how time is spent online. It even sets alerts to let the user know when she has spent a certain amount of time on an activity or site, subverting the usual function of alerts to entice users to become more distracted. Users of RescueTime also

³⁵ *Ibid.*

have the option of logging their accomplishments in order to make sure that they stay on task online.

Users must go out of their way to make use of the resources that digital technologies offer to keep track of usage. Technology companies are being forced to confront the ethical concerns that many users and critics have expressed about their devices or media platforms. As a result, many digital technologies have tools to encourage users to understand the risks of their behavior online. For example, the latest Apple iPhone iOS (Apple's patented operating system), offers the ability to show users how much time they spend on particular applications. However, many people might be unaware of this capability, since it is somewhat hidden under the "Settings" application. From Settings, users need to go to "Battery" and then continue to click on the small clock icon.³⁶ Apple has provided an obscured tool to help users manage their time online, which is perhaps better than nothing. In the end, such a tool works against the profitability of Apple's product, and its inclusion seems like an afterthought. Such capabilities may improve in the future, but for now users should track and reflect on their iPhone usage often. It can even be helpful to check iPhone usage weekly, as there is a "Last 7 Days" function. There are 168 hours in a week. Each of us has the power to decide how much of this time is spent perusing on the iPhone or other smartphone.

Another popular topic in the digital age is the importance of silence as a mindful practice. Nowadays, silence can almost exclusively be found in moments one takes to shut off their phone. This silence occurs when one goes on a hike, meditates, or even drives home from work. Silence

³⁶ Guarino, Sarah. "iOS 7 How-to: Monitor & Track Your Cellular Data Usage." *9to5Mac*, 9to5Mac, 25 Sept. 2013, 9to5mac.com/2013/09/25/ios-7-how-to-monitor-track-your-cellular-data-usage/.

combats the crisis of attention in the digital age by allowing trains of thought to flow naturally without the influence of technology. Often times, individuals fill moments that were once silent with time on their cell phones. Observing others on a public bus or in a cafe, one may see that their surroundings are inhabited by people partaking in screen time. Matthew Crawford argues that individuals need to claim more moments of silence in The World Beyond Your Head:

“The benefits of silence are off the books. They are not measured directly by any econometric instrument such as gross domestic product, yet the availability of silence surely contributes to creativity and innovation...one consumes a great deal of silence in the course of becoming educated.”³⁷

Crawford’s discussion of the role of silence does not only refer to the noise heard by the human ear. Instead, silence refers to uninterrupted focus on one task, one place, or one activity at a time. Digital technology creates a constant noise that begs for attention and often distracts individuals away from their priorities. Consuming “silence in the course of becoming educated” is crucial for individuals to learn effectively. Completing work tasks, school assignments, and other priorities without disturbances in the digital age can be challenging, but can be more easily achieved with physical separation devices.

Minimizing the temptation to multitask online is difficult, and will continue to challenge societies that are deeply integrated with digital technologies. The suggestions and insights presented above are only an initial look into the ways that technology users can combat the loss of attention on digital interfaces. UX designs will continue to actively function to control our attention although also providing many convenient and helpful features. The advantages of

³⁷ Crawford, Matthew B. *The World beyond Your Head: How to Flourish in an Age of Distraction*. Penguin Books, 2016. Pages 1-40.

seeking out more mindful practices in our personal lives are vast and this paper encourages all readers to continue the search for more focus in the digital age.

8. Visual Project Brief & Process

My visual project is a digital zine that emphasizes and subverts the elements of digital platforms that are specifically damaging to users' patterns of behavior. Original artwork and text components about my thesis topic make up the content of the zine. The zine is created using similar techniques and strategies many media companies and publications use to make their content more digestible and addictive. In particular, I incorporate moving images and GIF to mimic distracting advertisements that we encounter often on the internet. I also created illustrations about the digital age that are consistent in style and aesthetic. In addition, I have incorporated editorial-style articles written based on this thesis paper in the zine. These elements are included to highlight the ways that digital platforms can be both entertaining but also distracting to individuals. In the gallery, the zine is shown on digital tablets for interactive viewing. I also created two 18 x 24 posters to serve as the backdrop for my project, explaining its purpose and background.

The interactive art exhibit is my inspiration, allowing my audience to touch, feel, and experience the zine on a digital screen. My intention for this project, while it is critical of the digital age, is not to dismiss digital platforms for their amazing capabilities. Instead, I want to encourage gallery viewers to be more alert about their technology usage and the types of online habits that have detrimental effects on humans. Hopefully, viewers will contemplate the effects of digital technology in their own lives and reflect on how to take more responsibility with

internet use. The gallery installation of the zine also takes the body of work offline, minimizing distractions for users. Since the ipads do not belong to gallery viewers, and because of assumed gallery etiquette, they are forced to give this creative project their undivided attention without switching to other platforms. My goal is for gallery viewers to read the articles and look at content while forgetting about their own devices momentarily.

The zine visuals for this project are created digitally using Photoshop or Illustrator, and the pages themselves are constructed with InDesign. I have studied the ways in which magazines such as *Vogue*, *National Geographic*, and *The New Yorker* have maintained their presence online and on applications in order to create my own digital experience. My choice to make a zine stems from the history of zines as self-published works that actively challenge mainstream culture. The first zines typically embodied handmade aesthetic and alternative style, and I wanted to feature this in my own work. Early zines were entirely analogue, often combining forms of printmaking, hand-illustration, and collage to create spreads. My homage to these roots of zine-making was my use of digital programs to create handmade aesthetics. Some of my fonts are more “digital looking,” while others look like typewriter prints across paper.

My peers, family members, and professors have helped me greatly with the development of my project. My original idea differed from the final idea as I did more research and began producing my creative project. Initially I wanted to explore the decline of print, specifically arguing that people need to return to print mediums in order to preserve more focus and attention. As I did more research, I came to the conclusion that it is unrealistic for society to return completely to print mediums, given the many benefits of digital technology. I decided that I would center my thesis topic around the mindful practices one can utilize in conjunction with

technology use. Relative to the discussion of the negative effects of digital media on our attention spans, I narrowed down the topic identify the specific aspects of user interface design that are responsible for these effects. The idea to bring in user interface design was a suggestion from one of my professors, and helped me to focus the discussion.

Another piece of helpful advice that came from my readers was to create an digital zine instead a print zine next to a digital tablet. Originally, I wanted to have a print zine in the gallery space placed side-by-side a digital tablet. On the tablet, I was planning to display an “Instagram version” of the print zine’s content in order to allow viewers to experience the two different mediums. I wanted to copy the way that magazines and other publications distribute their content on Instagram and online. The problem with this concept was that it suggested that the only solution to the attention crisis is to go back to strictly reading print mediums. The focus would have still been the loss of attention in the digital age, but exhibiting a digital zine by itself provides more specific context on how to manage digital technology use rather than completely eradicating it.

The creative process of the zine has included a series of many drawings, mock-ups, and drafts for articles. My inspiration for style were various publications that have illustrative qualities, such as the famous zine titled *Riot Grrrl*. I start with hand-drawn illustrations, and then re-create and edit them digitally. The biggest challenge I came across was choosing typography styles and learning to animate my graphics using Adobe programs. Luckily, my coursework as a media studies major has helped me immensely with the design process. Taking courses such as Introduction to the Visual Arts, Intermediate Digital Art, and Analogue and Digital Printmaking enable me to feel confident about my ability to plan and execute a strong visual project. In

addition, writing this paper as well as articles for my zine utilized the writing skills I developed at the Claremont colleges in media studies theory and humanities courses.

This project serves as an accumulation of the skills and insights I have gained during my four years at Scripps College. Courses such as Ways of Seeing, Media Art in the 21st Century, and Introduction to Digital Media Studies provided the foundation for my chosen topic and approach towards digital technology. Much of my coursework has revealed how digital technology is affecting societies and creating cultural shifts. I wanted to delve deeper into the concepts from my coursework and suggest solutions for people of all ages who are yearning to use technology in a healthy way. This research has inspired profound changes in my own life and daily habits, and I hope it will do the same for others. I am thankful for all of the help that my peers, professors, and parents have given me on this project and have learned the importance of being open to feedback during the creative process.

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