Digital Dependency:
Understanding the Relationship Between Long-Term Technological Use in the Mental Health of Adolescents

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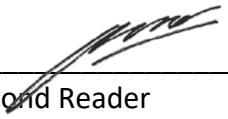
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Abstract

This thesis, “Digital Dependency: Understanding the Relationship Between Long-Term Technological Use in the Mental Health of Adolescents,” focuses on the complex relationship the youth generations have with digital media, and the way it is greatly impacting their everyday life. Often disregarded as a high priority issue within today’s society, the way adolescents depend and rely on technology as a means of entertainment and acceptance, poses a great threat to their development, sense of identity, and ultimately their mental health. This thesis will examine statistical data, as well as extensive research from scholars and experts who have recognized the urgency and severity of this ongoing phenomenon. Through this research, findings have been solidified that social media and technology can negatively impact adolescent development and psychological wellbeing, in various forms. Preventative actions, such as enforcing limitations and restrictions from exposure to this digital media is a priority to protecting today’s youth.

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Introduction

This research thesis "Digital Dependency: Understanding the Relationship Between Long-Term Technological Use in the Mental Health of Adolescents," explores the spectrum of technology's impact on the youth since exposure from a young age. Through analyzing statistical data and trends, visual datasets will be alongside these findings, to better showcase the behavioral impact it has had on Gen Z's mental health, specifically in terms of their emotions, relationships, intellect, and productivity.

The goal of this project was to spread more insight onto this topic that has been often overlooked and has gradually worsened as our world becomes even more reliant on technology. The youngest generations are born in a time where the use of technology is unavoidable and is introduced into their daily lives since their earliest of memories. Technology is becoming a substitution for connecting with nature, making real life connections, and has transitioned the way our world functions. Digital media is now favored over physical and traditional forms, which ultimately has impacted and changed the way children and teenagers are being raised. More distractions, less restrictions, and less socialization are all direct results from the normalization of technology taking control of human lives. This project's focus will shine light on the negative impacts and possibly harmful long-term consequences because of society's technological dependency. This thesis will specifically shine light on "screen addiction," as well as the impact social media has had on the youth generation's mental youth. This thesis will also look deeply into the impact early and consistent exposure to technology has on adolescent's development and behavior, in

addition to their formation and ability to maintain relationships - family, friendships, and romantic.

Some questions this research thesis will aim to answer includes: How does online dating and social media impact the youth's relationships; How does excessive phone usage impact mental health in children and young adults; Has the existence of an unobtainable virtual reality caused increased depression in young adults; How do we go about these issues as technology is becoming more unavoidable for members of society? These questions will be answered through extensive research from peer-reviewed or scholarly articles and journals, diving deep into psychological and behavioral development research conducted through surveys. Statistical data will then be utilized to showcase quantitative data through infographics to aid in displaying the importance of these numerical findings. Visual infographics are an efficient way of translating numerical data into a visual display, helping an audience better understand the information as it relates to the focus of this thesis.

Throughout this thesis project, possible obstacles may include coming across biased resources, as this is a controversial topic with many opposing perspectives. Many people do not believe in recognizing the drawbacks to such reliance on technology from such a young age, as it is easier to prefer the convenience it allows in occupying young children and adolescents. Another obstacle in this research process includes finding a diverse range of information that is entirely relevant, as this is a much newer recognized issue that still has many areas to explore by professionals. While there are many scholarly sources online about this topic, there is still a significant lack of data as long-term research is still currently being

conducted. In the coming years, a wider range of statistical data will used to backup these findings and perspectives, but as this topic is only being considered as a serious concern for the first time, there is a wide range of unfamiliarity and open-ended questions. As these youngest generations who are being impacted are still so young, long-term effects have yet to be determined for the future. Loose predictions of future trends can still be made as there is current statistical data, and our society is only going to become even more technologically dependent.

Growing up in a time where technology has always been present and readily available in their everyday lives, adolescents have been impacted and raised differently than all past generations. The use of shortcuts with technology hinders people's abilities to perform basic tasks, as well as the consistent distraction that mobile phones pose. The mental wellbeing and the behavioral impact technology has had on our society, but especially on those that have only known a world like this, is bound to have vastly different mental health characteristics that must be examined. Is this a healthy turn our society is taking or is it time to put restrictions on technology before it results in a worsened position for adolescents.

The research conducted to expand upon this topic, analyzing the social and psychological impact technology has on young minds. As technology is relatively new and its widespread impacts are continuously being explored, there is a lot oof research on conducted studies to help formulate a strong opinion on this topic. While conducting research, this research paper will expand both positive and negative outlooks of phone usage and social media presence in adolescent lives, considering how it's significant impact on the youth's identity and social

behavior. With the use scholarly journals and articles that explore different aspects of this topic – social media, screen addiction, virtual world, online dating – this paper will further expand and visualize these considerable impacts, so they are no longer ignored. With the creation of infographics, readers may be more inclined to understand the statistical data that is known about young adults and their complete dependency on technology.

Methodology

This research thesis will explore both the positive and negative technological impacts on adolescent lives and mental health due to early exposure and consistent use throughout their lives. Increased dependency on technology has caused concern about the behavioral development in youth generations (Gen Z and Gen Alpha), and the long-term impact of how this will shape the world's future society.

Extensive research has been conducted within the topic of the youth being excessively dependent and reliant on technology as a means of entertainment and forming relationships. In contrast to past generations, this new means of communication through a virtual reality may hinder their mental wellbeing, as well as their ability to form solid connections and relationships. Exposure to the Internet grants children and teenagers' access to an unlimited amount of information, arguably inappropriate or rather harmful to their still developing brains.

Throughout this research thesis, scholarly articles and journals will be used to compile different perspectives, theories, and statistical data collected about the mental toll technology has taken on young adolescents. Due to how vulnerable developing young minds are, it is crucial to dive deeper to examine the ways technology can benefit the youth, and how easily it can impose lifelong negative results. A multitude of scholars will be referenced and used to explore the various subtopics outlined in the research of this thesis – screen addiction, mental health (depression, disorders, etc.), behavioral changes, social media, as well as impacts on the youth's formation of relationships.

The scholarly article "Effects of Excessive Screen Time on Neurodevelopment, Learning, Memory, Mental Health, and Neurodegeneration: A Scoping Review,"[1] authored by Eliana Neophytou et al, will be used to explore the impacts of screen addiction. Screen addiction is a compulsive disorder that relates to the excessive use of technology, most commonly phone usage, relating to addiction to social media, television, playing video games, texting, facetime, etc. The psychological and behavioral impact of screen addiction is explored from a scientific perspective, deep diving into the neurological impact of becoming addicted to technology that is now so prevalent in human's daily lives. The article "Twenty Years of Internet Addiction … *Quo Vadis*?"[2], by P.K. Dalal, explores the historical predictions of screen addiction by various psychiatrists in the 1990s. With the introduction of technology in everyday life starting in the 1990s with the introduction of computers and video games being normalized in average homes, this article explores theories of technology addiction from over 20 years ago, and how it became a reality.

The book *Technology and Youth: Growing Up in a Digital World*[3] by Sampson Lee Blair (et al) will be referenced in exploring the perspective of younger generations growing up in a world dependent on technology. It is near unavoidable in America to grow up without access to technology, whether that is in the form of television, iPads, phones, video games, and more. Sampson explores the topics of cyberbullying and the bystander effect, and the relevancy it continues to have on young children using social media, which lacks censorship and parental controls. Sampson also explores the meaning of self-identity within adolescents, which is also

[1] Neophyou.
[2] P.K. Dalal.
[3] Sampson.

the focus of Katie Davis' scholarly article "Young People's Digital Lives: The Impact of Interpersonal Relationships and Digital Media Use on Adolescents' Sense of Identity."[4] Davis extensively discusses the journey of young adolescents finding their true identity, and how this crucial discovery has been altered significantly with the presence of technology in their everyday lives. Davis explores various theories on self-identity, which this thesis will use to further make distinct connections between technology and developing a true sense of self.

In terms of exploring the significant changes in the way humans are forming relationships, it is crucial to better understand the way relationships are being altered with the presence of virtual realities, online personalities, lack of self-identity, and increased infidelity due to online dating platforms and social media. "Internet Intimacy: Authenticity and Longing in the Relationships of Millennial Yong Adults"[5] by Cristen Dalessandro explores the role digital media plays in the formation of intimate relationships, such as the consequences to online dating and the lack of authenticity it involves.

This field of research pertains to the impact consistent use of technology has on adolescent lives, specifically in terms of behavioral traits, changing societal norms, and the mental wellbeing of the youth generations. Unresolved debates regarding this topic includes:

a) Does technology have a greater benefit or negative impact on adolescent's mental health?

[4] Davis.
[5] Dalessandro.

b) At what point do parents create boundaries with technology in their children's lives?

c) Does early exposure to technology pose a threat to young children's or does it assist with advanced learning?

d) Does the negative impact technology have on adolescent's mental health outshine the positives, causing a major concern on the behavioral development of the youth?

e) Has technology and social media restructured the relationship teenagers have, both in terms of friendships and romance?

f) Has social media resulted in an increase in eating disorders in adolescents? How has technology worsened the severity of this issue, in terms of unrealistic body standards and body dysmorphia with the prevalent use of virtual "filters" to alter young teenager's faces?

Background

The invention of the first telephone first took off in the late 19th century, and it took a significant time for telephones to become widespread enough to be normalized in our average homes. In 1950, studies have shown that only 62% of Americans owned a telephone in their household.[6] People in society still communicated face to face for their means of communication, as there were no emails, instant messaging, phone calls, face timing, or any other various forms of advanced technology. Humans at this point had to rely on physically going to converse with others in person, or by writing letters which took an extended period before receiving a response.

The first mobile phone was released in 1983 by the technology company Motorola, coining the nickname "the brick" for its comically large size. This sparked the next revolution of mobilizing phones, with technological companies competing for to be the first to come out with the next best phone. Apple vastly transformed the world with the announcement of the iPhone in 2007. It was a thin and lightweight phone that compiled so many essential components – a means of communication, a camera to take photos with, a microphone to record with, and a computer to access the internet to - all into one singular device. The invention of touch screen phones was also the first time this technology had been showcased, in contrast to a physical keypad.

Compared to the study from 1950 referenced before, in 2019 a similar survey was conducted and around 75% of individuals across the world own a cell phone, with up to 5.1

[6] Moss, pg. 1.

billion unique users.[7] It has become highly uncommon to meet an adult individual within American society that does not own a mobile phone, often regardless of social class due to being so highly accessible. Smart phone hones have become an essential component to human culture, as well as a main source of dependence within our society. Cell phones were originally invented for a means of communication, yet the technology so quickly advanced past that and became a main source of entertainment for society. The rise of social media apps in the early 2000s – the 2010s created a significant rise in adolescents owning cell phones to communicate with friends and showcase their lives publicly on the internet. For the younger generations (Generation Alpha and Generation Z), growing up in a society that has gradually become more reliant and dependent on mobile phones has caused them to solely rely on their phone, becoming inseparable with it as it is their main source of communication, entertainment, and social life. This has transformed and drastically changed the way children experience crucial years of growing up and maturing today, compared to those of their parents and past generations. The long term behavioral and psychological impacts of early and excessive exposure to smart phones and social media is still widely unknown but appears to be the prime target for bringing about the recent rise in mental health issues within today's youth. This thesis will explore the relationship between long-term technological use in the mental health of adolescents, specifically in terms of screen addiction, the influence of social media, interpersonal relationships, as well as the behavioral impact.

[7] Ibid.

Research Findings

I. Screen Addiction

Nowadays, it is normalized for technology to being introduced to children starting from their earliest years. Parents now utilize technology as a means of learning, entertainment, and distractions for their young children. Many are now acknowledging the possible negative consequences this may to pose these young children as they grow into adolescents. The concept of screen addiction is "when a person uses technology excessively and becomes dependent on it; mainly involves smartphones, tablets, computers, and televisions; it is identified by a compulsive need to use electronic devices, regardless of the negative impacts on daily activities and obligations such as work, school, or social relationships."[8] Screen addiction is a newfound disorder, rapidly impacting our society as technology becomes even more mainstream and essential to our everyday functioning society. Studies show that "recent estimates concerning the levels of usage vary, with some suggesting that adolescents are spending over eight hours a day engaged in some form of technology,"[9] with children as young as preschoolers consuming over four hours a day. While there is an ongoing debate between utilizing the term "overuse" or "addiction" in regard to this topic, the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) does define symptoms of addictions as – " (increased) tolerance, cravings, withdrawal, greater amount consumed than intended, unsuccessful attempts to quit use, use despite knowledge of negative consequences, recurrent use causing inability to fulfill role obligations"[10]

[8] Addiction Center *Screen Addiction.*
[9] Blair, S.L., xiii.
[10] Xu, pg. 2.

– which does apply to adolescents who are seemingly addicted to technology. Aggressive outbursts, changes in behavior, and a sense of loneliness, are all feelings children and teenagers face when stripped of their technological devices, as it has become their main source of entertainment and happiness.

People now solely rely on technology as a means of expressing themselves, communicating with loved ones, conducting work, maintaining relationships, and more. Screen addiction most often occurs when humans are introduced from a very young age to technology, as it serves as a constant stimulator for young minds. Cell phones and iPads have replaced toys and playing outdoors, due to more children spending more time indoors and partaking in these activities through the means of technology. With video games, social media, television, facetime, people are interacting more often through a screen as they are face to face. These technological changes have altered the way adolescents' minds are being impacted as these are the most crucial years of development. With the rise of screen addiction, it is important to consider if technology is posing a greater harm than it is benefit to young adolescents.

Social media has entirely changed our world and the way we communicate with others. Social media apps have unified the global population to be able to connect instantly in a shared space. With the consistent use of social media within adolescents, the negatives largely outweigh the positives it has on their mental health and wellbeing. Young adults' overconsumption of social media has allowed it to take over their lives, change their perspectives on life, and their priorities. The number of likes or views on posts has consumed the minds of young adults, equating this form of attention as a means of acceptance into society. Teenagers have become

reliant on follower counts as a means of finding their place in this dystopian form of a social hierarchy.

According to studies conducted by researchers Dalal and Basu in 2015 in their scholarly article *"Twenty Years of Internet Addiction ... Quo Vadis?"*[11], they point out the recent spike in publications on "Internet Addiction." They often interchange the term Internet Addiction (or Screen Addiction) as "pathological Internet use (PIU), compulsive Internet use (CIU), Internet use disorder (IUD), and pathological use of electronic media among others."[12] This issue is not being taken as seriously as it should be, although this addiction has research directly tracing it to psychosocial, neuropsychological, neurobiological impacts on the human mind. There is a lot that is unknown about this addictive disorder, as it is still relatively new to the world of psychological research. As stated in the article, the "excessive, uncontrolled, and inflexible Internet use behavior can indeed lead to severe functional impairment in some persons … associated with distress or interference with personal functions."[13]

As a result of the worldwide COVID-19 pandemic in 2020, there was a significant increase in screen addiction as people were forced to stay indoors, isolated from the rest of society. The Coronavirus pandemic left a lasting impact on society, especially the younger generation as they had to conform to the ongoing crisis, while also sacrificing vital years of behavioral growth and development. Socializing with peers is vital to shaping the personality, behavior, and identity of adolescents as they are a direct reflection of their surroundings. Since the Coronavirus outbreak,

[11] P.K. Dalal, et al.
[12] Ibid.
[13] Ibid.

studies have shown that "children 8-12 years spend four to six hours a day on their devices, increasing to nine hours per day for teenagers."[14] This drastically high surge in screen time consumed by young children and teenagers has seen a direct link between screen usage and their mental health.

The term "screen addiction" is still in its early years of developing a concrete basis of research, studies, and findings. Many other addictions are yet to be classified as so due to being behavioral addictions (i.e., sex addicts, gambling addicts, etc.) rather than substance addictions. Like any other "addiction" though, adolescents experiencing screen addiction are being impacted in their daily lives, such as having impaired social skills, increased isolation, increased levels of boredom, decreased productivity, and even disruption of their sleep schedules. Screens serve as a constant simulator for young minds and becoming so accustomed to these rapid stimulants will greatly impact other aspects of life. Ever since the introduction of smart phones in society, specifically young adults have a much more shortened attention span and weaker work ethic as they are not used to having to wait. We can observe this in the normalization this has become in society, with the concept of "T.V. binging" as people no longer want to a week let alone a few days for the next episode to be aired. Adolescents struggle to complete simple tasks, such as sitting down and reading a book or conversing without using their phones at the dinner table. Technology has seemingly raised young minds to be more impatient as they are more used to the instantaneous aspect of digital media culture.

[14] Xu, et al, pg. 1.

II. Social Media

Technology has introduced a completely new aspect to life, with people wanting to document their every experience on social media. The validation that social media provides, especially to adolescents, is altering their means of interaction with others, which ultimately impacts their behavior in these crucial years of the brain's development. Adolescents have not known a world without technology and social media, seemingly unimaginable to them. Professionals – researchers, doctors, psychologists – are trying to keep up as society rapidly changes, there is no available of the long-term impact technology will have on the human mind. In terms of its benefits, social media efficiently serves as a space providing a worldwide virtual community, as well as allowing greater socialization, communication, and self-expression. Since the introduction of early social media applications, such as My Space or Facebook, these apps have evolved and taken greater control over the lives of millions, primarily children and adolescents. Today's most downloaded social media apps - Snapchat, TikTok, Instagram – have become the youth's main source of entertainment and activity. Overconsumption and dependence on social media have negatively influenced the youth generations' low self-esteem due to unrealistic body standards, mental health, and unattainable lifestyles.

In a 2015 research study in "Technology and Youth: Growing Up in a Digital World, "findings showed that "social media is part of contemporary social life … active social media users in this local youth culture shared their talents, created and participated in social movements, bought and sold products, and performed an array of social roles within their

network publics."[15] With the overconsumption of social media and the rise of "influencers" serving as the primary source of entertainment and role models for the youth generations. The term "influencers" refer to the people on various social media platforms who have a significantly large following, usually spanning from hundreds of thousands to multi-millions, who influence people online by showcasing their life. Often, these social media celebrities persuade their audience into buying the same clothing or commercial products in attempt to be more like them, especially in terms of looks and lifestyle. Social media is the most popular means of socialization and community for adolescents today, and that has directly caused a great negative impact on body image as there is no clear line between "real" or "fake" anymore with the Internet.

Social media wrongfully promotes unrealistic body standards, with Augmented Reality (AR) technology allowing for highly realistic beauty face filters, photoshopping technology, as well as cosmetic surgeries to enhance or alter one's body or face structure. With such a young and impressionable audience looking up to these older "influencers" who are trying to sell their image, it blurs the line between real and fake. Due to high social media usage, "the seemingly 'perfect' images displayed by peers and celebrities on social media may impact how adolescents think they need to portray themselves on online platforms."[16] These unrealistic body standards have led to "trends" of highly serious psychological disorders as adolescents are attempting to meet these highly unattainable societal standards of beauty, especially for young prepubescent children. As a society, women have always experienced greater pressure to always keep up appearances due to being treated drastically different depending on where they fall in terms of

[15] Blair, S.L., pg. xiii.
[16] Gupta, et al.

conventional beauty and attractiveness. Social media has worsened this expectation for women, now affecting girls as young as elementary school as social media continues to highly promotes an unrealistic body standard for women. This has resulted in an even greater pedestal for women to strive to achieve. There are significantly serious drawbacks to this issue, in terms of the way it will impact adolescents physically and psychologically, especially due to how their developing minds are so easily influenced. Often referred to as "ED" or "Eating Disorder Culture" has been on the rise across all social media platforms as the standard for women is to aim for perfection, although most of what is perceived online is a virtually augmentation, highly edited, or due to surgical enhancements. The unattainable concept of perfectionism can cause serious physiological problems for adolescents.

Body dysmorphic disorder (BDD) is a "mental health condition in which you can't stop thinking about one or more perceived defects or flaws in your appearance – a flaw that appears minor or can't be seen by others … you intensely focus on your appearance and body image, repeatedly checking the mirror, grooming or seeking reassurance, sometimes for many hours a day."[17] Body dysmorphic disorder is obsessive and consumes the mind, ultimately resulting in increased distress and social anxiety. While they are different disorders, body dysmorphia may often times result in an eating disorder which can be defined as "behavioral conditions characterized by severe and persistent disturbance in eating behaviors and associated distressing thoughts and emotions … affecting physical, psychological, and social function."[18]

[17] Mayo Clinic.
[18] American Psychiatric Center.

To understand the differentiation of the two disorders, researcher in BDD Katharine Phillips says, "if an individual's concern is not focused on [the] overall body weight but rather specific part of the body, such as thee hips, it may indicate that the individual has BDD rather than an eating disorder … while eating disorders are a spectrum of disorders characterized by a disturbed eating pattern which may lead to physical and psychosocial impairment."[19] The most common types of eating disorders include anorexia nervosa, bulimia nervosa, binge eating disorder, avoidant restrictive food intake disorder.[20] Young girls, starting as young as elementary school, are primarily focused and interested in their looks, wanting makeup and skincare to be perceived as more beautiful and having an unreasonable fear of aging. Pre-teens and teenagers are actively engaging in diet culture due to societal beauty norms, while not knowing the severity of the long term impacts it may have on their physical health by not satisfying their nutrient levels during their body's development. Disorders are becoming social media trends, severely affecting the mental health of adolescents. Risk factors of Body Dysmorphia Disorder are influenced by age, gender, insomnia, rumination, self-esteem, social comparison, addiction, self-oriented perfectionism, and personality."[21] As social media has become a relevant part of society, it is important for our society to consider restrictions and further spread awareness of the ways it may negatively impact its largest audience, young children and adolescents. This has sparked debates about parental neglect as today's parents do not monitor what their children are being exposed to online, as well as being aware of significant changes in behavior and physical health. The Internet's purpose and role in our society has shifted to once being a unifying means of

[19] BMC Psychology.
[20] Ibid.
[21] Ibid.

communication, to now a platform that poses harm and vulnerability, creating a negative and harmful environment for young users.

III. Relationships

Ever since digital media has become a part of society's everyday lives, human relationships have been impacted by the societal and cultural shift that has transformed human connectivity. Online networking platforms is the most notable shift in how human beings are forming and maintaining relationships, in terms of both friendships and intimate relations. Social media applications have created a virtual reality for people to create their own curated online persona, as everything one chooses to post online is all that is perceived by others. As mentioned before, as social media has opened the doors of unification of people globally, it has also altered the nature of human relationships. This wave of digital media has affected all age groups, but especially adolescents as these are crucial years in their development for forming strong connections and relationships with their peers. This section will dive deep into topics concerning self-identity, virtual personas, online relationships, as well as Increased infidelity, and more.

In modern day society, children and adolescents much prefer and favor hanging out and communicating virtually, whether through texting, calling, facetiming, and playing video games. Maintaining a virtual lifestyle and persona is highly common now, as the youngest generations have spent majority of their lives on the Internet. Growing up with key experiences of life being spent on the Internet is unique to the history of humans. The cultural shift the rapid advancement of technology caused in the early 2000's, has entirely transformed the way our society now

functions. It has increasingly become more uncommon to see young children without smart phones, playing an essential role in their personal lives. Society has "created a rather dichotomous existence for many youth – one in which they live in the "real world," and yet another in which they live in the "online world."[22] Adolescents who play video games, spend several hours every day interacting with this technology. Due to the hobby being highly popular within this age group, it encourages adolescents even greater to play with their friends online. Video games are a great example of how hard the industry is trying to create an alternate virtual reality that is highly interactive and engaging for its player base. Creating this sense of immersion blurs the line between reality and fantasy, especially for young children and adolescents engaging in these forms of media. Although occasional use with time constraints can be harmless, impacts may occur when the youth are consuming multiple hours every day in these virtual realities, rather than real life experiences.

The lack of face-to-face interaction causes concern, as "interpersonal relationships and social contexts play a role in the identity formation process"[23] in these crucial years of childhood development. Forming relationships with their peers is essential for adolescents to better understand themselves, their personality, and own self-identity within these contexts. Katie Davis in her scholarly article, "Young People's Digital Lives: The Impact of Interpersonal Relationships and Digital Media Use on Adolescents' Sense of Identity," reviews various theories pertaining to the topic of self-identity during human's developmental years. Davis refers often to psychoanalyst theorist, Erik Erikson, for his widely acclaimed early 20th century

[22] Blair, S.L., pg. xiii.
[23] Davis, pg. 2281.

psychosocial theories on childhood and human development. Erik Erikson's view of identity "refers to a sense of who one is as a personal and as a contributor to society … Identity provides a deep sense of ideological commitment and allows thee individual to know his or her place in the world."[24] Erikson outlines the distinct connection between a sense of self-identity and human development. With long-term exposure to digital media and reliance on social media for self-validation and social acceptance, adolescents are failing to craft distinct and consistent identities, ultimately causing a disruption in their development. When one does not have a definitive understanding of their self-identity, "role confusion can lead to a very different human experience. It causes the individual to seriously question one's essential personality characteristics, one's view of oneself, and the perceived views of others."[25] Studies from scholars, Valkenburg and Peter, suggest that there is a direct correlation between the use of technology and an individual's exploration of identity. Their hypothesis states how "the opportunities that the internet affords individuals to interact with many different people in diverse online environments – in some cases adopting a different personality in each one – undermines their ability to coordinate the multiple facets of their self into a coherent whole."[26] These possible behavioral impacts on the youth's journey of discovering their identity in these important years of growth and crucial life experiences. With the rise of people taking on a multitude of virtual personas on social media platforms, adolescents are struggling to find their identity as they are constantly changes and trying to fit within the contexts of today's rapidly changing social norms. While there are ways to carefully utilize technology for a beneficial means, adolescents may struggle to recognize which path they are heading towards. It is widely

[24] Sokol, Justin, pg. 5.
[25] Ibid.
[26] Davis, pg. 3.

important to recognize these possible threats to identity as it is the base formation of one's perception of themselves, as well as their purpose in society.

As a result of humans in favor of primarily forming and maintaining their relationships online today, the culture of dating has changed drastically within society. Adolescents are discovering the workings of romantic relationships for the very first time in this age of digital media. In the article "Internet Intimacy: Authenticity and Longing in the Relationships of Millennial Young Adults,"[27] Dalessandro explores the complicated nature of creating and sustaining healthy relationships in this digital era. Dalessandro explains how in this digital era of forming relationships through social media and texting, the dynamic of intimate and romantic relationships has transformed greatly. Online dating apps were created for the purpose to assist single people in finding romantic or sexual partners online, rather than the traditional ways of meeting someone in person. This article presents studies surveying millennials because they grew up in a transitional period where they were able to experience both sides of dating, traditional and the new age of online dating. Results from these studies showed how technology causes more persistent problems within dating. Today, all age groups are trying to navigate the ins and outs of dating culture now with the rise of technology. People in these studies mentioned their "desire to find 'authenticity' – or a more 'organic' way of life – in contemporary social life and, more specifically, in their relationships … this search for the authentic is related to expectations of finding 'true' self or identity, which is a broader cultural phenomenon."[28] Technology poses a great threat to true intimacy, finding genuineness in relationships, and

[27] Dalessandro.
[28] Ibid.

increased rates of divorce and infidelity. Dalessandro states how many people wish to go back to the previous workings of society, how relationships were once more secure before digital media started to interfere with relationships.

Applying the information stated above from the millennial generation, young adults and adolescents are experiencing the journey of forming romantic relationships for the first time in this new era revolving around social media and smart phones. Social media promotes a lack of authenticity and validity by promoting people to have online personas, putting on a façade for an online audience. Social media influencers also promote posting much of their personal lives and relationships publicly for a large global audience. Adolescents may not understand the harm that comes along with publicizing much of your private information and life, as well as the pressure of receiving unwarranted opinions from this public audience. Some say that technology is "bringing out the worst in people … Young adults claimed that digital technology encouraged undesirable behavioral traits – such as rudeness, lying or cheating – and had the ability to hide the "truth" about individuals and relationships."[29] As discussed previously, the lack of finding a true self-identity is becoming more a more complex process due to adolescents mirroring those they look up to, primarily social media influencers and celebrities not far older, living unattainable and highly fortunate lifestyles. There is a lack of a true self with the rapid changing trends popularized by social media, and this phenomenon is directly impacting human relationships as a result. Having a true sense of identity is highly crucial in terms of having solid relationships with others, especially romantic, as they are based on one's desires and needs. These complex relationship issues will carry into their adulthood, resulting in an entirely new

[29] Ibid.

concept of dating, and forming relationships than ever before. It inflicts curiosity and worries about the future as these age groups grow older, and the quality of their relationships continues to weaken.

IV. Behavioral Impacts

The long-term impact technology has on the youth generations calls upon debates on whether behavioral changes and development will be altered within children who have early exposure to screens in their lives. In this generation, parents find ease in occupying and entertaining their young children with tablets, televisions, and smart phones. From their youngest years, children are finding intense satisfaction in screens as their main source of joy and entertainment, which often takes place of childhood toys and playing outside with their peers. These core memories that have defined childhood for centuries is now being transformed with the cultural shift our society has taken, becoming one with technology. Consistent use of technological devices since youth will later manifest into an adult life revolved around technology, as it is what these generations have become accustomed to. While there are some studies showing signs of improvement in childhood development and intelligence with exposure to technology as a resource for learning, there is still a debate over restrictions and time limitations using screens. Impacts of early exposure to technology may include difficulty concentrating which could lead to possible attention deficiency disorders, as well as severe signs of depression.

With technology being used as a main source of entertainment for children and adolescents, the difficulty for the youth generations to concentrate has grown drastically. Especially in school, students are found to be distracted by their smart phones throughout their school day, hindering their academic progress, overall productivity, and success. In all aspects of life, children and adolescents struggle to remain focused due to technology. The topic of attention deficit hyperactivity disorder, otherwise referred to as ADHD, has been on the rise as more children are being diagnosed with the disorder. ADHD can be defined as a developmental disorder characterized by ongoing patterns of many of the following symptoms - inattention, focusing on tasks, keeping organized, hyperactivity, restlessness, impulsive actions, as well as consistently interrupting others and more. By examining data trends from over twenty years ago, studies have shown that there has been a 30% increase in ADHD diagnoses in children, becoming the most psychological dysfunction in children today.[30] Early exposure to technology, with fast-paced visuals and screens, especially within the first few years of early life has showed results of attention deficiencies later in life. From their earliest years, young children consume digital media and electronics as a means of pleasure and enjoyment, and as a result they become addicted to the fast-paced stimulation it provides. While much is still widely unknown, as long-term impacts have not yet occurred and cannot yet be examined, data will more accurately represent the effects in future years. For researchers, it is highly difficult to examine what parts of technology serves as a benefit to young minds, and what aspects become detrimental to the inner workings of their brain functionality.[31] This raises much alarm as while there are many doubts about what environmental factors and other variables may be causing this rise in ADHD

[30] Christakis, pg. 1
[31] Ibid.

in childhood years, it is anything but coincidental that this surge occurred during this new digital age in our society. Not only does it raise much concern that young children are developing psychological disorders because of technology, but how it will greatly impact all other aspects of their lives as they grow older. Disorders cannot become normalized because of the nature of our society, but changes must be made socially in attempt to further protect the development of young children.

In addition to the increased development of ADHD amongst young children and adolescents, there has been a significant rise in depression amongst these age groups as well. Studies have shown that since the introduction of smart phones in our daily lives, mental health has been greatly impacted, especially in the youngest generations of society. Adolescents have reported "symptoms of major depression in a given year increased by 52% from 2005 to 2017. From 2009 to 2017, it grew by 63% in adults ages 18 to 25."[32] Older adults have not reported similar feelings, which alludes to this being a direct result to the presence of social media and early exposure to the Internet from such an early age, and ultimately becoming a crucial part of their lives and means of socialization. Impacted individuals across the world, with access to social media apart of their daily routine, have reported widely negative experiences since joining these popular apps. Some experiences include bullying, drama, unrealistic standards of perfection, feelings of addiction, increased peer pressure from peers, and a sense of isolation. These negative online experiences are frequent and have been experienced by majority of young users who can understand the implications of using social media. While the aim for social media

[32] Clark.

is to bring people within various communities together, more often than not, it has caused further harm to relationships and the feelings of those who partake in frequent usage.

Digital media, specifically the Internet and social media, has caused much harm to the mental health and stability of its largest audience, young adults, adolescents, and children. With the lack of reinforcement of guidelines or age restrictions, social media apps have free range for users to post any content online (explicit content included), as well as the ability to promote unhealthy lifestyles, set unrealistic standards, blur the line between reality and virtuality, and the ability to have anonymity when sending offensive messages to others online. Unlike face-to-face interactions, humans can now freely say anything they would not have normally done in real life, but simply because there is a faceless online persona to hide behind. This causes further damage to the actions people make now in these virtual apps with the lack of consequences from authorities, and lack of remorse within society today. Bullying in schools has transformed into cyberbullying, which is on a vastly larger and more serious scale. Studies have shown that "child suicide rates increased by up to 150%, and self-harm by girls ages 10 to 14 nearly tripled. These patterns point to social media."[33] This issue is often overlooked by parents or authorities, as the seriousness and extent is widely disregarded as oversensitivity and an inevitable part of growing up. Children and adolescents have never experienced issues of this severity at such high rates, and all signs point back to social media. With this becoming the societal norm for these age groups, it becomes almost inevitable that they will be exposed to some of these experiences online. With "eighth graders who spend over 10 hours on social media per week … 56% [are]

[33] Ibid.

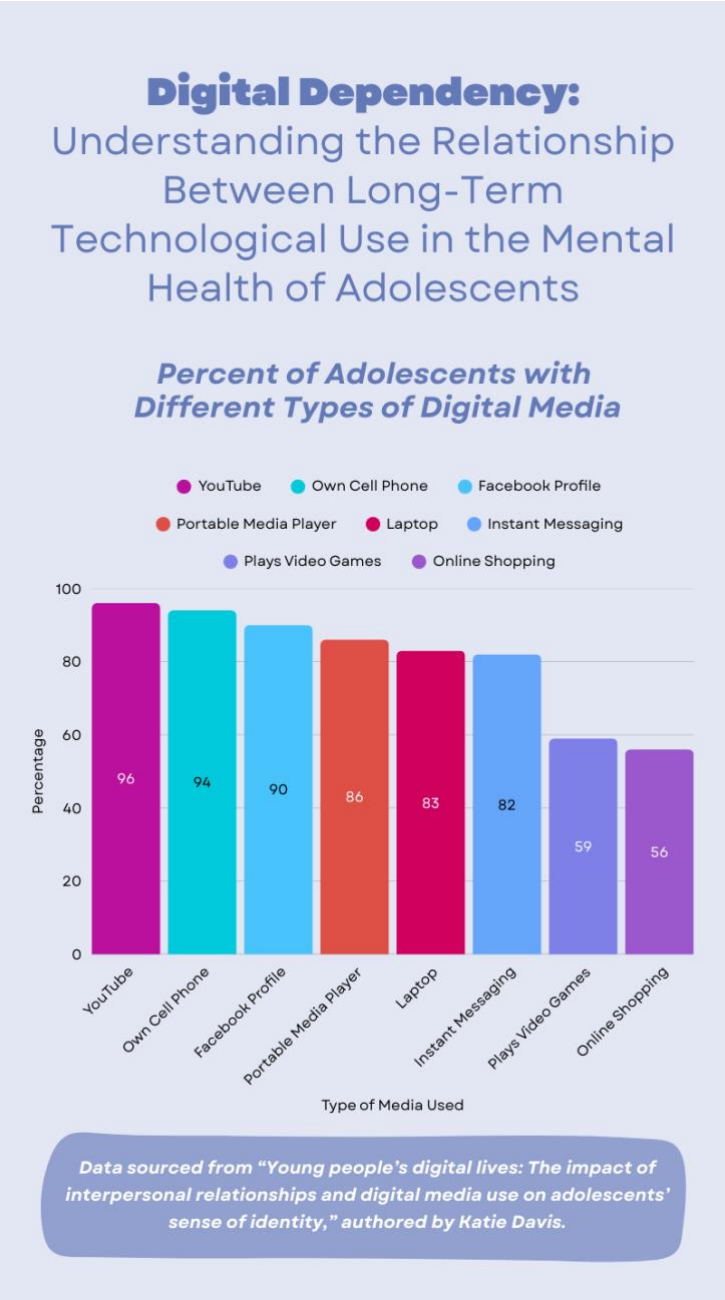
more likely to report being unhappy than those who spend less time on social media."[34] Experts have analyzed and reported that the long screen times on these apps lead to serious feelings of depression, loneliness, unhappiness, and even suicide. It becomes a debate on whether the issue stems in the duration of screen time that poses a threat to adolescents, or if social media in its entirety is the root of these issues during crucial developmental years of life.

The Internet and social media now have a seemingly permanent place in society, with it being more uncommon to not have an online presence, ultimately causing more convolution in finding preventative actions. Technology is inescapable in today's modern society, especially with the everlasting impacts of the Coronavirus pandemic, the global shift to a digitally focused world has impacted almost every single individual in highly functioning societies. With academics, consumerism, and social lives transitioning to online platforms, it's crucial to find a healthy and sustainable balance with digital screen time, especially for younger generations whose minds are still developing during this new and unstudied era of society.

[34] Ibid.

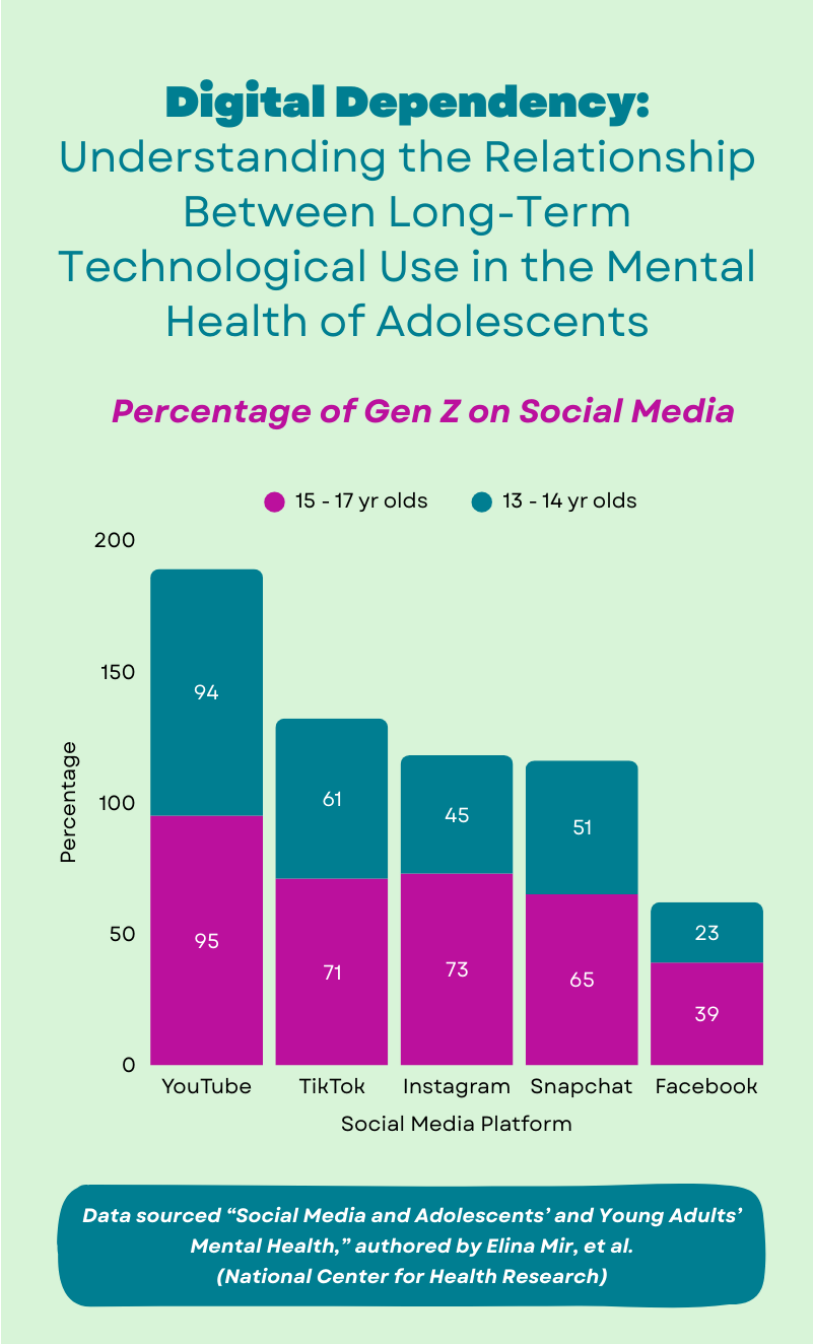
Visual Data

Figure 1



This visual representation portrays the percent of adolescents who use different type of digital media. All these categories are seemingly crucial in mainstream adolescent lifestyles, ultimately having a great influence on majority of the age group population.

Figure 2



The data visual above compares the varying percentage of users using various social media apps, within the age groups 15 – 17 years old versus 13 – 14 years old. This highlights Generation Z, who have grown up in an era of technology rapidly advancing. This visualization showcases the normalization of these age groups consuming social media in their daily lives.

Analysis

As presented in *Figure 1* and *Figure 2*, it is clearly apparent that adolescents and young adults in the age range from 13 to 17 years of age, have a widespread online presence on all mainstream social media applications, in particular Snapchat, Instagram, Facebook, Twitter, and YouTube. The purpose of these mobile applications is to share an insight into one's life, whether that is updating people on your daily status, or posting videos or photographs of oneself or their daily lives. This online journal-like documentation of lives around the world is highly appealing to younger audiences, and has become the mainstream way of accumulating friends, or "followers." These data visualization help showcase important recent statistics.

Figure 1 shows how widely customary it is now for children and adolescents to have an online presence. With 96% of adolescents watching YouTube, 94% owning a cell phone, 90% maintain a Facebook profile, and 82% partaking in instant messaging, these data sets truly expose how vastly technology has taken over young lives. These technological devices hold important value to their lives as it has become their main source of entertainment. The lower end of statistics being online shopping, standing at 56% of individuals, primarily due to not having access to a steady income source or credit card. These statistics prove that majority adolescents interact with various forms of digital media and technology as a part of their daily lives. Adolescents who do not use digital media or technology would be in a minority in the standards of today's society, arguably being deemed unpopular if one were to not have some form of online presence. This data visualization helps showcase just how widely popular and reliant Generation Z is on technology as a crucial part of forming their identities.

Figure 2 displays how close the statistics are for the adolescent age group spanning from 13 to 17 years old as they largely have some form of social media presence. There are not vast differences between the two age groups statistics, showing how Generation Z has been uniformly influenced by the attraction and satisfaction of using social media. For the 13- and 14-year-old category, majority use YouTube, TikTok and Instagram, with Facebook being their least popular social media platform with only 39% of the age group having profiles. This could be due to Facebook being released in the early 2000s and has remained its attraction to older generations (Millennials, Generation X, and Baby Boomers) more as it is socially deemed more family friendly and no longer as relevant. For the millennial generation, Facebook was their mainstream social media platform when they were adolescents, and has seemingly phased out in popularity amongst Generation Z. For age groups 15 to 17 years old, their online presence is primarily on YouTube and TikTok. The lesser used social media apps amongst their age range are Facebook, with only 23% and Instagram with 45% of participants using the app. With this age group being slightly older and nearing adulthood, they also have strayed away from using Meta owned social media Instagram and Facebook as they may not be deemed as socially relevant. YouTube seemingly has the most percentage of Generation Z users as the platform is highly versatile, providing an alternative for watching television and continuously staying relevant with the trends of the Internet amongst all categories – music, pop culture, film, television, video games, etc.

With schools having loose guidelines surrounding cell phone usage in schools, much of their daily school days consists of exchanging social media profiles, becoming this generation's new main source of communication and socialization. With majority of these age groups consistently spending hours a day on YouTube, Snapchat, and Instagram, the content they view

on these platforms sparks this generation's new outlet of information. The fear of missing out is a common feeling within adolescent experiences, being influenced to follow along with the rapidly changing trends. Having various forms of social media platforms is crucial to determining social status amongst teenagers, as one's profile and follower count is deemed a true reflection of themselves. This new modern societal mindset further encourages adolescents to upkeep their social media personas, attempting to impress and feed off each other, relating back to that sense of having no self-identity.

Conclusion

This thesis has examined the profound and multifaceted impact of early technological exposure on the mental and emotional well-being of today's youth. Through the means of analyzing relevant statistics and data trends, this thesis has outlined the main ways adolescent mental health has been negatively impacted, specifically in terms of their emotions, relationships, intellect, and productivity. This thesis covers four main areas of concern that are contributors to the decline in the mental health of the youngest generations, Generation Z and Generation Alpha. These areas include the newfound concept of screen addiction, social media applications, relationships, and behavioral impacts. Visual graphs have been created to showcase these statistics alongside the findings sourced from expert scholars.

Screen addiction remains a widely unknown and unexplored topic, as addictions are often less explored and prioritized if they are classified as behavioral rather than those pertaining to substance abuse. Screen addiction most often occurs when humans are introduced from an early age to technology, as it serves as a constant stimulator for young minds. Researchers exploring the extents and long-term impacts of screen addiction are yet to know the results at this point, but current statistics show higher reports of depression, loneliness, anxiety, and a lack of productivity. Adolescents are favoring digital media's virtual society, rather than real-life experiences and interactions.

Social media, while once serving as a means of increased communication and unification between cultures and communities across the world, now poses a great threat to

the mental and physical well-being of children and adolescents. Social media promotes unattainable lifestyles, unhealthy diets, unrealistic body standards, which are just a few examples of the way adolescents are being heavily influenced by what they view online. Social media directly influences these age groups as their developing minds are highly impressionable and sets such high societal standards for such young age groups.

Relationships are another aspect of society that has greatly been transformed by the influence of digital media. The opportunities social media offers poses a threat to trust, fidelity, and stability in today's modern relationships. For adolescents, their experiences of romantic and intimate relationships are from the Internet and social media, rather than in-person dating. In modern society, majority of human connections are now formed virtually, resulting in greater strains and challenges within relationships.

With such a great influence on adolescents and children, the vast ways digital media and modern technology is psychologically affecting the youth generations in terms of their mental health and behavioral development is alarming. Rates of depression and suicide within adolescent age groups has soared since the early 2000s, initiating the start of the world's shift towards a completely technologically based world. With global events such as the Coronavirus pandemic, bringing society even more reliant on technology as a means of functioning, it is more difficult for our world to go backwards to a more traditional means of living. As society continues to adopt rapidly advancing technology, it is crucial that the development of our younger generations does not go ignored. While this thesis is not to put down the incredible advancements our society has made towards making humanity even more

innovative and scientifically advanced. The root of the issue may not be the technology itself, but the way it has been utilized and incorporated into our lives, becoming something that feeds off insecurities, peer pressure, and social status for monetary gain. The purpose of social media has transformed, from once being a fun way to share photos online, to creating an environment that optimizes profit over the actual satisfaction of users. The aim of social media is now to sell products and make a profit from users, whether that is through media ambassadors, influencers, harmful trends, and so on. Social media has more negative connotations associated with it now than ever before, with these large platforms purposefully targeting the vulnerabilities of users through carefully curated feeds and highly personalized algorithms. The mental wellbeing of users, consisting of primarily adolescents and young adults, is not within the intentions of these large corporations. These digital media platforms and associated influencers will continue to profit largely from the spread of negativity, whether that is promoting weight loss supplements for profit, creating drama to increase engagement, or reinforcing the ideology that your follower count designates your status in society. These are just a few examples within this large issue that is rampantly influencing the most impressionable minds in our society.

If these issues remain unresolved, not only will more individuals be impacted, but the negative impacts from technology will continue to reshape our future generations. Society's interconnectedness, social structural, and societal norms are at stake of being entirely transformed in favor of digital technology. By encouraging more real-world interactions, we can be more deliberate in our efforts to protect the mental health of today's youth generations in this increasingly digital world. The need for less reliance on these digital media platforms is essential to adolescent realization of the larger issue a hand, how their addictive behavior towards digital

media may be causing them harm. Devising a distinct understanding between the real world and virtual reality is the key to understanding the tactics used by digital platforms to profit off mental health, shifting the focus to technology's purpose in our lives. Understanding the issues associated with digital media better will allow users to transform the way they let technology impact their lives, starting from a young age, resisting overconsumption by using it in a regulated way that prioritizes mental health first. By restructuring digital media and technology's role in today's human culture, the impacts made within society can be reversed to where it no longer holds power over one's self-identity and purpose.

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