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Digital Technology, a Double Edged Tool

The Technological Revolution of the late 20th and early 21st centuries has proven to be the most impactful age of ingenuity in human history, closely rivaled by that of the Industrial Revolution. Modern technology, such as cell phones, computers, and the internet, are used in our everyday lives, and it is very rare that one spends a whole day without interacting with these platforms. Specifically focusing on this digital type of technology, it can be found practically everywhere in society; it has become increasingly difficult to isolate ourselves from it, as we have become increasingly dependent on its presence. Every new day brings forth the creation of improved technological devices and as time progresses, the upgrades on previously used technology becomes exponentially more advanced. Technology has helped human civilization progress in many ways, yet with an overwhelming amount of technology available to the general public, an emerging question can be raised of “How is technology benefiting and harming us?”.

One of the most underappreciated and overlooked applications of modern technology is communication. Connections between people have become instantaneous in our world today, with all interactions simplified down to the touch of a button. Regardless of time or location, loved ones, friends, or even complete strangers can send messages back and forth, staying in touch with each other. The accessibility of technology and the ease of communication has led to the interconnectedness of the world, and the connection of people over long distances (Wardynski). The development of devices such as the smartphone has allowed for the

communication between billions of people from all walks of life, in defiance of geographical barriers. As of today, communication remains the primary use of many digital technological devices, and has not strayed far from the purpose of the invention of the landline in 1876, by Alexander Graham Bell.

Another beneficial aspect of technology can be expressed through the seemingly infinite amount of information at ones' fingertips. With a simple browser search, a user can become connected to vast amounts of information. In relation to education, technology is a powerful tool that when utilized correctly, can foster deeper paths of learning due to the copious amounts of knowledge readily available for students. Having access to information on any topic or subject, can help a student achieve their academic goals, and supplement their studies. Education can also be made more accessible to all types of students, as technology can be utilized to educate people remotely. During the Covid-19 pandemic, which was promptly followed by lockdowns, schooling across the United States was switched to remote learning as a means of ensuring the safety of students. This preserved the education for the youth of our nation during this challenging time, and attempted to grant children a life of normalcy in a time of irregularity and struggle.

Although advancements in technology have helped humanity and society overall, there comes a pitfall with having this amount of power at ones' fingertips. Both physical and mental determinants can be associated with prolonged interaction with digital technology such as computers and cell phones. By creating a lifestyle surrounded by technology and its accommodating features, a sedentary lifestyle is promoted. This particular lifestyle causes a multitude of health problems in both adults and children, as long hours sitting at a screen either for entertainment or career purposes has been directly linked to obesity and cardiovascular

diseases. Steven Gortmaker, a professor at the Harvard School of Public Health, found that during the Covid-19 pandemic, digital technology usage in the US had increased greatly as did the rates of obesity. Gortmaker postulated that these two factors were directly correlated.

The most adverse correlations can be seen among children. In developing children, the negative effects not only harm their physical nature, but their mental state as well. The sensitive brains of children derive greater consequences from lengthened screen-time. Research has shown that the prefrontal cortex of the brain does not fully develop until the age of 25, and dependency built up on technology from a young age can be extremely hard to overcome (Smith).

Technological addiction is common in the younger generations due to the irregularly large amounts of dopamine that are released when interacting with a screen. Dopamine is the chemical compound that when released makes a person feel happy and satisfied. Having an unbalanced amount of dopamine can be harmful to the developing brain, as an addiction quickly forms around the device making a person consistently happy. Depression can be accompanied by an overuse of technological devices, as overconsuming the content of the easily accessible devices can negatively impact the frequency of a person's dopamine release. Issues such as depression, attention-deficit disorders, anxiety, and poor sleep quality are now common in adolescents and young adults. Generation Z has been referred to as the depressed generation, and a positive correlation can be drawn from the constant stimulus and availability of technology to the rising rates of mental disorders in people under the age of 25.

Regardless of the correlation between harmful health effects and digital technology, the benefits of rapid communication have furthered society and generally improved our lives. There are ways to avoid having technology play a detrimental role on our health. The best way to avoid having health problems is to take frequent breaks from our devices and connect with reality.

Physically walking away from technology and exercising at least once a day has proven to reduce the risks of obesity, as well as heart disease (Balzer). Due to the promotion of a sedentary lifestyle, the best way to curb our technology utilization is to remind ourselves that we are indeed not made for this sedentary lifestyle. Getting outside and connecting with nature can be instrumental in not only physical health, but mental health as well. Following the boom of the Technological Revolution, doctors and scientists struggled to find ways to reduce the correlation between stress levels and increased technology usage. In a 2006 medical study conducted by Doctor Ashish Sharma, it is suggested that taking breaks from our digital technology to exercise can reduce feelings of anxiety and stress related to our handling of technology. This reduced stress is associated with the improved circulation of blood in the brain, which is hindered from prolonged device usage, and lack of movement (Sharma). By reminding ourselves that there is a world outside of our devices, we are best able to tame our technological consumption.

The Technological Revolution may be coming to an end, yet in its place a new revolution may have been born. Stemming from the wave of digital technology, artificial intelligence has recently been implemented into a computer program known as ChatGPT— a very advanced form of a chatbot which can generate long forms of dialogue (Shulman). GPT stands for Generative Pre-trained Transformer; transformers are algorithms that are used to find the next word in a sequence, as well as using previously input speech patterns to create new sentences. Full papers can be written from a simple request from the user, requiring only a topic, direction, and desired length. The algorithm is trained to take information from the internet and string together information of a user's request, about what they would like generated. Many setbacks are attached with the early stages of ChatGPT, as misinformation is common due to the algorithm's lack of experience when using credible sources for data. Due to the algorithm

utilizing the repetition of previously downloaded information, academic plagiarism is not uncommon with the youthful program.

Although there are drawbacks with the new software, similar to digital technology upon its development, trends have shown that AI will follow an exponentially steeper rate of improvement and will only continue to grow upon itself. In the near future, new evolution in the field of AI could potentially be harmful to the white-collar worker, and the implementation of AI in business practice could be leading our society down a slippery slope (Wardynski). As with other technological advancements in human history, new technology has had roughly three impacts on the economy, and economists predict that AI will be no different; it can improve productivity of jobs, outdate others, as well as create new ones. Businesses can use AI generated models for a multitude of purposes, from how to maximize their profits to maximizing the productivity of their employees. In a business setting, AI can handle the repetitive and often monotonous tasks that are given to workers. However, ChatGPT and other chatbots also have the ability to outsource and make certain jobs obsolete. It is predicted that jobs such as marketing consultants and financial advisors, could potentially be replaced by AI as early as the year 2050. In spite of the fact that AI will take jobs, it also has the ability to create new job opportunities such as computer scientists who will be required to work on the algorithms and fix outdated software. Just like digital technology, artificial intelligence will continue to serve as a benefit and improvement for our lives.

Despite the negative aspects associated with the use of digital technology, the beneficial effects accompanied from its utilization far outweigh the latter. Digital technology has provided society with a medium for instant communications, which is responsible for the connections between billions across the globe. It has also provided a means for the betterment of education,

by making learning faster, and more accessible to the general public. Major physical and mental health problems can be correlated to an overuse of technological devices, but similarly to other components in life, these consequences can be minimized through the practice of moderation. Originating from the Technological Revolution of the early 21st century, AI is a relatively new technological development that could either be taking humanity down a path of improvement, or peril.

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