Introduction

"Unboxing an Eee" by jblyberg is licensed under CC BY 2.0

Digital life refers to the influence of digital technologies on the manner in which people live their lives.

The digitization of just about everything, from arts to information to communication, has had a dramatic impact on life. Pervasive networks—especially cellular and other wireless networks—allow people to access all kinds of information, services, and entertainment, and to communicate with friends and colleagues, anywhere and anytime. Ready access to so many resources has caused many to plunge into a digital lifestyle where more time is spent online than off. This major shift in behavior has had a profound impact on the productivity of individuals and organizations as well as on our mental and physical states. It is wise to consider all the implications of our digital lifestyle in order to make informed decisions on how best to incorporate digital technology into our lives.

Virtual reality headsets like the Oculus Rift and HTC Vive are poised to be the next big thing in home entertainment. These headsets allow the viewer to virtually enter environments where entertaining and interactive challenges await. Augmented reality technologies like Microsoft Hololens and Magic Leap bring virtual objects into the real world. In 2016, millions of people hunted virtual creatures around city streets playing Pokemon Go causing clashes between those pursuing the virtual and those pursuing the real. Increasingly the virtual, digital world is encroaching on our real-world activities and experiences. What types of benefits does this trend provide humans? What costs? What do you imagine will come next?

As people spend increasing amounts of time online, changes occur in social structures and mechanisms. These personal and social changes have both benefits and costs. A student benefits from the ability to talk with a friend on a mobile phone at the conclusion of class but may miss out on an opportunity to meet someone new sitting in a neighboring seat. Citizens benefit from the use of technologies in law enforcement to create safer living conditions but might pay a price in terms of personal privacy. Big businesses benefit from outsourcing labor at the expense of the shrinking job market at home. The benefits and costs range in scale from personal to global. Balancing the benefits of digital technologies against the costs, and determining which outweighs the other, is a highly personal and subjective but important activity for everyone.

The digital revolution has left the global population with numerous challenges to address. Most people feel pressure from the growing mountain of information and online relationships to manage. Many are unable to find time away from technology and its demands. New types of etiquette are being defined for acceptable and unacceptable online behavior. New laws are being created, including those that address distracted driving, to keep people safe in our new digital environment. Parents are concerned about the impact that ultra-violent, first-person shooter video games are having on children. Professionals are learning to collaborate with partners and team members scattered around the globe. We are testing the boundaries of what is required for living a healthy, productive digital lifestyle, with some individuals

crossing the line into unhealthy behavior. This unit studies all of these digital lifestyle phenomena and more.

Lesson 6.1: Psychological Effects

Lesson 6.1 Introduction

Computers, smartphones, and other digital devices have become integral parts of our lives, influencing everything we do from the moment we wake until long after we should have gone to sleep, when we find ourselves scrolling through social media feeds, reluctant to disconnect ourselves. At the same time, these technologies allow us to communicate with friends and family scattered around the globe, and collaborate with business associates in ways that were previously impossible. The psychological changes caused by computing devices are neither entirely beneficial nor detrimental, but there is no doubt that they have been profound.

Reading: Information Overload

Information Overload

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Information overload refers to individuals and organizations' inability to cope with the huge and growing amount of information being collected, stored, analyzed, and delivered.

Why This Matters

One of the greatest challenges of the information age is managing big data—the huge and growing amount of data collected from every transaction and activity taking place online. Businesses and governments recognize the importance of gleaning actionable knowledge from collected information and so collect as much data as possible. The problem is, information systems can't keep up with the amount of data being collected and stored. Individuals are struggling as well. As people become increasingly connected, they must maneuver through increasing amounts of information and communications to quickly determine how to make the best use of their time and energy. The most valuable technologies that will be developed in coming years will be those that are able to store, organize, and quickly extract valuable information from mountains of data.

Essential Information

The digital lifestyle is chock-full of information. The amount of digital information is now measured in zetabytes; that's

1,000,000,000,000,000,000,000 bytes:

a 1 followed by 21 zeroes! And the amount of digital information is doubling every year. The amount of digital information is surpassing the capacity of storage devices available to store it all. Each person's digital shadow—that is, the digital information generated about a person by businesses and organizations on a daily basis—surpasses the amount of information that an individual person generates in a lifetime.

Finding specific information at a specific time among this much data can be like finding a needle in a haystack.

IDC—a provider of market intelligence for the information technology, telecommunications, and consumer technology markets—warns that unless businesses implement enterprise-wide data storage and management procedures and policies, the amount of information will outpace our ability to manage it. Big data has become a priority. Corporations and individuals who have the skills to manage big data are among the top sought-after employees.

Information overload is impacting individuals as well. One example is email. The average professional spends roughly 28% of his or her week managing email. The average CEO gets 200 to 300 emails per day! Email has become such a distraction that some businesses are banning email and replacing it with social-media style systems.

Finding information online can be challenging. A Google search yields thousands of results. Hopefully, the user is able to find useful resources on the first couple pages of those results. Many of us have to keep track of numerous sources of communication; email, text messages, Facebook and Twitter posts, and other forms of communication compete for our attention throughout the day.

The next generation of web technologies is confronting information overload by applying artificial intelligence and better organized data to get users the information they need more quickly and with less effort. Personal digital assistant technology like Apple Siri, Google Assistant, Amazon Alexa, and Microsoft Cortana provide information as you need it by analyzing your habits, environment, location, and time of day. When driving to the airport, Google Assistant will automatically guide you along the least congested route, tell you about the weather at your destination, and inform you of flight delays and gate changes.

Reading: Computer-Based Violence

Computer-Based Violence

Computer-based violence refers to acts of interactive simulated violence provided by computer games.

"Screen shot 2011-03-18 at 11.47.48 PM" by niftybottle is licensed under CC BY 2.0

Why This Matters

Never before has it been so easy to commit brutal acts of violence in realistic environments without causing harm to others. Although playing violent video games does no physical harm, psychologists, parents, governments, and others wonder how violent role-playing affects the minds of gamers. Are violent gamers more likely to be aggressive in the real world, transferring what they learn in the gaming environment to real life? This is a hotly debated issue that involves many people and governments around the world.

Essential Information

In efforts to engage teen and older gamers, games have progressively moved to more violent themes. The popular and controversial Grand Theft Auto (GTA) remains a topic of great debate due to its graphic depiction of extreme violence and law breaking. Some people have become concerned about the effects of prolonged exposure to violence on game users. GTA was banned in Thailand after a disturbed teenager allegedly killed a taxi driver, reenacting a scene from the game. Six teens in New York City were arrested after going on a GTA-inspired crime spree. More recently, the school massacre in Newtown, Connecticut created more pressure on video-game makers and retailers as Washington and advocacy groups grew even more concerned about possible links between violent games and violent crime. The United States, the United Kingdom, Australia, and other countries have all gone back and forth on banning GTA in response to outcries from concerned parents and other constituents.

GTA isn't the exception, however, it's become the norm. There are hundreds of first-person shooter games available. First-person shooter games are those in which the player becomes the game character that does the shooting and killing. They include war games like Halo, Call of Duty, Gears of War, and Splinter Cell Conviction. There are also police games like Crackdown and Condemned: Criminal Origins. There are fantasy games like Aliens vs. Predators. In some games, the player fights to save the world; in others, the player fights as the villain. In all cases, virtual shooting, maiming, and killing become second nature. In an attempt to distance itself from real-life violent acts, game maker Electronic Arts, responsible for first-person shooter games like Medal of Honor and Battlefield, decided to end its licensing deals with gun makers whose brand-name hardware it had featured in its games for years.

Studies on the impact of violent games on users have been inconclusive. As video games become increasingly realistic, providing interactive virtual worlds that are less discernable from reality, it seems logical that the violent acts carried out in games will more easily transfer to real life. Also, as individuals spend more time in violent, high-anxiety situations, it is logical that some desensitization to violence occurs, along with other effects to the psyche. Although these assumptions seem logical, some studies support them and others show them to be untrue.

Reading: Computer Addictions

Computer Addictions

Computer addictions refer to the compulsive use of digital technologies such as the Internet, video games, online gambling, and pornography.

"The Digital #13" by hitchinssamson is licensed under CC BY 2.0

Why This Matters

Too much of any activity can lead to an unbalanced life and, sometimes, to a lack of control over your own actions. To some people, the rich virtual environment of the Internet and its many applications is preferable to their own lives and physical environments. Some become obsessive and spend increasing amounts of time engaged in online activity. When a person is unable to control an impulse to engage in some activity, that person is addicted. Addictions may require psychological treatment to cure.

Essential Information

The use of the Internet can be addictive. Some people spend most of their time connected to the Internet and staring at the computer screen. When this behavior becomes compulsive, it can interfere with normal daily activities, including work and relationships. Often, Internet addiction means that a person is isolated and doesn't interact with other people unless they are also online. Internet addiction may exist if people are online for long periods of time, cannot control their online usage, jeopardize their career or family life as a result of excessive Internet usage, or lie to family, friends, and coworkers about their Internet usage. Scientists studying Internet addiction categorize several types: pornography, gambling, online multiplayer gaming, e-shopping, and social networking addictions.

The abundance of free pornography on the web has caused some individuals to become addicted. It has been estimated that 12% of Internet content is pornography. Viewing and sharing pornography in large quantities can alter an individual's perception of what is socially acceptable and normal. Also, in efforts to supply increasingly outlandish pornography, some have crossed the line into unhealthy and illegal practices. Many individuals from a variety of backgrounds have sought professional help in dealing with Internet-based pornography and sexual addictions.

Compulsive gambling is a problem for some people using the Internet. Compulsive gamblers find using the Internet much easier than driving to a gambling casino.

Internet gambling is legal in some states in the U.S. and has been legal in other countries for quite some time. Online gambling has grown into a $37 billion industry, one of the biggest businesses on the Internet. In 2006, President Bush signed the Unlawful Internet Gambling Enforcement Act, which makes it illegal for U.S. citizens to gamble on the Internet, no matter where the online casino is located. In 2011, President Obama signed an opinion stating that the Unlawful Internet Gambling Enforcement Act only applies to bets on sporting events. Since then several states have drafted legislation to allow online gambling.

Other Internet users become addicted to massively multiplayer online role-playing games (MMORPGs). Some gamers find the virtual worlds of online games more interesting and rewarding than real life and spend increasing amounts of time in virtual worlds. Others are addicted to online shopping and online social media. Although these activities are not unhealthy in reasonable quantities, spending more time online than offline can become problematic.

Many feel that the best way to avoid or recover from any computer-related health issue—physical or mental—is to live a balanced life. A balanced life includes technology time and time away from technology; time alone and time spent in the company of others; time on the phone and time in face-to-face interaction; time indoors and time with nature. Some psychologists feel that many young people suffer from nature deficit disorder. They believe that people tend to stay healthier when they stay in touch with nature. The more balance you have in your life, the more balanced your mental and physical health and development will be. If you feel that you suffer from any of the above-mentioned health problems, try spending prolonged time away from technology. If you find that you are unable to do so, consider seeking help from a physician or counselor.

Lesson 6.2: Physiological Effects

Lesson 6.2 Introduction

In addition to changes in the way we interact with other people and ourselves, computers and other digital devices have also changed the way we interact with the physical world around us. On a fundamental level, computers are tools. If used properly, they can multiply the productive potential of an individual, but when used carelessly, as a distraction or without proper techniques, the results can be bodily harm or death. In this lesson we'll examine a few examples of these physiological effects.

Reading: Distracted Driving

Distracted Driving

Distracted driving occurs when drivers focus on their cell phones or other distractions rather than on the road.

"sign" by ford is licensed under CC BY 2.0

Why This Matters

Digital life and ubiquitous computing and communications mean that people are spending increasing amounts of time online. While anywhere, anytime text messaging, mobile web browsing, and phone conversations provide substantial conveniences and an increase in productivity, they also pose some risks. The largest risk occurs when attempting to operate heavy machinery while engaged online. Many governments have passed laws prohibiting people from driving while using digital devices.

Essential Information

Around the world, law enforcement agencies are finding increases in cell phone-related automobile accidents. Many of these accidents are the result of texting while driving. Dialing a mobile phone while driving is dangerous enough, but typing or reading text messages takes drivers' eyes off the road for several seconds at a time. At 30 to 60 miles per hours, a six-second lag in attention can take a vehicle one-tenth of a mile, providing many opportunities for accidents.

Some governments have passed laws banning the use of cell phones while driving. In the U.S., 46 states, D.C., Puerto Rico, Guam, and the U.S. Virgin Islands ban text messaging for all drivers. The U.S. federal government has banned cell phone use while driving for all military personnel. The U.S. Department of Transportation has banned texting while driving for all U.S. commercial truck drivers.

Statistics show that distracted driving due to cell phone use is as dangerous as drinking while driving. Despite anti-texting efforts and distracted driving laws, thousands still die each year in crashes involving distracted drivers. Research shows that a texting driver is 23 times more likely to get into a crash than a non-texting driver. While laws may vary, drivers are wise to pull off the road to use their cell phones.

Reading: Repetitive Stress Injury

Repetitive Stress Injury (RSI)

Repetitive stress injury (RSI) occurs when a particular physical motion is repeated frequently, to the point of injury.

"Woman typing" by Mad Fish Digital is licensed under CC BY 2.0

Why This Matters

One downside of leading a digital life is the amount of time physically spent on digital devices. While engaged and interacting online, portions of the body are sometimes placed in awkward positions for extended periods of time, which can lead to repetitive stress injuries. For example, your wrists can suffer when you type on a keyboard, your thumbs when you text message, and your eyes and neck as you focus on a display. Being aware of common ailments and how to minimize them can help users avoid RSI.

Essential Information

Working and living with computers and digital technologies can lead to potential health problems. As people increasingly use computers at work and at home, more people are suffering from computer-related health problems. Along with increases in computer use, insurance claims relating to repetitive stress injury have increased greatly since people began using computers. RSI is an injury, such as tendinitis or tennis elbow, caused by a repetitive motion. The most common RSI for computer users is carpal tunnel syndrome. Carpal tunnel syndrome (CTS) is the aggravation of the pathway for nerves that travel through the wrist (the carpal tunnel), typically caused by long hours at the computer keyboard with wrists cocked and fingers typing.

Engaging in any repetitive physical motion will cause ailments. Just as the prolonged use of desktop and notebook computer keyboards can cause CTS, texting on a phone can cause a similar problem in thumb muscles; utilizing a game controller for hours on end can cause arm, wrist, and hand pain; and the overuse of a kinetic controller to bowl or play tennis can cause injury as well.

Staring at a computer screen without proper light for many hours can cause a variety of vision problems. In some cases, your eyes get tired, itch, or even burn. In more severe cases, double or blurred vision can result, making it unpleasant to work and reducing your efficiency. In addition to wrists and eyes, you can get a sore back, sore arms, and headaches from long hours working with computer systems without taking adequate breaks. The solution to avoiding repetitive stress injury is to carefully gauge the amount of time spent carrying out repetitive motions, take frequent short breaks or change positions, and practice ergonomic methods for reducing strain on the body.

Some individuals who use computers all day long opt for a standing desk. Some studies suggest that sitting at a desk all day increases the risk of heart disease by up to 147%. So many office workers are switching to standing desks—taller desks, or adjustable desks, that allow a computer user to stand and type comfortably. Typically, a soft rubber mat is used as well to decrease strain on the legs and back.

Ergonomics is the study of designing the work environment and positioning computer equipment in a healthy manner. Knowing how to address the strains and stresses on your body from using digital technologies will help you to lead a healthier digital lifestyle. Ergonomics studies all possible ill effects of digital technologies on your body and recommends ways to avoid them.

There are many ergonomic approaches to reducing computer-related health problems. The slope of the keyboard, the position and design of displays, and the placement and design of computer tables and chairs have been carefully studied. Flexibility is a major component of ergonomics and an important feature of computer devices. People of different sizes and tastes require different positioning of

equipment for best results. For example, some people want to have the keyboard in their laps; others prefer to place the keyboard on a solid table. Because of these individual differences, computer designers are attempting to develop systems that provide a great deal of flexibility.

Lesson 6.3: Societal Changes

Lesson 6.3 Introduction

In addition to the physical and mental impacts on an individual, computers and digital technology have also had tremendous ramifications for whole societies. With constant, always-on access to the sum total of knowledge of humanity at our fingertips, has come unprecedented opportunities for cooperation and social growth, but the risks of misunderstanding and misinformation have increased just as rapidly. Our ability to recognize and adapt to these challenges will be a significant factor in the future development of our communities and cultures.

Reading: Ubiquitous Computing

Ubiquitous Computing

Ubiquitous computing refers to a culture where digital technologies are embedded in the environment, making interaction with the technologies second nature.

"Is this being social?" by Scrap Pile is licensed under CC BY 2.0

Why This Matters

Digital information and services are essential commodities in today's world. The goal of those that provide such commodities is to make them available to customers anywhere, anytime, with maximum convenience. Digital services of all kinds delivered by numerous Internet-connected devices are increasingly becoming part of our environment. For example, Amazon Go uses computer vision, sensor fusion, and deep learning in a new kind of store with no checkout required. Shoppers swipe their phone at the entrance, pick an item off the shelf, toss it in their bags and walk out of the store. The technology is able to tell what shoppers take off shelves and automatically debit their accounts.

Essential Information

Pervasive computing refers to the ability to access computing and information technologies at any time, in any place. Ubiquitous computing goes beyond pervasive computing to the point where computing is a part of the environment. The Internet of Things and artificial reality are ushering in the era of ubiquitous computing, providing everyday objects with the ability to sense their environment and relay information over a network. Mark Weiser, a researcher at Xerox PARC coined the term ubiquitous computing. He envisioned a world of "calm technology," where technology is so prolific that it is no longer even noticed. Just as we can stroll a city street without consciously noticing the dozens of signs and billboards that our eyes are automatically taking in, in the age of ubiquitous computing, we take for granted the digital technology that surrounds us.

Digital communication has also become pervasive. Mobile phones put us in near continuous contact with colleagues, family, and friends as well as give us instant access to information and a world of products and services. While we have access to all of this anytime, anywhere, others also have access to us anywhere, anytime. Our every move is recorded by cellular networks, and our every online activity is recorded and analyzed by innumerable agencies. Although ubiquitous computing provides many conveniences, it brings with it threats to individual privacy.

Reading: Digital Etiquette

Digital Etiquette

Digital etiquette refers to using digital technologies in a manner that is respectful to others.
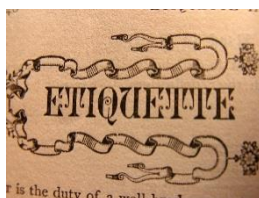
"etiquette" by Muffet is licensed under CC BY 2.0

Why This Matters

People are spending more time interacting with each other through digital technologies. These new forms of remote communication bring with them new opportunities for misunderstanding, rudeness, and hurt feelings. It is important for people to consider which types of communication over digital devices are acceptable, and which are not, and to learn to treat each other with respect online and in person.

Essential Information

The concept of digital etiquette first arose around issues in email and chat rooms. Email users are well aware of misunderstandings that can arise from poorly worded email messages. Users of chat rooms, online discussion groups, and other forms of Internet communication have experienced rude behavior from anonymous sources wishing to stir up trouble. With experience, users learn how to carefully word text messages to avoid misunderstandings and to go out of their way to be courteous and respectful to others online while ignoring those with no manners. This type of network etiquette is sometimes referred to as netiquette.

As with all forms of etiquette, levels of tolerance vary from person to person. In general, consideration should be shown to those with whom we interact and those around us.

The use of mobile phones in public places sometimes offends traditional notions of courtesy and etiquette. Cell phone users should be mindful not to inconvenience or disturb those around them. They should also remember not to make important calls over unreliable connections.

Netiquette has extended to social media as well. Many users of Facebook and other social media have experienced or witnessed embarrassing interactions. The table below provides some useful tips for safely navigating relationships on social media.

Social Media Etiquette and Safety

Topic	Tip
Friends	Select friends wisely. Make sure your posts are mindful of who is in your collection of friends. It

Topic	Tip
	may be unwise to mix your friends with your business associates and superiors.
Sharing	Be conservative on the number of posts and the topics you post on. If you post frequently and on issues of little interest, your friends may soon tune you out or block you. Do not argue with friends in a public forum; save it for private communication when necessary.
Photos	Use discretion with the photos you share. Make sure they show you and others in the photo in a positive light.
Consideration	Do nothing to embarrass your friends on the network. Many friendships have been ruined due to poor judgment in photos and posts.
Chat	Just because friends are online doesn't mean they are interested in chatting. Don't infringe on your friends' time and privacy with trivial chat.
Tag lightly	Don't tag your friends in photos unless you are certain they won't mind.
Settings	Make sure to go through every privacy and security setting on your social network and share your content only with those you are comfortable sharing with.
Games and Apps	Think twice before allowing games and apps to share info with your friends. Many users don't appreciate friends that use their relationship for app ads. Also be mindful that most apps can access your personal profile information and that of your friends.