

Health and Technology

Lecture 10 - COMPSCI111/111G SS 2020



"It's called Ergonomics."

Health and Technology

- ▶ Technology has a large impact on our lives, not all of it positive.
- ▶ We will discuss the following types of health issues related to technology:
 - ▶ Psychological
 - ▶ Physical

Psychological Issues

iDisorders

Distraction [1]

- ▶ Digital devices are highly pervasive and are demanding of our attention.
 - ▶ "Cognitively penetrating"
- ▶ Checking - repeatedly accessing your digital device interrupting your current activity.
- ▶ A 2012 study of 777 students at 6 U.S. universities found that :
 - ▶ On average a student used a digital device for non-class purposes 11 times during a typical school day.
 - ▶ 80% indicated that such behaviour caused them to pay less attention in class and miss instruction.

Instant Gratification [2]

- ▶ The desire to experience pleasure or fulfilment without delay or deferment.
 - ▶ You want it, and you want it now.
- ▶ Always online digital devices have raised the expectation for immediate gratification.
 - ▶ E.g. expecting immediate responses to social media posts or texts.
- ▶ Has resulted in:
 - ▶ Increased impatience
 - ▶ Unrealistic expectations
 - ▶ “checking”



Narcissism [3]

- ▶ Personality trait characterized by a grandiose sense of self-importance.
 - ▶ Engage in self-promotion, vanity and superficial relationships.
- ▶ Younger people show a stronger urge to report their activities and believe their social media audience care about them.
 - ▶ A 2009 study of 16000 college students in the US found that they scored substantially higher on the Narcissism Personality Inventory than their cohort 20 years ago.
- ▶ Studies have suggested social media exacerbates and even encourages narcissism.
 - ▶ Users may tailor their profile pictures, status updates, biographies and even lists of friends in order to appear more attractive.



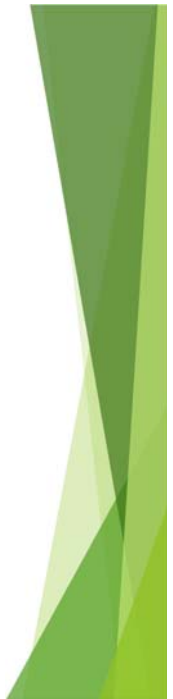
Mood Disorders [3]

- ▶ Extensive evidence documenting a relationship between depression and technology.
 - ▶ Excessive texting, viewing video clips, video gaming, chatting etc.
- ▶ Depression may be transmittable through technological interaction.
 - ▶ Consumption of depressing media, particularly movies and music can induce a negative affect.
 - ▶ “emotional contagion”



Deficits in Social Skills [4]

- ▶ Increased interaction with technology has led to a reduction in human interaction.
 - ▶ Face-to-face communication skills are negatively affected.
- ▶ Visual cues are an important part of face-to-face communication.
 - ▶ Includes facial expression, eye contact, tone of voice, posture, and spatial distance.
 - ▶ Need to be able to modify one’s own behaviour in response to the reactions of others.
- ▶ A 2014 study of 105 U.S. children was carried out.
 - ▶ 51 children in the test group did not use digital devices for 5 days - only face-to-face communication.
 - ▶ 54 children in the control group continued to use their digital devices.
 - ▶ Test group recognition of nonverbal emotional cues was significantly better than that of the control group.



Physical Issues

Computer Vision Syndrome [5]

- ▶ Results from focusing eyes on a computer or other display device for long, uninterrupted periods of time.
- ▶ Symptoms of CVS include:
 - ▶ Dry eyes
 - ▶ Blurred/double vision
 - ▶ Eyestrain
 - ▶ Red/irritated eyes
- ▶ Treatment/Prevention:
 - ▶ Proper lighting within computer workstation area
 - ▶ Appropriated screen distance and position
 - ▶ Work breaks
 - ▶ Lubricating eye drops

Hearing Loss [6]

- ▶ Listening to media through headphones or earbuds for prolonged periods of time at high volume can cause permanent hearing loss.
- ▶ A 2005-2006 study reported that 19.5% of American adolescents aged 12 to 19 suffered from hearing loss.
 - ▶ An increase of 33% from that reported in 1988-1994.
 - ▶ Some of this increase may be attributable to headphone/earbud usage.
- ▶ Prevention:
 - ▶ Lower volume. If other people can hear the music you are listening to it is most probably too loud.
 - ▶ Limit exposure. Moderate noise on a regular basis can lead to hearing loss.

Occupational Overuse Syndrome [7, 8]

- ▶ Also referred to as Repetitive Strain Injury (RSI).
- ▶ Umbrella term for range of conditions characterized by:
 - ▶ Muscle discomfort
 - ▶ Aches and pains
 - ▶ Muscle tightness and spasms
 - ▶ Numbness and tingling
- ▶ Pain may eventually become constant and associated with loss of muscle strength and sleep disturbances.
- ▶ Factors that can lead to OOS developing include:
 - ▶ Repetitive movement - e.g. typing
 - ▶ Awkward postures - e.g. sitting at a desk
 - ▶ Poor ergonomics
 - ▶ Psychosocial factors - excessive workload, impending deadlines
 - ▶ Poor work practices - e.g. poor time management

Occupational Overuse Syndrome [7, 8]

- ▶ There are a number of steps that can be taken to prevent OOS.
- ▶ From a workplace perspective:
 - ▶ Design equipment and tasks with people in mind e.g. ergonomic workstations.
 - ▶ Pay attention to work environment - e.g. lighting.
 - ▶ Train and educate all staff.
- ▶ From a personal perspective:
 - ▶ Stop activity when discomfort is felt
 - ▶ Maintain correct posture
 - ▶ Take regular breaks
 - ▶ Avoid prolonged, repetitive movement or activity
 - ▶ Manage stress levels
 - ▶ Educate yourself about OOS prevention

General Solutions for Healthy Use of Technology

- ▶ Take breaks both large and small.
- ▶ Moderate your social media presence.
 - ▶ Try cutting down the number of posts or status updates you make each day.
 - ▶ Are you posting for narcissistic reasons or with communication as a goal?
- ▶ Give your work or entertainment space an ergonomic makeover.
 - ▶ Pay attention to lighting, chair, display position etc.
- ▶ Maintain a healthy lifestyle.
 - ▶ Appropriate diet
 - ▶ Exercise
 - ▶ No smoking

Summary

- ▶ Technology can have a negative effect on your health.
- ▶ Psychological Issues:
 - ▶ Distraction
 - ▶ Instant gratification
 - ▶ Narcissism
 - ▶ Mood disorders
 - ▶ Deficits in social skills
- ▶ Physical issues
 - ▶ Computer Vision Syndrome (CVS)
 - ▶ Hearing loss
 - ▶ Occupational Overuse Syndrome (OOS)

References

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