Health and Technology

Lecture 11 - COMPSCI111/111G SS 2018

"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

- 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

- 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

- 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

- 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

- 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

- 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

- 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

- 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

- 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)