Chapter 7:
Evaluating and Controlling Technology

Lesson Objectives: Be able to informatively discuss these topics and questions

- Can you trust information on the internet?
- Can you trust computer models?
- The "Digital Divide"
- Are Neo-Luddite criticisms valid?
- Should there be limits on developing new technologies?

Can you trust information on the internet?

- Expert information or 'wisdom of the crowd'?
  - Lots of information, much is not correct
  - Search engines rank by popularity, not accuracy
  - Info will be useful, will it be good?

- Wikipedia

Can you trust information on the internet?

- Vulnerable viewers
  - Less educated individuals
  - Children

- Narrowing the information stream
  - Users tend to see only one type of perspective
  - Social media customizes and caters to your interests

Can you trust computer models?

- Evaluating Models
  - How well do the modelers understand the underlying science or theory?
  - Models necessarily involve assumptions and simplifications of reality.

- Why models may not be accurate
  - We might not have complete knowledge of the system we are modeling.
  - The data describing current conditions or characteristics may be incomplete or inaccurate.
  - It is difficult, if not impossible, to numerically quantify variables that represent human values and choices.

Discussion: Breakout Rooms

- 3 minute Discussion with your group
- 1-2 minute Reporting to the class

The Question:

- Many of you are seniors, or know what you want to do after Clemson. How can you, as an educated creator of technology, promote responsible judgement in tech and protect vulnerable viewers?

The "Digital Divide"

- **Trends in Computer Access**
  - New technologies only available to the wealthy
  - The time it takes for new technology to make its way into common use is decreasing
  - As technology becomes more prevalent, the issues shift from the haves and have-nots to level of service

- **The Global Divide and the Next Billion Users**
  - 4.6 Billion people use the internet, twice as many as when the textbook was published
  - Bringing new technology to poor countries is not just a matter of money to buy equipment; PCs and laptops must work in extreme environments.
  - Some people actively working to shrink the digital divide emphasize the need to provide access in ways appropriate to the local culture.

Discussion: Breakout Rooms

- 3 minute Discussion with your group
- 1-2 minute Reporting to the class

The Question:

- Can you name an instance where there has been a loss of happiness or culture due to the internet or technology?

Neo-Luddite Criticisms of Computing Technology

- Computers:
    - cause massive unemployment and de-skilling of jobs.
    - "manufacture needs"; we use them because they are there, not because they satisfy real needs.
    - cause social inequity
    - cause social disintegration and weaken communities
    - contribute to isolation
    - separate humans from nature and destroy the environment
    - benefit big business and big government the most
    - thwarts development of social skills, human values, and intellectual skills in children.
    - do little or nothing to solve real problems.

Neo-Luddite Criticisms of Computing Technology

- What is the purpose of technology?
    - To Luddites, it is to eliminate jobs to reduce cost of production
    - To non-Luddites, it is to reduce effort needed to produce goods and services

- Nature and human life styles
    - Luddites argue that technology has made no important improvements in life.
    - Many debates set up a humans-versus-nature dichotomy.
    - Whether a computing device is "good," by a human-centered standard, depends on whether it meets our needs, how well it does so, at what cost, and how well it compares to alternatives.

Accomplishments of Technology

- Accomplishments of technology
  - Increased life expectancy
  - Elimination or reduction of many diseases
  - Increased standard of living
  - Assistive technologies for those with disabilities

Discussion: Breakout Rooms

- 3 minute Discussion with your group
- 1-2 minute Reporting to the class

The Question:

- Do you agree or disagree with Neo-Luddite views? Explain your reasoning.

Should there be limits on developing new technologies?

- Each new technology finds new and unexpected uses
- The history of technology is full of wildly wrong predictions

- Should we decline a technology because of potential abuse and ignore the benefits?
- New technologies are often expensive, but costs drop as the technology advances and the demand increases

Discussion: Breakout Rooms

- 3 minute Discussion with your group
- 1-2 minute Reporting to the class

The Question:

- Should there be limits on developing new technologies?