DAY 2: DEFINING TECHNOLOGY

Nye, Preface (2006)

- Why is technology important according to David Nye?
- Technology is inseparable from humans.
- Technology creates our imagination at a young age.

Nye, Chapter 1: Defining Technology

- Multiple definitions to defining technology.
- Narrative or story telling as important part of technology.
- Systems of meaning.
- Identity and cultural meaning.
- Necessity is not always the mother of inventions.
- Why is important to think deeply about technology?

Does Improved Technology Mean Progress? (1987)
Author: Leo Marx, MIT Professor, Field of American Studies

- Three different ideas of technological progress.
- Progress = Social Progress.

- The Enlightenment Belief in Progress: Comprehensive improvement. Social, political, intellectual material and moral.
- Ideal Progress: Political Revolution (Political and Social Liberation)
- "The test of a technological innovation is its effect on the overall quality of life".
- Example: Ben Franklin, designs as a benefit for all.
- The Technocratic Concept of Progress: technological innovation in itself is sufficient basis for progress.

KEYWORDS:

1. Technological Determinism.
2. System of Meaning: hangers for our clothes (the skill and story needed to deal with them).
3. Tacit Knowledge: unspoken knowledge (tied with systems of meaning).

PROGRESS

1. Enlightenment (Europe 18th): separation of science (state) from religion (the church).
2. Technocratic: Belief that scientific and technological innovation is sufficient basis for progress. Controlled by elite technical experts.
3. Social Liberation: The current time period of the author where everyone was skeptical of technology and had seen its true capabilities.

4. Industrial Revolution (18th century): the rise of a working class and growth of industrial cities.

DAY 3: TECHNOLOGICAL DETERMINISM

Nye, Chapter 2: Does Technology Control Us?

- Technology is not deterministic (according to Nye).
- An example of how technology does not control us: guns used in Japan and the Western.
- Social Construction of Technology (after) vs. Technological Determinism (before).
- Karl Marx, Idea of Industrialization (Marxism): human society developing through class struggles.

Nye, Chapter 7: Work: More or Less? Better or Worse?

- Industrialization as a complex problem: advanced technology limit routine jobs while they create others.
- Increased number of skilled workers, increased pressure to perform.
- Cultural Influence: still only two weeks of standard vacation.
- Globalization : Why do we work so much?
- Social Construction of Technology and Technology Momentum

Do Artifacts have Politics? (1986)
Author: Langdon Winner

- Yes, they do have politics.
- 1. Technology that isn't necessarily political but used in political ways (bridges, tomato harvester)**
  2. Inherently political, towards a system of governance (nuclear power, solar power)*.
- Technology as ways of building order in the world.

KEYWORDS:

1. Technological Determinism (no random): relating to the philosophical doctrine that all events, including human action, are ultimately determined by causes regarded as external to the will.
2. Technology Determinism: theory assumes technology determines the development of a society's social structure and cultural value.
3. Technological Momentum: a theory about the relationship between technology and society over time.
4. Technological Momentum: build systems around the technology as more people adapt it.
5. Industrialization: broke the bonds of communities. Widened gaps between classes.
6. Social Construction of Technology: technologies are shaped by social conditions, prices, and government policy.
7. Political Effects: bridge, iron workers, benches, tomato harvester.

DAY 4: TECHNOLOGY, GENDER AND EQUITY

The Intersection of Culture, Gender, and Technology (2009)
Author: Patrick Hopkins

- Technology reinforces gender systems.
- To improve gender equality, change and alter technology.
  Example: women in the army can now use guns because it does not require the same physical strength required (due to technology).
- Technology can eliminate or subvert gender based jobs.
- 1. Association of technology and gender.
  2. Technology and gender restrictions.
  3. Technology can subvert gender systems.
  4. Technology can change our ideas of sex and gender.

The Trouble with 'Women in Computing' (2016)
A Critical Examination of the Deployment of Research on the Gender Gap in Computer Science
Author: Anna Vitores and Adriana Gil-Juárez

- Critique of the "Leaky Pipeline" metaphor.
- 1. It suggests its a linear path.
  2. Puts the blame on the minorities or women (blames them).
- Rather the whole environment of the stem field needs to change.
- 1. Making contributions visible.
  2. Other usage of computing work and skills.
  3. Making women who enjoy computing visible (other cultures such as India)
  4. Making non-Western more visible.

What is Gendered Innovations?
Pregnant Crash Test Dummies
Author: Londa Schiebinger

- Case Study of Pregnant Crash Test Dummies.
- Generally white male body type, no other test dummies or technology considering others.
- Standards and guidelines: process of how to use sex and gender to enrich and better research.
- Provide scientists and engineers with practical methods for sex and gender analysis.

KEYWORDS:

1. Sex: is a biological category.
2. Gender: is a social and cultural category.
3. Three Waves of Feminism
   A. First Wave (19th and 1920s early century): basic legal rights, the right to vote for women.
   B. Second Wave (1960s and 1980s): mainly white women and not intersectional feminism. Reproductive rights, equal pay, credit cards for women, domestic violence.
   C. Third Wave (1990 ??): sex vs. gender, intersectionality, empty the tanks.

4. Gender Bias: unfair in the way women and men are treated.

DAY 5: TECHNOLOGICAL SOMNAMBULISM

Technologies as Forms of Life (1986)
Author: Langdon Winner

- "Much more than we acknowledged in the past, we must admit our responsibility for what we are making."
- Sleepwalking through technological lives.
- Langdon invented the word to explain interaction of humans and technology.
- Technology Assessment: incomplete way of assessing not only one angle.

Choices, Beyond Engineering: How Society Shapes Technology (1997)
Author: Robert Pool

- "Best" technology does not always "win".
- The market does not decide.
- How should we make decisions about technology?
- More active than passive way to make choices.

Nye, Chapter 3: Is Technology Predictable?

- Four Reasons why technology is NOT predictable.
  1. Fundamental inventions take time to spread.
  2. Best designs do not always win.
  3. Unanticipated Usage.
  4. Symbolic Usage.

KEYWORDS:

1. Technological Somnambulism: sleepwalking through our choices in technology.
2. Negative vs. Positive Feedback: in negative body sense a change and activates mechanism to reverse it, in positive loop causes self-amplifying cycle, even greater change in the same direction.
3. Prediction: breakthrough inventions by inventors and writers.
4. Forecasting (<10): improve innovations of previous inventions by engineers and entrepreneurs.
5. Projection (<3): the markets and business by designers and marketers.

DAY 6: ENGINEERING AND PUBLIC POLICY

Why Engineers need Public Policy Training & Practice (2009)
Author: Andrew Colombo and Bryan Karney

- Policy Case Examples: Public Transportation Systems, Ethanol Fuel.
- Corn - Based Ethanol was promoted by the Bush Administration, however it used more energy than expected.
- Obama Administration chose another fuel; why were engineers not part of the policy considerations?

- Policy is something that engineers make as well, however we are not aware of our changes and interactions with it.
- We make important technological choices that impacts the public transit that will influence the cost, accessibility, usage.
- “As engineers, our collective approaches tend to be ad hoc, random and subject to the whims of a process we can barely understand and rarely appreciate.”

- Recommendations:
  1. Understand public policy
  2. Engineers can contribute to public debates from an engineering perspective.
  3. Engineers need to be taught about policy in order to successfully participate in policymaking.
- Engineers should get better at contributing to policy.
- How engineering curriculum should change ?

Why the fuck do they expect us to do everything?

Code is Law, Harvard Magazine (2000)
Author: Lawrence Lessig, Lawyer, Law Professor from Harvard.

- Code and Other Laws of Cyber Space (1999).
- Very little law protecting the internet, the code itself is the law for the Net.
- Code as an Invisible Regulator: obsessed with idea of liberty “freedom from government," we don’t see regulations in the new space.
- “The choice about code and law will be a choice about values.”
- Choices about code are choices about values.
- Regulations not inevitable.
- Code regulates us using IP protocols.

KEYWORDS:

1. Algorithmic Bias: Youtube drives people to the internet’s darkest corners. The Youtube algorithm pushes you to the extreme. You searched ‘Vegetarianism,' it would push you to veganism.
- Used to Determine Sentencing and Parole (Accurate 61%): Prediction Fails Differently for Black Defendants.
- Gender Bias: Translation of gender pronoun in Google Translation.