Thinking of technology in a broader way

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Modernity, advancement, and progress

Technology as physical objects: Tools, machines. Instruments, weapons, appliances
Technology as knowledge: "know-how" behind a technical innovation
Technology as activity: skills, methods, procedures
Technology as process: needs theory
Technology as a socio-technical system: interaction between humans and objects (study the machines outside of society as a whole, to study the interplay between technology and society)

- Technical and practical arts are words used to emphasize the notion of knowledge and skill
- The root tech is often synonymous with words associated such as weaving, building, making.
- Revolutionary : many times within the popular media, the name of your gadget is called revolutionary
- Technology has fundamentally shifted or changed to society quite abruptly
- Tech. has shaped society also
- Debates of what constitutes revolutionary technology (such as the internet because of the fact that it has changed society)
- However some would argue that a technology created 100 years ago has more of an effect than what we have today (telegrapher)
- Overtime the speed of the communication was a shift that is much more stronger than the shift in internet
- Evolutionary : when we talk about technologies of the past and the present, we can make connections of technologies in the past and the present
- Connections, of how these devices are used and who gets to control those various forms of devices
- SUCCESS AND FAILURE
- Trying to better understand why a tech can be so successful in one part of the world but be a complete failure somewhere else.
- Progress, advancement, and modernity
- Level of civility effects how many people think about other countries who are not able to cope with some technologies. "The western side of the world is more modern etc."
- Social, economic, culturual, legal ways technology is developed and used
- Ex. Use of the wheel : By the third century many communities in north Africa became aware and knew how to use the wheel as a method of transport. However, after the wheel was an idea that people thought should be banned, because they felt it did not fit the needs and wants of their society at the time.
- Geography of northern Africa : travelling across the desert was common, and the wheel would break down in the middle of the desert. Which made them lose faith in the method of transport
- They decided to use something more efficient such as a camel.
- Ex. 2. 16th century japan : was initially introduced by the western world to the gun weaponary for battle. However, the used them for a period of time, in their own arsenal but abandoned the use after.
- They felt that the use of weaponry and the Japanese military at the time went against what was traditional Japanese culture (samurai culture)

- They felt that it did not mesh well. Which concluded the abandoning of the gun .
- Distinction between invention and innovation
- Many things are invented but very few become commercially successful
- Transition from invention to innovation
- Becoming successful on the marketplace

Technological Determinism:

- With deterministic reasoning, tech is what is responsible for all of the changes we see in society
- Primary agent of social change
- Tech primary factor in understanding and explaining social change
- Popular technology has shaped society in a way
- Computer age, electronic age, etc. ← Classic determinism
- In determinism there is an acknowledgment that humans create technology, but overtime lose control over them
- Technology controls us, not the other way around.
- With determinism there is a suggestion that we have no control over the technology we create, we are slaves to it
- Notion of causation : technology causes all of the kinds of changes we see in society (religious, culturual, economic change)
- Driving force of history : technology

Why determinism remains such a popular theory amongst the mainstream media + problems

1. It provides people with simple and easy to understand explanations of complex events (historical change)

Ex. Sexual revolution : historians suggest that " the revolution was caused by the introduction of the birth control pill" (birth control pill caused people to become more liberated because they didn't have to worry about things they did before the birth control pill was introduced)

Problem: it is a very simple way to explain the event. For example, you have to think of other factors other than the birth control pill (economic etc.) . The birth control pill was used by married women more than other women, which causes a dent in how you think about it.

2. Humans might create new technologies but often times wont have control over the technology they create. (economic and business communities) ;Much easier to blame technology for social consequences that come with it, rather than the human.

Ex. Intro of new computers: caused people to be laid off (technology is causing this) You make the assumption it was the computers that caused this, rather than the person who actually made it, because of the fact that computers, machines and objects cannot talk back. Many times the person who made this is the one who has power. Who made the choice of using the technology.

Problem: You can blame technology for social consequences because of technological advancement and implying that you had no choice. Humans do have a great deal of choice when it comes to implementing and designing technology. And when we know this, it creates a dent of how we think about this.

3. Criticised by historians as a Universal theory: can be implied anywhere.
    - Technology will impact all societies in the same way
    - One technology might have a different impact in different ways

Notion of technology being used in only one way: used in the way that the inventor envisioned. However, technologies don't have essences and can be used in multiple ways. Therefore there is not point of thinking of it in one way.

4. Scholarly academic way ; consumers of technology : Elements of determinism are extremely prevalent in the marketing of technology.
   Ex. New devices and technology are implicated that if you purchase it, it'll change your life forever, you'll be more connected, have more friends, more social life, moving along with the time. You're a leader. If you don't purchase it, you have no social life, you're subordinate. Many of us are susceptible to these commercials.
   Rogers ad.

- TECH → Society :
  - idea of technology having a one way impact on society.
  - Society does not have an impact of technology

  **Social construction of technology theory
  **Social shaping of technology
- These theories suggest that humans do have choices in terms of how they use and react to these technologies.
- Approach we're taking in this course is Tech ← Society and that it's a two way street.
- It has a major impact on society as well.

Technology as applied science theory

- Implication that technologies are a result of scientific research or discovery.
- Suggests that tech are developed or come out of basic science research
- The idea of tech as applied science is indeed quite true for our modern era , in our modern world there are many instances where technologies have come out of basic science research. (1800s or late 19th century onward → modern era)
- However, the idea of this is not true for the rest of history. Before late 1800s this does not make any sense. Not an idea that we can consider because before the 1800s most technologies were created with little to know scientific technology behind it
- Many times technical development has been independent of scientific research

"Necessity is the mother of invention" : technology is created out of the needs of society

Necessity Theory/ Needs Theory

- It is very popular within economic and business world
- New technologies are solely created for human needs
- Sometimes this theory is true : technologies are created in fact out of need.
- However, this theory more often than not , does not work because :
  - Throughout history many techs have been created for reasons other than need (love, hate, pride, to show off, sometimes for no reason whatsoever) ; Basically its not solely based on need
  - Time lag argument : some techs might be created in one time period but may not be used til much later on. If this happens, people did not see a NEED to use this for a very long time. Ex. Windmills introduced in the 12th century but landowners would not accept these for 100 years. When you have this time lag, its not a necessity argument

- Unintended consequences : inventor might create something for one reason but users may use it for a totally different reason. Uninteded consequences.

**Reading by Melvin Crantzburg : Invention as the mother of necessity