

Theories of technology workshop [prototype]

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Keywords

Science and Technology Studies (STS), digital culture, social informatics, critical information studies, mediation, technological determinism, social determinism, utopias and dystopias, revolutions and continuities.

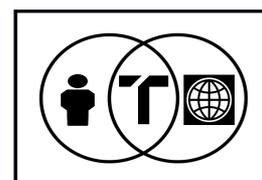
Introduction

This is work in early progress.

The objective is to develop our thinking about technologies, ourselves and our world, in both a general and critical way. There may be controversial or emotional examples, but this workshop doesn't aim to resolve specific questions around specific technologies, rather using these as examples.

Human / technology relations

Mediation theory is one attempt to describe relations amongst human, technology and world (see University of Twente, 2021a).



Activity: Try identify human, technology and world

Examples: oven, spectacles, artificial heart, lighting, thermometer, smart house, smart wearables, hammer, computer. Consider also *technological complexes*, such as an information system, factory or city.

Theory

Types of mediation:

Fusion	(human / tech) -> world	E.g. artificial heart
Embodiment	(human - tech) -> world	E.g. spectacles
Hermeneutic	human -> (tech - world)	E.g. thermometer
Alterity	human -> tech (- world)	E.g. ATM, food processor
Background	human (tech - world)	E.g. Lighting, heating, internet?
Immersion	human <-> tech / world	E.g. smart environments
Augmentation	(human - tech) -> world -> (tech - world)	E.g. smart glasses

(Based on University of Twente, 2021b and Verbeek, 2015)

Key points:

Humans, technologies and the world are more whole than separate. Human / technology relations are complex and go beyond interaction to mediation.

See also:

Actor–network theory (ANT) by Latour and others.

Cyborg (e.g. "A manifesto for cyborgs" by Donna Haraway, 1985).

Philosophy of technology: 'essentialisms', 'substantivisms' and 'instrumentalisms'.

Good and bad technologies?

"Technology is neither good nor bad; nor is it neutral."

(from Kranzberg's 'six laws of technology' - Kranzberg, 1986 in Balslev, 2019).

Activity: Assessing technologies

2.1. Are specific technologies good or bad or neither or either?

2.2. Why?

Examples: Electricity, nuclear power, nuclear weapons, solar power, automobile, bicycle, knife, sword, combine harvester, computer, internet, blockchain, factory, city.

Key points:

Assessing technologies can be complex, leading to questions of social or technological determinisms as below.

Social determinisms and technological determinisms

Why might technologies be good or bad? By their nature or how they are used or both?

Activity: Which is dominant- the technology or society or neither?

Examples: As above.

Theory

There have been theoretical swings between 'technological determinist' and 'social determinist' views. Technological determinism sees technologies as the driving force in human social affairs. Social determinism sees social factors dominating technological development. These are extremes, with positions usually in-between.

Winner (1980) summarises how views emphasising the social determination of technology arose to counter "naive technological determinism" that overemphasises the causal effects of technologies. He then returns to a focus on technology, arguing that "artifacts have politics". For example, he uses theories that nuclear power requires centralised, authoritarian control, while solar power enables decentralised, democratic systems. The question is to what extent specific technologies might "require" or at least be most "compatible" with either democratic or authoritarian social systems, and what choices there are.

Jordan (2009) argues that both social and technological determinisms are relevant, using 'hacking' as an example: "Cracking is about using social norms to determine technological constraints and it is about using technological determinations to cause different social norms".

Technological or social determinist views can link with 'utopian' or 'dystopian' positions. They can also link with views of whether technological developments are 'revolutionary' or 'continuous'- i.e. historically defining events, bringing in a 'new era', or continuous with previous developments and appropriated by the social status quo. For example, consider 'On the age of computation in the epoch of humankind' by Rosol et al. (2018).

Key points:

Technological and social factors are both significant. There is both "social shaping of technology" and "technological shaping of society"- the human / technology relation is "socio-technological" (Jordan, 2009). Beware 'utopian' or 'dystopian' biases.

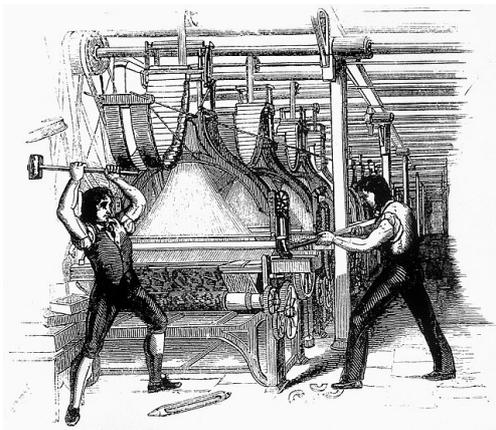
Conclusion

Human / technology relations are complex and 'sociotechnical'. Considering these complexities can help us recognise simplistic analyses and biases, for example technological determinist or socially determinist, and utopian or dystopian positions. From a solid theoretical foundation, we can consider questions of humanity and technology critically.

Discuss and debate.

To finish on a more 'radical' note..

Luddism



The Luddite movement was a short-lived but influential uprising in the early 1800s in Britain. Workers attacked the emerging factory system and machines, rallying around a legendary 'General Ned Ludd'. It was strongly suppressed, but continues in neo-luddite revivals. A key point is that Luddites are not opposed to all technology, only "machinery hurtful to commonality" (Simon, 2011).

Frame-breakers, or Luddites, smashing a loom (From commons.wikimedia.org)

Activity: Smash or keep?

Theory notwithstanding, which technologies would you smash or keep?

Examples: electricity, automobile, bicycle, scooter, clothes, robot, television, clock, iron, money, plastic, computer, smartphone, printer, big data, spaceship, factory, city, hammer.

Readings and links [work in progress]

Haraway, D. (1985) *A manifesto for cyborgs: Science, technology, and socialist feminism in the 1980s*. Available at:
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Jordan, T. (2009) 'Hacking and power: Social and technological determinism in the digital age', *First Monday*, 14(7). Available at:
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University of Twente (2021b). *Philosophy of Technology and Design: Shaping the Relations Between Humans and Technologies*. Available at:
<https://www.futurelearn.com/courses/philosophy-of-technology>

Verbeek, P. P. C. C. (2015) 'Beyond interaction: a short introduction to mediation theory', *ACM Interactions*, 22(3). DOI:<http://dx.doi.org/10.1145/2751314>. Available at:
<http://interactions.acm.org/archive/view/may-june-2015/beyond-interaction>

Winner, L. (1980) 'Do Artifacts Have Politics?', *Daedalus*, 109(1), pp. 121–36. Available at:
<https://faculty.cc.gatech.edu/~beki/cs4001/Winner.pdf>

See also:

95 theses at 95theses.co.uk

The New Lucas Plan at lucasplan.org.uk

Breaking the Frame at breakingtheframe.org.uk

Critical Information Studies (CIS) research group at dtmd.org.uk