Technological Determinism vs. Socio-Technical Perspective

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Abstract:

An analysis of the journalistic treatment of technology in popular discourse contrasted with the concept of sociotechnical research.

Keywords:

*technological determinism, socio-technical research, ICTs, popular discourse, social constructivism, productivity paradox*
Information and communication technology (ICT) is a broad term that encompasses all concepts relating to telecommunications, such as smartphones and computers. As ICTs continue developing and more devices become integrated into society, a new discussion has emerged. The impact of ICTs is divided into two main perspectives, technological determinism and sociotechnical research. This drastic contrast of observing impacts of ICTs is evident in an article published in 2017 by *The Atlantic*, “Have Smartphones Destroyed a Generation?” The article sharply juxtaposes that of research done in the field of social informatics.

The article, “Have Smartphones Destroyed a Generation?”, focuses on the generation born between the years 1995 and 2012. In particular, the article addresses how ICTs have affected the lives of those born within those years. The author, Jean M. Twenge, establishes most of her argument from anecdotal interviews done with a 13-year old. Twenge has come to the conclusion that through her research, “the clearer it became that theirs is a generation shaped by the smartphone and by the concomitant rise of social media”(2017). She discusses how there is a direct linear relationship between the amount of time a teenager looks at screens and how likely they are to report symptoms of being depressed. This psychological distress manifests itself due to teenagers spending time on their smartphones on social media applications, which can lead to teenagers feeling left out after seeing friends hanging out without them. The article also discusses the negative impact and bullying that has resulted from the advent of social media. Twenge states that “social media give[s] middle- and high-school girls a platform on which to carry out the style of aggression they favor, ostracizing and excluding other girls around the clock”(2017). Overall, the article does not seek to disparage an entire generation, rather it hopes
to explain generational differences in a simplified manner. Throughout the article, smartphone usage and social media are vilified and seen as causes of depression in many different ways. The article treats technology as a separate sphere from society. As technology advances, so does the negative impact it may have on society. Culture is becoming shaped by evolving technology, which is a perspective known as technological determinism.

Technological determinism refers to societal changes occurring as a result of new technological advancements. In the early days of computerization, Vannevar Bush wrote the essay, “As We May Think,” which described an innovative machine that could store information and records. The essay alluded to a “utopian” vision of science that claimed that technology is what drives human progress (1946). This approach of technological determinism is largely an outdated way of thinking in information systems research; however, it still is prevalently seen in popular discourse. In popular mainstream media, such as the example of the article stated earlier, journalists often propose the potential consequences of ICTs following the formulation of a simplified model of ICTs and societal change. This oversimplification is comprised of a direct cause and effect of new technology and the perceived negative social change.

“The broad public discourse on changes to both organizational and societal life due to the increased presence and use of ICTs is being shaped in part by personal experiences, journalists’ reporting, pundits’ predictions, technologically utopian and dystopian accounts in a range of literatures, and high-level policy discussions. Many of the popular discussions about the
roles and socioeconomic effects of ICTs are often based on vivid, compelling and well-articulated, but essentially armchair or anecdotal, speculation” (Kling 2000).

As simply put by Rob Kling in the above quote, popular discourse and the perspective of technological determinism are often nothing more than conjecture. ICTs and societal values are more complex than the direct effect seen in technological determinism.

During a business analysis in the 1970s, it was noted that an increase in ICT investment somehow led to a decrease in worker productivity. This counterintuitive relationship that could not be explained by technological determinism became known as the productivity paradox (McDonald 2000 and Crooks 2019). The productivity paradox implies that there is a myriad of factors contributing toward a result, and not always a direct linear relationship. Social informatics has coined this complex relationship, sociotechnical research. This abstract research concept highlights the interdependencies and interrelatedness in which individual shapes surrounding culture and ICTs, and at the same time is shaped by the same surrounding culture and ICTs. This reciprocal relationship disputes earlier approaches of technological determinism stating that ICTs determine social effects. Instead, ICTs should be viewed as part of a “socio-technical network”(Kling 2000). In the case of the productivity paradox example, if one wishes to understand organizational behaviors, he or she must first analyze all of the current factors at the time in that socio-technical network.

It is understandable why popular discourse favors the approach of technological determinism rather than socio-technical research. Technological determinism is enticing as a
result of appearing natural because of the simplicity involved. Socio-technical research focuses on the unique system being evaluated and the factors at work at that point in time. Its abstractness of social relationships makes it hard for journalists and other mainstream media to generalize in an article. In “Do Artifacts Have Politics?”, Winner discusses that artifacts do inherently have politics in two ways: technological determinism and social construction of socio-technical networks (Winner 1986). While the approach of technological determinism and socio-technical research starkly contrast, both are necessary to analyze systems and artifacts. The approaches should not be viewed as a dichotomy, with one being superior. It would be an oversimplification to view only a technological determinism perspective, and it would be a radical social constructivist approach to view only a socio-technical perspective.
Works Cited:

Bush, V. (1946). *As We May Think*.


