Technology education at all levels is inherently political. Feminist writing has strongly influenced the “social shaping of technology” literature within the field of science and technology studies, and argues that technology both shapes and is shaped by society – a relationship between the social and technical that must be critically assessed. The feminist perspective on technology has worked to challenge our deterministic understanding of technology merely as artifact neutral and separate from the social, developed by rational, independent technical imperatives (Wajcman, 2009). From the perspective of technological determinism, the independent evolution of technology leads to the immutable molding of society to fit its patterns and efficiencies through a natural selection of social processes that integrate the technology (Ellul, 1954; McKenzie and Wajcman, 1999; Winner, 1986). Technological determinism is closely related to technocentrism, an unwavering faith and focus on technology as the means to resolve social problems. Papert (1987) likens technocentrism to Piaget’s egocentric stage of child development, whereby centrality is given to a technical object in the same way a child has difficulty understanding anything independent of self. These concepts were brought together with individualism, anti-authoritarianism, and neoliberal capitalism in a "Magna Carta for the Knowledge Age" (Dyson, Gilder, Keyworth, and Toffler, 1994) and distributed by the political think tank The Progress and Freedom Foundation. The magna carta was subsequently formalized in the conceptual framework of cyberlibertarianism (Winner, 1997).

Kincheloe and McLaren (2009) state that knowledge of the world is socially constructed within specific historical and social contexts that are fundamentally mediated by power relations. Facts are always determined by some degree of ideological inscription. Cyberlibertarianism and its underlying foundational frameworks can be understood, then, as a pivotal factor mediating political relations by becoming a core foundational design inspiration for, and means for reifying neoliberal influences and power relations through, our technologies (Golumbia, 2013). “Where the system of oppression has become institutionalized it is unnecessary for the people to be oppressive (Kennedy, 1970).” Technology education that does not challenge embedded values within technology serves to reinforce those values – it is political either way (An, 2008).

A sociotechnical framework brings the social and technical into relationship, emphasizing a connectedness in all phases of the technology lifecycle (Wajcman, 2009; Whitworth, 2009). As such, we shift from thinking about technology as a thing to thinking about technology as a social process (Rhinesmith and Wolske, 2014). For example, Whitworth (2009) explained, “sociotechnical systems are systems of people communicating with people that arise through interactions mediated by technology rather than the natural world” (p. 395). While a focus on technical systems seeks to achieve predictability and control – a positivist approach, a focus on the sociotechnical calls for approaches that identify emergent changes and behavior – an interpretive approach (Fisher and Herrmann, 2014). Users are seen as co-creators or innovators-in-use, appropriating technologies to fit local contexts, values, and goals (Eglash, 2004; Bruce, Rubin, and An, 2009).

Adding a critical lens to the sociotechnical – a critical interpretive sociotechnical (CIS) framework (Rhinesmith and Wolske, 2014) – allows us to more specifically identify ways in which social shaping of technology artifacts intentionally and unintentionally reinforce exploitation, marginalization, and cultural imperialism – a mutual shaping (Eubanks, 2011; McKenzie and Wajcman, 1999; Wajcman, 2009; Winner, 1986). Critical awareness of the relationship between the social and the technical opens up selection of technical systems that more closely align with personal and community epistemology and ethics (Eubanks, 2011; Zheng and Stahl, 2011). By advancing agency and challenging the exclusive role of the expert professional within the technology lifecycle, it also opens up opportunities to critically consider ways in which the role of women and minorities in technology have historically been hidden or excluded, even challenging
the definition of technology as only that created by engineers and computer scientists (Sinclair, 2004; Wajcman, 2009; Eubanks 2011).

Technology education, whether in a pre-professional Library and Information Science (LIS) program, or as part of digital literacy program within a LIS organization such as a library, risks reinforcing the dominant technocentric, deterministic, neoliberal narrative unless it intentionally and consistently challenges technology as neutral and separate from social influences. An isolated session or occasional reflection question incorporated into an otherwise technical-oriented course, even when incorporating solid progressive and service-learning pedagogy, is inadequate (An, 2008). Consideration of the essential building blocks of technology must be complemented with critical consideration of why those building blocks have been assembled in the way they are, guided by the cultural, philosophical, political, and economic influences that underlie the design, production, distribution, acceptable use policies, and end-of-life considerations for the given specimen artifact.

The goal of this presentation, then, is to bring together theory and praxis using examples from 18 years of technology education in LIS to consider the question: “How can a CIS framework be used in technology education to foster social change and transformative action?” This question will be explored using two primary cases: the LIS course “Introduction to Networked Systems” and the short course version “Demystifying Technology” offered through public and school libraries to patrons.

In his introduction to sociotechnical systems, Whitworth (2009) describes the evolution in the effective design of innovations that first began when engineers and computer scientists entered into deeper collaborations, and later when behavioral scientists were brought into the conversation. But importantly, he points to the sociotechnical gap that exists “between what computers do and what society wants (pg. 395).” The CIS framework uniquely prepares LIS professionals to work within this sociotechnical gap. As libraries increasingly host creative activities such as Makerspaces, a CIS framework prepares LIS professionals to champion everyday innovators working to transform their communities as part of social justice programs. But such a pedagogical approach not only has value for LIS professionals working in traditional libraries. As corporations move from shareholder capitalism to stakeholder capitalism – thereby advancing the interests of multiple stakeholders including consumers, employees, suppliers, investors, society, and the environment (Mackey, 2011) – LIS professionals filling the sociotechnical gap by employing a CIS framework can have a major social justice impact in the corporate realm as well.

References


