

History of Feminist Approaches to Technology Studies

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INTRODUCTION

While women have historically engaged with technological practices and processes as designers, producers, users and consumers, technology itself has been socially constructed as a masculine domain and inherent to male gender identity. As a result, women have not been recognized as technological participants, nor have they had their contributions validated. To understand this exclusion, different feminist approaches have been historically utilized to help situate the framing of technology as a masculine domain that is organized by the social structures of patriarchy, capitalism, and social stratification. Feminist approaches have been used to deconstruct the defining of technology as masculine, to illuminate the historical ways in which women have been part of technological fields, and to give evidence of the pleasure and empowerment women can feel with technology.

BACKGROUND

There are two principle approaches that are typically expressed when examining the nature and role of technology in society. The first, technological instrumentalism, suggests that technology is merely a neutral tool to be used as the human agent deems necessary. For good or for bad, it is people who dictate the utilization of technology (Mowshowitz, 1985). By contrast, technological determinism suggests that technology is the underlying cause of change in society. People in society are viewed as having no control or choice about how or whether to utilize technology (MacKenzie & Wajcman, 1999). In both approaches, technology is depicted as evolutionary and self directed and on a path of change that is forever expanding with knowledge.

What is absent in both is the recognition that social and historical contexts can determine the formation and cultural meaning of technology. Technology is not a ready-made tool; it is a tool made by people. Technology is infused with the dominant beliefs, attitudes, and ideologies of the society in which it has been conceptualized and developed. Living in a world where patriarchy, capitalism, and inequality structure social relationships, technology comes from, and is shaped by, these prevalent relations (Cockburn & Furst-Dilic, 1994). To understand the meaning of technology is to go beyond the physical hardware to include the complex human activities that are also technology.

The contemporary association of science to masculinity and nature to femininity arguably arose during the Scientific Revolution where the Enlightenment philosophers inherited sexist attitudes from Aristotelian philosophy that defined women as passive and intellectually inferior to men (Arnold & Faulkner, 1985). Francis Bacon called for a science and scientific method that would permit the discovery and conquest of the secrets of nature. Nature, located and identified as female, would be penetrated, conquered, and transformed (Easlea, 1983). The rise of gender roles and identities as binary opposites came to be organized through the Enlightenment period. Masculinity has become linked with rationality, hierarchy, dominance, strength, independence, power, control, aggression, ambition, and logic. Femininity has thus become connected to the oppositional attributes: irrationality, community, submissiveness, weakness, dependence, family, intuition, and softness. More typically, these characteristics are reduced to essentialist divisions that locate male/female as mind/body and technology/nature. Thus, through the Scientific Revolution, masculine identity became connected to science/technology and intelligence, and conversely, femininity was

defined in terms of its non-connection. As a result, the artificial linkage between masculinity and technology became socially enshrined and now is culturally accepted without question (Murray, 1993).

Wajcman (1991) and Cockburn (1985) take as their starting point a different historical point of analysis: the move to capitalism and the creation of a sexual division of labor. Both authors make the similar claim that the sexual division of labor under patriarchy and capitalism has given rise to particular gender roles and values that locate women in the private home sphere with children, and men in the public work sphere with technology.

Cockburn (1985) focuses specifically on the transformation towards gender-specific work from feudalism to capitalism. With this transformation, men were given more social power and status compared to women under capitalism because they had knowledge and technical skills that were necessary for work place productivity. The rise of guilds as a center for trade skills limited women's access to skill development or the manufacturing of tools. Women's work became restricted to the domestic realm, with women responsible for food, childcare, and domestic duties. However, Cockburn's analysis of technology and masculinity is limited as it only attends to the technologies utilized in the capitalist public and paid workplace. She seems to be falling into the trap of defining technology as being only the technologies of production—those valued under capitalist and patriarchal structural relations.

While Cockburn (1985) focuses exclusively upon the technologies of production, Wajcman (1991) broadens her areas of exploration to include reproductive, domestic, and architectural technologies. In her research, she argues that the very definition of technology has been shaped by patriarchal and capitalist relations that only value productive workplace technologies. By focusing on a broader range of technologies, Wajcman exposes how technology exists as masculine identity which is caught up in the domination of women. This does not imply that all women lack technological skills or that all men have technical expertise, but that women and men are both structurally located through norms of hegemonic gender roles. As a result, women's use of technologies for work has been overlooked, and technologies used by women outside of the workplace, such as reproductive, domestic and leisure

technologies, have been ignored as they are not viewed as being technologies. Wajcman outlines multiple and often intersecting social processes that lead to women's alienation from new information and communication technologies (ICTs). This includes access to technological equipment, gender biases in education and the family, and the design of computer programs and games.

A parallel historical analysis of the social construction of technology as a masculine activity and identity suggests this gendered affiliation arose as a result of the masculinization of the military and engineering. Hacker (1989) argues that historically, the military, as an institution, arose from fraternal interest groups, where men lived with their families and passed along their name through their children. This social structure inherently relocated the women as outsiders to the group dynamics. In exchange for food, among other forms of labor, men promised to protect the community of women, children, and the elderly. Male military labor was valued more highly than female community-oriented labor, as only the men were paid. Engineering arose as a discipline designed to train men to be the technical staff and administrators of the military. The first military academies were engineering schools, focused upon teaching students technical skills and occupations. Since engineering was a technical branch of the military, technology became associated with the military, masculine identity, dominance, and power. In turn, as engineers graduated, they moved these internalized values into their workplaces—back into the military, or out into the capitalist labor market. Consequently, women in contemporary society still experience significant difficulties in being accepted members of technology-based fields, such as engineering and the military.

INTERSECTIONS OF WOMEN AND TECHNOLOGY

While the dominant cultural ideology connects technology with masculinity, women have always engaged with technologies and technological practices in their every day lives. Historians and scholars have documented many of the ways in which women have been the ignored and marginalized creators, developers, and users of ICTs. Thomas Jepsen's (2000)

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