

Perceived Neutrality of Technology and its Potential Impact: Recontextualizing Technology into Adult Education Settings Using a Cultural Studies Approach

Jim Berger, Ph.D.

Abstract

This article seeks to describe technology and how its design and use embodies values embedded in the dominant culture and is meant to support the hegemonic goals of the dominant culture while suppressing the growth and development of marginalized groups. This article explores the viewpoints of several philosophers and researchers in the field of science and technology studies and uses a cultural studies model to define various ways technology is viewed and its impact on adult learners. This article will provide various definitions of technology, including feminist and afro-centric viewpoints, and seeks to explore the cultural dimensions of technology and its uses. I will draw from these various views of technology and propose a means of researching many “moments of intersection” between technology, adult learners and facilitators of adult learning.

Introduction

Technology is often seen as a neutral, value-free artifact used as a means of enhancing learning with adults. However, technology has been showed to be the artifact of a culture and contains the values of the culture. In today’s society, technology represents the values of the dominant cultures and supports the goals and ambitions of the hegemony while suppressing marginalized groups and individuals. While much of the literature on the use of technology promotes it as a positive tool that enhances learning and provides an attractive and meaningful way for the learner to engage with the material being learned, the largess of the literature fails to describe ways in which technology impacts adult learners culturally. The purpose of this article is to take a critical view of the development of technology as a cultural artifact that is deeply imbedded with mainstream values and serves the needs of the hegemony. This article will examine the various views of technology and delineate its potential impact on adult learners. Finally, I will conclude this article with a description of directions for studying technology in adult education settings and suggest various points of interaction to be studied.

Views of Technology

Views of technology can typically be divided into three categories. In the first, Instrumental Theory, technology is viewed as a means to an end; technology is neutral. In the instrumental view, neutrality of technology implies four points: 1) Technology is indifferent to the ends it can be used to attain. 2) Technology is not concerned with the politics of societies of capitalist or socialist cultures. 3) The rational nature of technology is the cause of technology’s neutrality and the universal truth it symbolizes. This allows people to believe that because a technology works in one culture, it will work in all cultures (Feenberg, 1991). 4) Because technology is neutral and it is used as a means to an end, the only rational stance is to employ it to solve any problems, regardless of the cost to the environment, culture, or human beings.

Opposite Instrumental Theory, substantive theory of technology believes that technology is a new type of cultural system that restructures the social system to fit the needs of the technology rather than the other way around. Technology operates to control society and its members rather than as a tool to help society. A similar example of this is the current state of fast food which sees eating only as a technical act while ignoring the social and cultural dynamics involved in the process. By treating the act of eating as a means of ingesting food rapidly, use of fast food has abandoned the cultural and familial impact sitting at the table has had on the development of family and relations. Feenberg (1991) concludes that “technology is not a means but has become an environment and a way of life. This is its ‘substantive’ impact” (p. 8).

A third view of technology is the critical view which seeks to break from the determinist view that technology will take over and direct society. The critical view of technology (Feenberg, 1991) takes a deconstructivist approach to technology and attempts to develop means of influencing the development and implementation of technology to enhance its use rather than perpetuate the hegemonic structures present in today’s society.

In the critical view of technology, there are three predominant feminist perspectives of technology: Eco-feminism, liberal feminism, and technology as masculine. The first, Eco-feminism, views technology as another means males attempt to control both women and the environment. Eco-feminism (Grint & Gill, 1995) values women’s biology and supports women’s ways of knowing (See Belenky, Clinchy, Goldberger, & Tarule). Liberal feminism views technology as neutral but examines the use of technology as a means to position gender in relation to the technology. Thus, the use and mastery of technology by women has been hampered by societal roles and stereotypical images of women and their capabilities. Liberal feminism views gender as a socially constructed concept that is the result of several small steps taken to deprive women of what is rightly theirs. Its view of technology as neutral, however, denies the potential of society or culture to impact its design and development. The third view, technology as masculine culture, sees technology as an embodiment of masculine culture where masculinity has become central to the definition of technology (Grint & Gill, 1995).

A fourth perspective, the Afrocentric perspective, has not been found to be clearly delineated in the literature but appears to view technology as a means to modify the appearance and performance of African Americans so they look and act more like whites. Examples include x-ray technology which was used to remove the short curly hair and to bleach the skin (Herzig, 2004); and photography film (Dyer, 1999) which was developed to enhance the appearance of the white person to the detriment of the appearance of African Americans. Other bodies of the literature tend to ignore the role African Americans played in shaping technology and inventing it for popular consumption and vice versa.

While each of these views approaches technology differently, the following further explains how science and technology can be viewed as culturally embedded.

Science and Technology Studies

Science and Technology Studies (S&TS) views science and technology as a social activity subject to society’s norms and interpretations. Scientific activities are structured by members of committees which set standards of inquiry and evaluate knowledge claims. The S&TS field (Sismondo, 2004) investigates how scientific knowledge and technological artifacts are constructed and pays attention to how scientists and engineers use the ever-changing material

world to construct stable structures and networks. S&TS, using a constructivist approach, views the construction of science and technology as a social activity impacted by several beliefs. First, knowledge and reality are constructed and scientists and technologists work to construct them. Second, knowledge derived from laboratories is knowledge that is not natural. Scientists and technologists work to control every variable in the laboratory whereas in reality, these variables have the ability to impact the outcome. Third, research into causes assumed to be natural, such as gender, naturalizes those differences. If we, as researchers, assume that there is a difference between male and female, then we will find those differences. However, it is us who has socially constructed those differences through our observation rather than being informed by nature that those differences exist.

Fourth, representations of nature may be connected to nature but do not necessarily correspond to it in any strong sense. We use data to generate theories but it is entirely possible that the data could be interpreted differently or that other data would skew our results in such a manner that we would interpret the data completely differently. Fifth, heterogeneous construction is the idea that builders of technology work to develop knowledge, realities, things and social worlds so their product fits into reality. Heterogeneous construction is both the simultaneous shaping of the material and social world to be able to work together. (Taylor, 1995). Heterogeneous construction means that as engineers work to develop technology in a material sense, they are also discovering ways that society needs training to be able to use the technology successfully and, therefore, are looking for ways to shape society for the successful implementation of that technology. This is evidence by well documented history of such technology as the zipper (Friedel, 1996), the computer (Zuboff, 1988), Sony Walkman (du Gay, Hall, James, Mackay, and Vegas, 1997), and the nuclear reactor (Winner, 1986). Sixth, while some scientists believe that truth exists outside of their reality others believe that we construct our own reality leaving the possibility that the taxonomy of objects is really an imposition onto objects by ourselves. Finally, when we represent an object, that representation immediately shapes that object and its future perceptions. The focus here is on the social construction of reality and its impact on how we perceive the world. Technology, developed to help represent that reality, can be seen as a product of particular hegemonic cultures and is designed to meet the needs of dominant society.

Potential Impact on Adult Learners

Considering the above views of technology, I believe that members of the current hegemony view it in the form of technical rationality or that they view it as a means to an end without considering its impact on the person or the environment. This is similar to the capitalist technical rationality which has four potential impacts on workers: 1) Decontextualization, 2) Reductionism, 3) Autonomization, and 4) Positioning. Decontextualization is the process where objects are taken out of their context and viewed as objects of technical practice. Once these objects have been separated from their normal contexts, they can be analyzed according to their parts and usefulness and not the context that developed them. Reductionism occurs when the secondary characteristics of technology are ignored and while focusing only on the primary characteristics. This can be seen when workers are viewed as objects with certain skill sets and ignored as people with families, views, feelings, etc. Autonomization removes the subject of control from the object of control to prevent feedback to the controller allowing the controller to exert control without knowledge of the unforeseen or unwanted consequences. This is

exemplified in the use of technology to speed up processing for efficiency and profits while ignoring the existence of repetitive stress injuries or pollution to the environment (Feenberg, 1991). Positioning occurs when the user of technology seeks to place themselves in such a position as to gain the most out of nature as possible. The goal here is to control nature as much as possible to “squeeze” every benefit out of nature possible regardless of the negative impact it may have on the environment, the worker, or society. “Thus the decontextualization of labor opens the space of operational autonomy occupied by modern hegemonies” (Feenberg, 1991, p. 188).

A poststructuralist approach to analyzing technology’s impact on adult learners, reveals using technology can help to have the same impacts on adult learners which will lead to new impacts: Alienation, oppression, and fear. Alienation refers to the effect using technology will have on marginalized groups in relation to the dominant culture. As this is a separate culture, one where the rules are not explicit, those who reside at the margins will find conflict and feel left out, further marginalizing them. As Bruce Sinclair (2004) points out, technology is “contingent and contains unequal power relationships . . . Technology may be socially constructed, but the players are not all on the same footing – a truth familiar to [women and] people of color, who have also long known that both its benefits and consequences are distributed unequally” (p. 12). As marginalized persons attempt to engage with the power relationships that technology supports, they face fear the changes to their lives that can result. If they do take on the culture of the technology developed for current hegemony, they are faced with scripts that may require them to abandon their culture to adopt a dominant culture.

Scripts (Akrich, 1992) are ways that the design of technology impacts how it is used. Use of technology is impacted in two direct ways. First, designers have a particular vision of who the users are, how they will use it, and for what limited purposes. This image includes specific tastes, competences, motives, aspirations, political prejudices, etc. and are inscribed into technology. Second, the actual design limits the acts that can be accomplished thus shaping the user (Akrich, 1992). Consider using the car which requires the user to sit, face forward, place at least one hand on the wheel, etc. The design of the technology requires certain actions to be performed. This is used to bring about conformity in the user and, if enough users employ the technology, then technology can have an impact on society (e.g. the automobile). As newcomers to the technology attempt to learn and use these scripts, they will face the choice of adapting to the scripts, modifying those scripts, or rejecting them. If users follow imbedded scripts, there is potential for users to face pressure to adapt their actions to enhance the performance of the technology. This adaptation carried out over several behaviors could modify thinking and beliefs at the individual’s cultural level. If users attempt to modify the scripts, they face the dangers of the technology performing less than desired or worse, being dangerous to themselves. Finally, if users rejects the scripts and the use of the artifact altogether, they face alienation and potential ostracization from society.

Cultural Studies

While there have been a great many studies on the use of technology with adult learners, there appears to be very little which take a critical view of technology and seek to understand how the culture of technology shapes or affects the learner. In this next section, I will propose using cultural studies as a means to studying technology and its use.

Cultural studies is “a particular approach within the wider field of the study of culture” (Johnson, Chambers, Raghuram, and Tincknell, 2004, p. 9). I believe that cultural studies is the best approach to studying the effect of technology on adult learners because, as we have seen, technology, social practices, and adult learning are all governed by cultural norms which have an impact on how the adult learner views and uses technology. Cultural studies focuses on six important areas (Johnson et al., 2004): Culture and Power, Culture as Value, Culture as Policy, Culture as Cohesion, Culture as Standardization, and Culture as Language or Understanding. Cultural studies views cultural processes as a vehicle for powerful social relationships to be enacted. Culture as power studies seek to examine the identities of those involved in power relationships and understand how the process of betterment is promoted or restricted. The second agenda, culture as value, sees the “aesthetic or moral value of literature, music, or art that is supposed to make them worth studying” (Johnson et al., 2004, p. 10). Culture as policy examines policies set by large institutions, usually those of governments, that organize behaviors and conduct. Culture as cohesion seeks to understand the pressures to conceive of culture as bounded, uniform, and shared among many individuals and examines the view that any break from the unity of one culture as a social pathology of the other culture. Culture as standardization looks at the uniformities of mass culture in the hopes of understanding how commercialization or commodification commonly found in modern society can cause social control. Examples of this would include the spread of such organizations as McDonald, Disney, and Wal-Mart. Culture as language or understanding encompasses structuralism and hermeneutics as means of studying language or culture. Thus, cultural studies has much to offer researchers as a method for studying the culture of technology and its impact on adult learners.

Studying Technology’s Impact on Adult Learner Using a Cultural Studies Model

Research in cultural studies typically occurs in moments, or practices that gain particular importance at a particular time in the research process (Johnson et al., 2004). Research into the effect technology has on adult learners can take place during many moments. I have attempted to encapsulate a few in this section and will discuss each of these in more detail below.

Interaction of the learner with technology Considering that technology is steeped in cultural values and overtones, it is plausible that the user of technology could be impacted by using it. Research needs to be conducted to examine the extent technology facilitates or hinders the learning process as the culture of the technology and the learner either creates a symbiotic or conflictual relationship. Directions in this vein would include understanding the meaning making schemes of learners as they use technology and what changes, if any, occur with its use.

Facilitator with technology Facilitating learning is culturally dependent and requires a in-depth understanding of cultural norms. In order for facilitators of adult learning to be effective, it is imperative that they understand how their learners make meaning. Using technology impacts the facilitation of learning with adults. Researchers need to understand how using a culturally loaded artifact affects a culturally loaded activity such as teaching.

Technology as power Those who are privileged to use technology hold power and sway over those who either do not know how to use it or have access to it. As Apple points out, the social activity of adult education is “tied to the larger arrangement of institutions which apportion resources so that particular groups and classes have historically been helped while others have been less adequately treated” (1990, p. 10 as quoted in Cervero and Wilson, 2001).

Technology, often used in adult education, has the potential to continue unequal power relationships and hinder development of adult learners rather than providing the opportunity for emancipation. Research needs to examine the role technology plays in perpetuating power relationships to the detriment of marginalized groups or individuals.

Interpretive Flexibility Interpretive flexibility (Brey, 2005) is the notion that artifacts can be interpreted in a variety of ways; including ways different from those of the designers. A simplistic example is that of a mug which can be used to hold a beverage but could also be used as decoration or to hold paint brushes. Just because the designer expects the user to conceive of the artifact in a particular way does mean that the user will. It is imperative for researchers to consider the role interpretive flexibility has on technology's use and adult learning.

Acceptance, modification, or rejection of scripts As adult learners encounter technology and embedded scripts (Akrich, 1992), they are faced with a choice of using it as the designers expect them to, modifying its use to suit their needs or rejecting it outright for another technology or none at all. Research needs to be conducted to better understand how adults learn or make meaning of those scripts, what process they go through to modify the scripts, and the impact such acceptance, modification, or rejection of those scripts has on the development of their identity.

Conclusion

Technology is becoming ubiquitous in adult education settings yet very little research has focused on the impact culture imbedded in technology has on adult learners. This paper seeks to develop conversation around the role culture plays in the development and use of technology and its potential impact on adult learners.

References

- Akrich, M. (1992). The de-scription of technical objects. In W. E. Bijker & J. Law (Eds.) *Shaping technology/building society: Studies in sociotechnical change*. (pp 205-224). Cambridge, MA: MIT Press
- Brey, P. (2005). Artifacts as social agents. In H. Harbers (Ed.) *Inside the politics of technology: Agency and normativity in the co-production of technology and society*. (pp. 61-84). Amsterdam: Amsterdam University Press.
- Cervero, R. M., & Wilson, A. L. (2001). *Power in practice: Adult education and the struggle for knowledge and power in society*. San Francisco: Jossey Bass.
- Du Gay, P., Hall, S., Janes, L., Mackay, H., & Negus, K. (1997). *Doing cultural studies: The story of the Sony Walkman*. Sage Publications.
- Feenberg, A. (1991). *Critical theory of technology*. New York: Oxford University Press.
- Friedel, R. D. (1996). *Zipper: An exploration in novelty*. W.W. Norton and Company.
- Johnson, R., Chambers, D., Raghuram, P., & Tincknell, E. (2004). *The practice of cultural studies*. London: Sage Publications.
- Merriam, S. B., & Brockett, R. G. (1997). *The profession and practice of adult education: An introduction*. San Francisco: Jossey-Bass Publishers.
- Sinclair, B. (Ed.). (2004). *Technology and the African-American experience: Needs and opportunities for study*.
- Sismondo, S. (2004). *An introduction to science and technology studies*. Malden, MA: Blackwell Publishing.

Zuboff, S. (1988). *In the age of the smart machine: the future and work of power*. New York: Basic Books.