Chapter VI

Learning Theory, Technology and Practice

Introduction

Why do we use technologies in technology studies? Couldn't we teach technology in a classroom without the complex lab and workshop infrastructures that characterizes technology studies? We could argue that this is by tradition; this is the way it always was. We could argue that we are involved in training students for occupations that use the technologies we use. We could argue that technology is naturally practical and demands that we offer practical activities. Tradition, vocation, or imitation. Not one of these three will get us very far. We could argue that students learn best when they are active; enactive experiences are best. With this argument, we verge on theoretical issues that underpin technology studies. However, neither experience-based learning nor enactivism account for technologies in any adequate way. We need to retheorize learning theory to make it work for technology studies.

Learning theories deal with specific notions of feelings, knowledge, and skills by addressing the problem of how we learn. Whether we are aware or not, our teaching practices are necessarily shaped by any number of learning theories. We are conditioned or socialized to express particular learning theories through years of participation in schooling and informal education. Sayings such as "we teach who we are" or "we teach how we were taught" suggest the power of our socialization into education. We are all products of our formal schooling and informal education.

The problem is that we are typically not exposed to a *range* of learning theories over time. In fact, we are socialized, through formal and informal education, to believe that knowledge is information that is transmitted from generation tom generation, person-to-person or node-to-node over the internet. We have been socialized to believe that feelings and motor skills are secondary to knowledge and intellectual skills. We have been socialized to accept that, *a la* Plato, a controlling mind is superior to a subservient body. In turn, we were taught to accept that mental labor is more valuable than emotional or physical labor, and the liberal arts are more valuable than the servile arts.

Popular learning theories, such as behaviorism and constructivism, take feelings, skills, and technologies for granted. Or for the most part, these theories reduce feelings, skills, and technologies to an incidental position. They are incidental to an adaptive construction or transmission of knowledge. Biases, against feelings, skills, and technologies due to predominant social values are built into our most common and popular learning theories. New learning theories such as activity theory and situated cognition contradict this hierarchy of head over hand by bringing the body back into the process of learning. Technology educators can either blindly adopt learning theories that undermine their endeavors or search out and develop learning theories that reposition feelings, skills, technologies and knowledge. We absolutely have to embrace learning theories that take technology as a serious subject. Anything less invalidates our existence and the need to study technology in schools.

This chapter begins with a learning theory that derives from practice in technology studies. Indeed, we begin with what is by nature a disclosive theory of practice. We then turn to theories of experiential learning and their implications for technology studies. The chapter concludes with an overview of various learning theories and a focus on distributed cognition and activity theory.

Head, Heart, Hand, and Feet

In the movie *Metropolis*, released in 1929, the protagonist Maria labors to educate the managers and workers of the futuristic, technological city of Metropolis. At one point, in a clandestine meeting with the workers, she pleads for an understanding of a basic arts and crafts premise: "The mediator between brain and hands must be the heart!" This premise appears a number of times throughout Fritz Lang's film. Most attribute this premise to John Ruskin, philosopher of the English arts and crafts movement during the mid 1800s. This philosophy was ratcheted up during the 1880s in the post-secondary institutions for African Americans in the U.S. south. Booker T. Washington, the intellectual architect of technical education institutions in the south, stressed mobility and the importance of gaining a footing for elevating the status of African Americans. At schools such as the Tuskegee Institute, students

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