School of Communication
Simon Fraser University

CMNS 895-0 Comprehensive Examination

THEORETICAL CRITIQUE OF CONSTRUCTIVIST APPROACHES TO TECHNOLOGY STUDIES

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July, 2000

For this area of examination I will undertake a theoretical critique of contructivist approaches to technology studies. My primary objective is to examine the potential contributions and limitations of constructivist approaches with respect to technology policy research. I will begin with a review of the most recognized constructivist approaches to technology studies, particularly those versions which have emerged from the field of Science and Technology Studies (S&TS) over the past two decades. This review will provide a critical perspective on the recent intellectual history of technology studies, with two primary objectives:

- to characterize and historically ground the S&TS approach to technology studies;
- to critically evaluate the S&TS approach from a theoretical standpoint.

Following this set of introductory readings, I will explore a second set of more specialized S&TS-related readings that address problematic assumptions found in the traditional forum of debate concerning society and technology. Readings here will include Andrew Feenberg's remarks concerning Modernist critiques (e.g., Heidegger) of technology. Bruno Latour (actor network theory) also reconsiders the Modernist position by suggesting that technology/society models based on clear dichotomies are flawed, and he presents an historical argument for the adoption of what he calls an *amodernist* approach. This approach, he claims, more adequately describes the actual socio-technical elements and processes that relate the design and development of modern technology to society.

Latour's alternative model for S&TS draws on a network metaphor to describe the relations between human and 'non-human' actors. These relations are typically described in terms of 'enrollments' and 'translations', with the intent of presenting a model that trys to avoid a simple dichotomy between action and structure. While a network model is compelling and important, I wish to examine it critically to determine whether it ultimately provides a theoretical account of its operation. In other words, I wish to determine whether Latour's actor-network provides us with more than a descriptive account of socio-technical networks in operation.

To provide a point of comparison and contrast with the general S&TS literature, including Latour's work, I will examine a number of critical responses to the constructivist approach. These responses originate largely from the philosophy of science, although a number of technology philosophers (e.g., Winner) have made important critical remarks concerning the assumptions and arguments put forth in the constructivist literature.

At this point I expect to have developed a critical backdrop to S&TS, pointing out some of its major drawbacks and oversights with respect to a viable theory of socio-

technical relations. Here I will turn to a set of readings that examine the role of design in the development of technology. These readings adopt a wide perspective on design as both a professional practice and an everyday social activity. Through its unique mode of analysis and characterization of the nexus between the social and the technical, recent design studies may enhance the theoretical work of current constructivist research. In other words, design studies may suggest further insights into how design acts as the flexible point of fusion between *people* and *things*.

The readings I have included on design are not intended to survey the wider field of design studies, but rather to focus on theoretical conceptions of design as an inherently socio-technical activity. As it is conceptualized within this literature, design invokes comparisons with a number of concepts found in the constructivist literature, such as Bijker's 'closure and stabilization' or Callon's 'hybrid collectif'—both of which describe aspects of the process by which human and non-human actors come to be bound together into relatively stable networks of relations. It is around these shared concepts that I may be able to establish a connection between the theoretical foundations of the design literature and constructivist approaches to technology studies. In contrast to much of the S&TS literature, the design literature tends to be more explicit with its linkages to established theoretical traditions, including phenomenology and systems theory.

Finally, I will briefly examine theoretical accounts of socio-technical relations that consider metaphor as the link between technology and social change. Here I will begin by examining McLuhan's notion of media as active metaphors and then proceed to review some of the contemporary literature that addresses the role of metaphor in the development of technology. This set of readings suggests a relationship between metaphor and problems of epistemology and ontology often associated with the constructivist approach. On the one hand, these problems pose a major theoretical hurdle for constructivist research. On the other hand, careful consideration of the active role of metaphor in constructivist analysis may also suggest a foundational principle for a theory of constructivist socio-technical relations.

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