Chapter 4
Knowledge in Networks:
Knowing in Transactions?

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ABSTRACT

This paper discusses a methodological dilemma proposed by engaging actor-network theory (ANT) in studying collaborative research practices of researchers in a large interdisciplinary project. The paper sets the context of this large publically funded project ('Ensemble: Semantic Technologies for the Enhancement of Case Based learning') between Education and Computer Sciences, currently being undertaken by a consortium of six UK universities and three international partners. While a strand of ANT states that knowledge 'emerges as continuously generated effects of webs of relations within which they are located' (Law 2007), it is very vague in terms of how precisely does that knowledge emerge and how to study that. The methods -question was further complicated by the existence of multiple, potentially conflicting epistemological positions present at the project – how to study these without having to pass a value judgement in terms of their validity and reliability? The specific focus of the discussion is what might be termed the epistemology of actor-network theory, with particular consideration of the Principle of Symmetry. The paper suggests reading ANT through John Dewey's Pragmatism and assesses ideas to take forward from this discussion in order to study interdisciplinary research work.

INTRODUCTION

What is called 'knowledge' cannot be understood without understanding what gaining knowledge means. (Latour, 1987, p. 220)

A strand of Actor Network Theory (ANT) states that knowledge, as well as reality, objects etc, 'emerge as continuously generated effects of webs of relations within which they are located' (Law, 2007). This characterization amounts to knowledge being emergent, fluid, contextualized and constructed, produced within heterogeneous material-semiotic-human networks. Being characterised as a sensibility (Law 2007) rather than a theory or a methodology, ANT is notoriously vague in terms of methods. While it offers ways of tracing the networks out of which knowledge is seen as emerging, it offers very little in terms of helping to answer the question of how precisely does that knowledge emerge, and how to study that.

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This question became pertinent in trying to find a way of studying the practices of researchers in a large, interdisciplinary research and development project between education and computer sciences. The methods-question was further complicated by the existence of multiple, potentially conflicting epistemological positions present at the project – how to study these without having to pass a value judgment in terms of their validity and reliability? As a potential solution to these questions, this paper proposes examining the ANT take on the emergence of knowledge (reality, objects) through John Dewey's Philosophical Pragmatism and his transactional theory of knowing (Biesta & Burbules, 2003; Biesta, 2009).

There are two layers of research being discussed in this paper: firstly, there is the interdisciplinary project, Ensemble. (In this volume of IJANTTI, there is a paper written by the researchers from the Ensemble-team '(Un)Locating Learning: Agents of Change in Case-Based Learning', pp. 17-31). Secondly, there is a post-graduate research project studying the work of Ensemble, the focus of this paper. The paper starts out by setting the context for Ensemble, followed by a short outline of the study researching the Ensemble-project, and a rationale for writing this paper. This is followed by treating the two theoretical approaches and their takes on 'knowledge'. The paper finishes by assessing the outcomes of reading ANT through Pragmatism and suggests ideas to take forward from this discussion in order to study interdisciplinary research work. The paper is linked to an on-going PhD study.

BACKGROUND

The PhD study discussed here is linked to a large interdisciplinary research and development project Ensemble: Semantic Technologies for the Enhancement of Case Based learning(www.ensemble.ac.uk), carried out by a consortium of six UK universities and three international partners. It brings together researchers broadly from educational studies and computer sciences backgrounds. Ensemble studies a range of Higher Education disciplines, where 'knowledge is complex, changing or contested' (Carmichael & Garcia Marinez, 2009, p. 1) and where case based learning is employed as their chosen pedagogy. The project aims to develop semantic web-applications for enhancing and supporting teaching and learning in those settings. The disciplines, based across three UK universities, include Archaeology, Dance, Educational Studies, International Journalism, Law, Marine Operations and Management, and Plant Sciences. Semantic web refers to a vision of the world-wide-web in a machine readable format enabling machine reasoning and encoding meaning across heterogeneous data sources (Berners-Lee, Hendler, & Lassila, 2001). Semantic technologies are smaller scale applications that make use of the tenets or technologies from this vision, including integration of diverse data types and sources (e.g. text, images, user generated content, legacy databases), advanced search tools, visualisations of data or collaborative functions (Carmichael & Garcia Martinez, 2009; Jordan & Rimpilainen, 2010). While the idea of making the whole World Wide Web semantic is still only a vision, the project takes as its starting point that technologies developed based on this vision offer potential for supporting and enhancing existing teaching and learning practices through opening up possibilities for e.g. reasoning and searching across vast and diverse datasets, through representing and visualising these in different ways or for collaboratively reviewing, tagging and marking data sets (Carmichael & Garcia Martinez, 2009).

The aim of my research is to study - using ethnographic methods and by drawing on sensibilities from Actor-Network Theory - how this type of project between social sciences and sciences is carried out in practice: how are questions on case based learning being investigated within one particular setting, the discipline of Archaeology, and how the outcomes of these investigations subsequently become translated into a more or less tangible object, a piece semantic web technology