Researching Education Through Actor-Network Theory
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Researching Education Through Actor-Network Theory

Edited by
Tara Fenwick and Richard Edwards
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Foreword

Actor-network theory (ANT) insists on forms of nonhuman agency and focuses on how networks get formed. As a form of material-semiotics, it emerges in science studies and is faithful to the ethnomethodological school and consonant with poststructuralist and constructivist commitments. It is particularly useful in analyzing large technical systems. Already there is enough in this brief encapsulated description to challenge the ontological commitments and epistemological orientations of most social science approaches and to recommend the adoption of the approach to educationalists. Tracing its origin meanings to Diderot Bruno Latour (1998) writes: ‘Put too simply ANT is a change of metaphors to describe essences: instead of surfaces one gets filaments (or rhyzomes in Deleuze’s parlance) (Deleuze and Guattari, 1980). More precisely it is a change of topology. Instead of thinking in terms of surfaces—two dimension—or spheres—three dimension—one is asked to think in terms of nodes that have as many dimensions as they have connections’.1

In Researching Education Through Actor-Network Theory, Tara Fenwick and Richard Edwards both renew and reclaim actor-network theory for educational research demonstrating its potential and power in a series of related papers selected and edited for their insights into educational processes. This is an authoritative collection by experts in the field who as editors and contributors provide the basis for a good understanding and application of actor-network theory in educational research.

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Introduction

TARA FENWICK & RICHARD EDWARDS

Actor-network theory (ANT) continues to enjoy a lively trajectory in the social sciences since its emergence in the early 1980s at the Centre de Sociologie de l’Innovation (CSI) of the École nationale supérieure des mines de Paris. Largely associated with its progenitors in science and technology studies (STS) including Bruno Latour, John Law and Michael Callon, ANT has contributed an important series of analytic approaches and considerations that rupture certain central assumptions about knowledge, subjectivity, the real and the social. The focus is on the socio-material—and how minute relations among objects bring about the world. Analyses drawing upon ANT trace how different human and nonhuman entities come to be assembled, to associate and exercise force, and to persist or decline over time. Nothing is given or anterior, including ‘the human’, ‘the social’, ‘subjectivity’, ‘mind’, ‘the local’, ‘structures’ and other categories common in educational analyses. Throughout the 1980s and 1990s, ANT figured prominently in studies published in sociology, technology, feminism, cultural geography, organization and management, environmental planning and health care. With a few limited exceptions, however, educational research in the main has not demonstrated a similar enthusiasm in the uptake of ANT.

We are among those who believe that ANT offers truly important insights about the processes and objects of education. This is in spite of, or actually partly because of, its mutations in the past two decades into a highly diffuse, diverse and contested set of framings and practices. Its own key commentators refuse to call it a ‘theory’ as though ANT were some coherent explanatory device. It may be more accurate to think of ANT as a virtual ‘cloud’, continually moving, shrinking and stretching, dissolving in any attempt to grasp it firmly. ANT is not ‘applied’ like a theoretical technology, but is more like a sensibility, a way to sense and draw (nearer to) a phenomenon. For educational researchers, as we argue in Fenwick and Edwards (2010) and Fenwick et al. (2011), ANT’s language can open new questions and its approaches can sense phenomena in rich ways that discern the difficult ambivalences, messes, multiplicities and contradictions that are embedded in so many educational issues.

This book is an experiment, intended to engage readers in the question: What work can ANT do in educational research? To bring some focus to the book, we called for chapters addressing issues of educational change or reform. The authors employ a range of ANT constructs to explore and perform educational change in highly diverse manifestations: integration of new technology, a large-scale school improvement initiative, everyday
curriculum enactments, development of international standardized tests, introduction of teacher evaluation systems and implementation of a literacy program. Each author argues for the unique analysis that ANT approaches enable, yielding overall an important expansion of how we engage with educational change. While one objective of each chapter is to show an ANT sensibility at work with a particular researcher in a particular environment of concerns, each also focuses, as ANT studies are expected to do, on tracing the rich material details of the actual actors and their story being followed by the researcher. The remainder of this introduction outlines ANT for educators, as described in Fenwick and Edwards (2010), for those who may be.

About Actor-Network Theory

The risk in explaining ANT is distorting and domesticating it. Its ideas are practices for understanding, not a totalizing theory of the world and its problems. Jan Nespor puts it well in his chapter when he describes ANT ideas as ‘ontological acids undermining reductive explanations and pushing us towards engagements with evidence’. The more well-known ANT ideas that authors have taken up are described here briefly, including symmetry, translation, network ontology, network effects, (im)mutable mobiles, obligatory points of passage and scale play. We also introduce selected critiques of ANT and certain ‘after-ANT’ conceptions such as multiple ontologies. We hope to avoid the trap of re-establishing and imposing a purity of ANT-ness that Law (1999, p. 10) has warned of: ‘Only dead theories and dead practices celebrate their identity’.

ANT examines the interconnections of human and nonhuman entities based upon an anti-foundationalist approach in which nothing exists prior to its performance or enactment. Human intention and action are therefore decentred in this approach. The objective is to understand how these things come together—and manage to hold together—to assemble collectives or ‘networks’ that produce force and other effects: knowledge, identities, routines, behaviours, policies, curricula, innovations, oppressions, reforms, illnesses and on and on. ANT thus helps us to ask: What are the different kinds of connections and associations created among things? What different kinds and qualities of networks are produced through these connections? What different ends are served through these networks? A key assumption is that humans are not treated any differently from nonhumans in ANT analyses. This assumption, elaborated by Bruno Latour (1987), is called ‘symmetry’. Everyday objects and parts of objects, memories, intentions, technologies, bacteria, texts, furniture, bodies, chemicals, plants ... all things are assumed to be capable of exerting force and joining together, changing and being changed by each other. The networks thus formed can keep expanding to extend across broad spaces, long distances or time periods. Of course, networks can also break down, or dissolve, or become abandoned. ANT analyses show how things are attracted into or excluded from these networks, how some linkages work and others do not, and how connections are bolstered to make themselves stable and durable by linking to other networks and things. In particular, ANT analyses focus on the minute negotiations that go on at the points of connection. Things persuade, coerce, seduce, resist and compromise each other as they come together. They may connect with other things in ways that gather them into a particular collective, or they
may pretend to connect, partially connect or feel disconnected and excluded even when they are connected.

Latour (1999) fights any ontological separation between materiality and meaning as a rupture between the thing and its sign that are part of each object. He considers a central problem to be the ‘circulating reference’ between words and world that attempts to transform matter, the objects of knowledge, into representations, as though there were justifiable a priori distinctions between mind/matter or object/sign. He, like Ian Hacking (2000) and Deborah Barad (2007), is therefore critical of social constructivists as well as realists in assuming that materiality and representation are separate realms. The important point is that ANT focuses not on what texts and other objects mean, but on what they do. And what they do is always in connection with other human and nonhuman things. Some of these connections link together to form an identifiable entity or assemblage, which is referred to as an ‘actor’ that can exert force. ‘Playground’, for example, represents a continuous collaboration of bats and balls, swing installations, fences, grassy hills, sand pits, children’s bodies and their capacities, game discourses, supervisory gazes, safety rules and so on. This playground is both a moving assemblage or network of things that have become connected in a particular way, and an actor that can produce fears, policies, pedagogies, forms of play and resistances to these forms—hence, actor-network. And the objects that have become part of this actor-network are themselves effects, produced by particular interactions with one another.

ANT analyses try to faithfully trace all of these negotiations and their effects. In the process, they show how the entities that we commonly work with in educational research—classrooms, teaching, students, knowledge generation, curriculum, policy, standardized testing, inequities, school reform—are in fact assemblies or gatherings of myriad things that order and govern educational practices. Yet, these assemblies are often precarious networks that require a great deal of ongoing work to sustain their linkages. So, such analyses can show how such assemblages can be unmade as well as made, and how counter-networks or alternative forms and spaces take shape and develop strength. The focus is on how things are enacted rather than attempting to explain why they are the way they are.

Those familiar with ANT debates will know that many speak of ‘after-ANT’ or ‘post-ANT’. Some avoid using explicit ANT terminology, characterizing their work as complexity, socio-materiality, material semiotics or STS. The frustration expressed by the most prominent ANT commentators is that many early ANT studies reified concepts such as networks, solidified particular models of analysis and colonized their objects of inquiry in representational ways that ANT approaches were intended to disrupt. A landmark volume of essays entitled Actor Network Theory and After (Law, 1999) was premised on the assumption that ANT ideas proliferating throughout the 1990s had largely run into an impasse. At that time, Law (1999), for example, was worried that ANT’s topological assumptions had come to homogenize the possibilities of understanding complexity in spatial and relational socio-material events. Other authors, representing leading scholars associated with ANT at that time, declared various approaches forward that included eliminating or replacing certain naturalized ANT language and models, delimiting ANT’s claims and opening its conceptual scope.
At the time of this writing, 13 years on from the publication of *Actor Network Theory and After*, there has been a remarkable profusion of ANT studies, critiques and hybrid theoretical blends as ANT has travelled across disciplines ranging from feminist technology studies to cyberpunk semiotics to environmental activism. Some authors have argued for ANT’s particular value in educational research (e.g. see Edwards, 2002; Nespor, 2002; McGregor, 2004; Waltz, 2006; Harmon, 2007; Mulcahy, 2007; Fenwick & Edwards, 2010). These explorations have each helped to extend and reconfigure ANT ideas, opening challenging questions and ways of thinking for educational researchers. We believe that it is more helpful to use one term ‘actor-network theory’ to refer to this constellation of ideas that have associated themselves with ‘ANT’ at some point, rather than to attempt problematic periodizations of early-ANT, after-ANT, ANT-diaspora and so forth. We employ ANT as a marker—understood to be a contingent and conflicted signifier—for approaches that share notions of symmetry, network broadly conceived, and translation in multiple and shifting formulations.

**Translation—How Change Occurs**

In some early formulations, ANT has been described as a ‘sociology of translation’. Translation is the term used by Latour (1987) to describe what happens when entities, human and nonhuman, come together and connect, changing one other to form links. At each of these connections, one entity has worked upon another to translate or change it to become part of a network of coordinated things and actions. ‘Entity’ is a loose way to refer to various things that can be human and nonhuman, including different kinds of material objects and immaterial (conceptual, moral, virtual) objects and actions, that are not pre-given, essentialized and defined. As Law (1999) tries to explain, an entity is more than one and less than many, not a multiplicity of bits nor a plurality, a division into two or more others. In traditional ANT language, while the working entity is called an ‘actor’, the worked-upon entity is referred to as an ‘actant’. In other words according to Latour (1999, p. 18), when the actant becomes translated to become a performing part of the network, the actant behaves with what appears to be particular intentions, morals, even consciousness and subjectivity. In other words, when translation has succeeded, the entity that is being worked upon is mobilised to assume a particular role and perform knowledge in a particular way. It performs as an actor.

Translation is neither deterministic nor linear, for what entities do when they come together is probable but unpredictable. They negotiate their connections, using persuasion, force, mechanical logic, seduction, resistance, pretence and subterfuge. Connections take different forms, some more elastic, tenuous or long-lasting than others. Translations may be incremental, or delayed across space and time. Entities may only peripherally allow themselves to be translated by the network. In Latour’s (2005) ontology, entities undergo myriad negotiations throughout the process of translation. For Harmon (2007), this is an important contribution of ANT to education: tracing exactly how entities are not just effects of their interactions with others, but are also always acting on others, subjugating others and making things possible. All are fragile, and all are powerful, held in balance with their interactions. None is inherently strong or weak, but only becomes strong by assembling other allies.
Eventually these dynamic attempts by actors to translate one another can appear to become stabilized: the network can settle into a stable process or object that maintains itself. Like a black box, it appears naturalized, purified, immutable and inevitable, while concealing all the negotiations that brought it into existence. Examples would be a mandated list of teaching competencies, or an ‘evidence-based’ educational practice accepted as ‘gold standard’. Each entity also belongs to other networks in which it is called to act differently, taking on different shapes and capacities. A teaching contract, for example, is a technology that embeds knowledge, both from networks that produced it and networks that have established its use, possibilities and constraints. In any employment arrangement, the contract can be ignored, manipulated in various ways or ascribed different forms of power. Thus, no agent or knowledge has an essential existence outside a given network: nothing is given in the order of things, but performs itself into existence. And however stable and entrenched it may appear, no network is immutable. Counternetworks are constantly springing up to challenge existing networks. Continuous effort is required to hold networks together, to bolster the breakages and to counter the subterfuges.

Networks

If translation is what happens at the nodes of a network, where one entity successfully acts upon another, how does a network actually grow? One suggestion was offered in ANT's early years by Callon (1986), in a much-cited and critiqued conception of networks assembling and extending themselves through ‘moments’ of translation. The critiques have centred on problematic applications of Callon's ideas as a fixed model, which tends to distort the complexity it was intended to liberate. This is undoubtedly as true in educational research as it has been in other fields of social science. However, there also exist educational studies showing the utility of Callon's moments of translation in illuminating how some networks become so durable and apparently powerful in education, exerting influence across far-flung geographic spaces and time periods. Callon (1986) proposed that some types of network begin with problematisation where something tries to establish itself as an ‘obligatory passage point’ that frames an idea, intermediary or problem and related entities in particular ways. The translations whereby separate entities are somehow attracted or invited to this framing and where they negotiate their connection and role in the emerging network Callon called interessement, which not only selects those entities to be included but also importantly those to be excluded. Those entities to be included experience enrolment in the network relations, the process whereby they become engaged in new identities and behaviours and increasingly translated in particular directions. When the network becomes sufficiently durable, its translations are extended to other locations and domains through a process of mobilisation.

In ANT terms, a network is an assemblage or gathering of materials brought together and linked through processes of translation, that together perform a particular enactment. A textbook or an educational article, for example, each bring together, frame, select and freeze in one form a whole series of meetings, voices, explorations, conflicts, possibilities explored and discarded. Yet these inscriptions appear seamless and given,