

Editorial Power/Authorial Suffering^o

Wolff-Michael Roth
University of Victoria

Abstract: In this article, I analyse the “publish or perish” enterprise and in particular the origins of editorial power/knowledge. My actor-network analysis shows how tenure, promotion, and salary decisions apparently unrelated to editorial decisions are important elements that accrue power/knowledge to editors of particular journals. What my actor-network analysis does not show, and which I therefore analyse from a subject-centred perspective, is the other side of editorial power/knowledge: authorial suffering. I suggest that the structure of our science education discipline necessitates a particular commitment to the responsibilities and obligations of editors and reviewers to the authors, particularly the newcomers, and therefore to the production and reproduction of science education.

Power is exercised rather than possessed; it is not the ‘privilege’ acquired or preserved, of the dominant class, but the overall effect of its strategic position.
(Foucault, 1979, p. 27)

In torture, it is in part the obsessive display of agency that permits one person’s body to be translated into another person’s voice, that allows real human pain to be converted into a regime’s fiction of power. (Scarry, 1985, p. 18)

Publishing in science education, as in all of academia, is part of a professor’s lifeworld. It is so much part of life, and in such a threatening way, that it has led to the adage “publish or perish.” That the slogan is threatening, I experienced early on in my career when I abandoned my academic career because I was repeatedly

^o To appear in the RISE special issue on peer review. All correspondence concerning this paper should be addressed to Wolff-Michael Roth, Lansdowne Professor, Applied Cognitive Science MacLaurin Building A548, University of Victoria, Victoria, BC, Canada V8W 3N4. E-mail: mroth@uvic.ca.

told by senior science education colleagues (and subsequently came to believe) that I was not cut out to meet the rigorous demands of publishing in respected journals.

Writing certainly is not every educator's forte or interest. Because the requirements are to have a certain number of publications before tenure and/or promotions are granted, the culture of academia forces those who aspire to academic life and appropriate salary adjustments to engage in publication of some aspects of their work. In the decision-making process concerning possible publication of submitted manuscripts, journal editors are crucially positioned to make decisions about which articles are accepted for publication in the scarce journal pages. Hence, editors are a crucial element in the architecture of information technology; this architecture always reflects the societal power relationships that the technology affords (Newhagen & Levy, 1997).

VOICE OVER: Over the last decade, it has become increasingly clear that the Internet has provided a vehicle that separates the production and control from authors to consumers due to the different forms in which texts can be shared. The interactivity of the internet architecture has allowed this change in news distribution and the related shifts in power (Newhagen & Levy 1998). It is not surprising that traditionalists who wielded most of the power in the traditional paper-based modes of publication turn out to be the most resistant to accepting different modes of publishing on the internet for making tenure decisions. Electronic journals and web publishing are still regarded as having lesser value—a perspective related to the differential ease with which a manuscript is accepted in the print versus online media.

This power can be abused. Though rarely publicised, there is mounting evidence of serious abuses of editorial power (Altman, Chalmers, Herxheimer, 1994). Editors make their decisions in part by drawing on the advice of reviewers who potentially gain from their work in a double way.

VOICE OVER: Eisenhart, this issue, argues that reviewing does not add to the tenure and promotion portfolio. In my experience, the absence of review activities is noted negatively, whereas the presence does not add much; it is taken for granted. In my institution, there are professors who list among their scholarly accomplishments each individual review they have done, including the title of the original manuscript.

Reviewing cumulatively adds to their own portfolio submitted for tenure, promotion, and salary purposes and (by rejecting the work of others) increase their own chances of accessing the scarce space constituted by journal pages.

From this perspective, it is apparent that editors, reviewers, tenure committees, and others who make decisions about authors' publications (or publication records) are in strategic positions from which they exercise power. This power, as the first opening quote suggests, is not something that one can hold such as a material possession. In this case power is exercised and accrues from a strategic positioning of the editor who exercises it. In fact, for editorial power to be exercised, the collaboration of those who are subject to the power (i.e., the authors) has to be assured.

AUTOBIOGRAPHICAL DATA: I recall very well an article in which I described how my fellow teachers and I had translated research in science laboratories from a social-constructivist perspective into curriculum design and praxis. Although the article was reviewed very positively, the editor made the publication of my article contingent on including one or two paragraphs in which I reviewed the work of his friend who took a very anti-social-constructivist view. It did not make sense to me because the article had nothing to do with the paradigm war that the editor is engaged in. Having spent so much time in the writing of the article, and being a young scholar, I complied.

In this situation, it was not just the editor exercising power. By complying, I actively participated in the performance of power, which is always an outcome of particular relations rather than something someone "has" or "owns." When such relations are stabilised long enough, they generate the effects and conditions of power. That is, uses of power should be treated as relational products; to store power or to have discretion in its development means to enjoy (or suffer from) the effects of a stable network of relations (Law, 1991). In a general way, editors do not have opportunities to exercise power over those who do not submit manuscripts to their journals. On the other hand (and as I will show later in this article), the relationship of authors and editors may be at the origin of experiences of power and suffering not unlike that described in the second opening quote about torture.

In the classical view, editorial processes that lead to acceptance or rejection of scholarly work have long been hailed as an

important aspect in the construction of “reliable” knowledge and truth (see Larochelle & Désautels, this volume). However, recent work in the sociology of scientific knowledge showed that any practice is situated in, and legitimated by, a substantial range of other practices. If we want to understand peer reviewing and editorial decision-making, the relations to other associated practices in the construction of knowledge need to be investigated. In this contribution, I will use a double-pronged analytic framework to conduct such an initial investigation. My interpretive framework is rooted in hermeneutic phenomenology. This framework acknowledges and celebrates the importance of (scientific) explanation and (personal) understanding in interpretation (Ricœur, 1991). A scientific explanation of the networks that are stabilised by peer review and from which the stability of editorial power arises thereby constitutes the hermeneutic part of the approach. Personal understanding—which arises from my participation as author, peer reviewer, coach for new authors, and editor in the science education community—constitutes the phenomenological part of the methodological frame.

For the scientific explanation, I draw on actor-network theory (Latour, 1987), which allows me to bring into focus a range of human (e.g., authors, reviewers, editors) and non-human actors (e.g., a variety of texts such as manuscripts, reviews, letters, citations). This approach embodies, in a deep way, Foucault’s (1979) analysis of the knowledge/power dimension. In actor-network analysis, editorial decisions emerge not as matters of truth about the quality of research reports submitted for consideration to be published, but as constructions that emerge from the interaction of a range of human and non-human actors by means of intermediaries.

VOICE OVER: Intermediaries are the entities that circulate (go around) in a network. In the academic “publish-or-perish” business, manuscripts, cover letters, reviews, revised manuscripts, copy-edited manuscripts, and galley proofs are some of the intermediaries that move between the different social actors involved. Intermediaries may return (come around) in their original (marked up manuscript, proof) or translated form (review, editor’s decision letter). Literally, intermediaries stand or move between two or more social actors like a letter sent by an editor to an author. Intermediaries are therefore “go betweens,” they establish and contribute to the performance of relationships.

For the phenomenological dimension, I draw on my lived experience as an author who has interacted on numerous occasions with editors and journals in many domains (e.g., linguistics, sociology of science, applied cognitive science, qualitative and quantitative research methodology, and education).

Actor Network Theory

In recent years, sociologists of scientific knowledge and technology have developed actor-network theory, an analytical tool for modelling success and failure of scientific knowledge and technological inventions, and a tool for investigating and understanding the evolution of scientific and technological communities (Law, 1994). I find actor-network theory useful because it allows me to represent publishing, reviewing articles, editing a journal, and undergoing a tenure and promotion review as a seamless web of activities and actors. This web is relatively stable (and therefore difficult to change) because of the stakes involved, documents exchanged, biographies, and the history of the community. Thus, whereas I recently called for more civility and solidarity in the practice of science education (Roth, 2000), I also know that such a call or any other change effort

FOUCAULT: The reversal of these “micropowers” does not obey to the law of all or nothing; [power] is acquired neither once and for all by a taking control of the apparatus nor by a renewal or destruction of institutions... (1975, p. 35–36, my translation)

has to undo/destabilise the existing actor network before change can come about. At the same time, the actor-network perspective encourages me to take the perspective of the most unlikely actor—person (e.g., a secretary in an editorial office) or even object (e.g., Roth, 1996)—to look at the network. Although I do not do it here, taking an unfamiliar perspective has the effect of making the familiar look unfamiliar, allowing us to understand the familiar in new ways. In this case it makes it possible to see publishing scholarly products in terms of a different set of power relationships that involve editors, authors

and myriad stakeholders from the communities in which editors and authors live their lives.

Stability of Actor Networks

When I use an actor-network approach, I view each individual, group, or organization as a (semiotic) actor linked to one or more other actors. Even non-human entities (e.g., manuscripts, reviews, decision letters) may be considered as actors both analytically and in popular parlance: “Just as I was completing my review, a computer virus destroyed my file” or “The computer crashed and I had to start writing my review all over again.” When I use an actor-network approach, I look for “intermediaries,” entities that move around in the network, from actor to actor, because these entities that move or float around in a network have the effect of stabilising it. Manuscripts, letters, reviews, curriculum vitae and notes to the editor are the kinds of entities that move around in academic networks. This movement and the movement of the intermediaries that these documents engender lead to stabilisation. It is the flow, the existence of the fluid material that produces stability of social phenomena (e.g., of editorial power, institution of peer review) rather than the existence of particular actors (e.g., editor, peer reviewer). Fluids and flow create a “social topology” (Mol & Law, 1994) such as the phenomenon of editorial power, the relationship between author and editor. As a typical translation, I might point to the production of a review: the reviewer receives a manuscript, reads it, and writes a review. This review (on paper or as email) moves on to the next actor, the (special) editor who uses it to produce another document, the editor’s letter to the author. A part of editorial power comes from the editors’ knowledge of the intermediaries (manuscript, reviews, or letters) that come through their offices and knowledge of who produces these intermediaries. Because they are “obligatory passage points” for the intermediaries, editors wield power.

As mentioned, a group, institution, or non-human entity can be an actor. We often say things such as “the university makes me do...” or this “JOURNAL rejects 75% of all manuscripts submitted.” From my perspective, it may well appear as if these entities

were actually making me do something or as if the journal actually rejects manuscripts. In this instance, entities that we do not normally associate with agency, a “university” or “journal” are imbued with agency, because they are made to stand for a complex of processes hidden from view. That is, these processes and therefore individual agency that leads and contributes to some process are hidden from view. As author, I face a black box that I have to open up to see what is in it. One thing is certain, the “university” and “JOURNAL” are more powerful actors, because it takes a lot of effort to open the black boxes that they represent. If I want to undo or fight against the decision that led to the editorial statement “we were following standard procedure for submissions that we feel have little chance of a favorable review” (editor’s email, 11/8/99) I have to do a lot of work. For example, who is the “we” in this statement? What are the processes that are glossed by the expression “we were following standard procedure”? Thus, the level of power is related to the difficulty of opening the black box (Latour, 1987); or formulated in the reverse, actors become more powerful when they understand that the blackbox is part of a process that truncates individual agency. It is therefore not surprising that I (Michael Roth) feel powerless in the face of the rejection of one of my manuscripts before a “proper” peer review was conducted. The convention of sending the manuscript to approximately three peers for review prior to making an editorial decision was not followed. Instead the editor decided based on his own reading to reject the manuscript.

Gaining Leverage

Black boxes and the flow of intermediaries stabilise actor networks. How is it possible then, as author-actor to change existing relations? How is it possible, as an analyst, to get a handle on understanding complex processes and networks? I gain leverage by considering actors as intermediaries that translate and put into circulation other intermediaries: these actors are authors Editors are also intermediaries: they take manuscripts and reviews and translate them into editorial letters to be sent to the author of the manuscript. In this way, actors (authors, editors, reviewers, etc.)

take the last generation of intermediaries (manuscript, reviews, letters) and translate (combine, mix, concatenate, degrade, compute, anticipate, layer, mark, sign, elaborate on) these to generate another generation of intermediaries (revised manuscript, rejection letter, reviews). These new documents are sent off, contributing to the flow of documents that performs relations and therefore contributes to the formation of the social topology that we call the academic life of a science educator.

Analytically, understanding editors as intermediaries allows me bring their agency into the foreground, even though they may attempt to hide this agency in a black box. Take the following case of a recent rejection notice. The two reviewers noted “request the authors to revise and resubmit” and “needs major revision.” These two recommendations alone do not seem to warrant the “rejection” that the editor communicated to me. It is not surprising, therefore, that he authored the following:

A third member of the editorial board tried to review the paper but in the end pulled out. This individual writes: “First, I cannot sustain my interest in it long enough to wade through the massive document. Second, I am unable to maintain my objectivity.” (Editorial letter, JUL 3, 2001)

Here, then the editor’s role as intermediary and author comes to the fore. No longer can the rejection be understood as a result of the reviewers’ comments. Rather, the editor himself authors the rejection and, where the “evidence” lacks, bolsters it with (additional) “data” that are not of the same nature as the two peer reviews. Why did the editor decide to accept a review that was incomplete and lacking in objectivity? The editor decided to excerpt a sentence from a longer letter to use it to support a decision to reject a manuscript. The use of the phrase masks (i.e., blackboxes) the editor’s decision to accept the perspective of this reviewer in the first place and to reject the manuscript independently of other viewpoints (reviews). The editor makes a discursive move in which he decentres the location of power and agency: by attributing less power to himself he moves power to reviewers. This discursive move hides the fact that the editor selected the reviewers and then decided on the weight to assign to their reviews and even to accept an incomplete review.

Implications

In the following analyses of various aspects of peer reviewing, I use the discourse of actor-network theory to show (a) how causes and effects are attributed; (b) what the nodes in the actor network are; (c) what the size and strengths of each of the links between nodes are; (d) who the most legitimate spokespersons are; and (e) how each of the elements and links is modified and transformed during a controversy. By doing actor-network analysis, I include all actors (nodes) and thereby resist representations of achievements that leave out aspects of individuals' work that is in important ways (socially and physically) distributed or has been made invisible (e.g., editor as author of rejection letter). Actor-network analysis allows me to acknowledge the primacy of simultaneous multiple membership in different communities for each actor in a network (e.g., we are authors and peer reviewers). Finally, actor-network analysis allows me to use a symmetric approach to the description and explanation of success and failure of a phenomenon such as peer review.

What Goes around Comes around...

In the analysis of power/knowledge, the crucial question "has to do with how it is that relations are stabilised for long enough to generate the effects and so the conditions of power" (Law, 1991, p. 172).

FOUCAULT: We have to admit that ... power and knowledge directly imply one another; that there is no relationship of power without correlative constitution of a field of knowledge nor knowledge that does not simultaneously presuppose or constitute relations of power... In short, it is not the activity of the subject of knowledge that produces knowledge (useful or resistant to power) but power/knowledge (the processes and struggles that traverse and constitute it) that determine the forms and possible domains of knowledge. (1975, p. 36, my translation)

The flow of intermediaries links different actors (authors, editors, reviewers) and thereby contributes to the performance of relationships, such as editor-author, reviewer-author, editor-reviewer, and so forth and therefore to the performance of edi-

torial power. Peer review involves the creation and movement of many documents, only some of which I, as the author of a manuscript, might get to see. In addition to the manuscript, there may be reviewer rating forms, letters from the editor to the reviewers, reviews with comments to the editor and comments to the authors, editorial decision letters, electronic or paper databases for tracking documents, statistical information about manuscript flow, cover letters specifying changes in revisions, acceptance letters, marked up manuscripts, galley proofs, and reprints. All of these documents constitute intermediaries, stabilising the network of academic actors by confirming and reifying a relation. This stability arises from the flow of these intermediaries, a current, that continues even if some of the actors disappear from the network—because they opt out or are removed (e.g., when tenure is denied). Manuscripts, reviews, decision letters, and CVs are intermediaries that function like any other intermediaries (currencies) that become the lifeblood of the system, seemingly indispensable; this fluid constitutes the social topology of our discipline. This fluid produces a level of stability that makes any change effort difficult.

With this flow arises the knowledge/power of those who are positioned at places where many such intermediaries pass, are created, or are summarised (Foucault, 1979). Editors, who occupy an important point of confluence of many of these intermediaries and who translate and produce new intermediaries control knowledge and simultaneously wield power. In the double-blind review process instituted by many journals and communities, editors are the only ones to know the identity of authors and reviewers. This panoptic view of all those involved is a source of knowledge and therefore constitutes editorial power. Or, from a different perspective, if you want to be powerful and control an academic discipline, (try to) become an editor. Then you become an obligatory point of passage (and gatekeeper) in the flow of intermediaries—you begin to wield power. Some editors may choose to innovate and change the community. Others (perhaps most) contribute to stabilise the existing network and to reify the status quo. That is, editors find themselves at the critical locations in the academic actor network (see positioning and font size in Figure 1). Their power/ knowledge and the authorial suffering arising from it

are effects of these networks. Editors, authors, and the flow of intermediaries in science education networks are shown in Figure 1. In the following subsections, I briefly analyse different actors, their actions and particularly the translations they engage in, and their contributions to the networks in which authors are caught up.

Intermediaries and Translations

AUTOBIOGRAPHICAL DATA: After completing a manuscript, I produce 3 or 4 copies and a letter to the editor, and in some instances already a copyright release form, and then send the package off. I receive a confirmation of receipt of my manuscript. Then, some time later, I receive the long-awaited letter from the editor. I open the envelope with trepidation, bracing myself for a rejection. I make the recommended minor or major re-write, produce another letter in which I defend my revision, and send them off waiting again with trepidation for the next letter. When my article is accepted, the exchange of documents continues. I read and make changes to the copy-edited version of my manuscript. I edit the printer's proofs and return them.

In the peer review (sub-) network, there are a number of different actors, intermediaries, and translations involved (Figure 1). In Figure 1, I articulate how an author submits multiple copies of a manuscript to the editor of some journal for consideration to be published. The editor of the journal sends some of these manuscript copies to reviewers. After reading the paper, each reviewer prepares a written assessment, that is, each interprets and thereby translates the original document, producing a new intermediary that is put into circulation. These "interpretations" of

DERRIDA: Thus it is for every concept: always dislocating itself because it is never one with itself. It is the same with the thesis which posits and arranges the concepts, the history of concepts, their formation as much as their archivization. (1995, p. 84)

the original manuscript enter the network as new intermediaries, contributions to the material flow, a form of currency (Derrida, 1994). Reviewers also often generate a separate document with "comments to the editor." Although the contents of these comments are usually not communicated, an editor, as in the case I cited above ("A

third member tried ... but pulled out...”), may decide to use them explicitly in his/her own letter to the authors. Another commentary on, and therefore translation of, the manuscript is produced when the editor constructs a letter in which the author is informed about the “outcome” of the review process and about the possible next steps. In turn, I may interpret the letter and reviewers’ comments to argue against rejection, and thereby produce another intermediary, another go-between that is made to circulate in, and therefore made to reify, the network. The following sets of commentaries on an original manuscript that Ken Tobin and I had authored about our own teaching illustrates the spawning of new intermediaries, which, in their movement to other actors, reified and stabilised the actor network as a whole. We had introduced four concepts—habitus, being-in/with, praxeology, and coteaching—to articulate new forms of science teaching and science teacher education practice (e.g., Roth & Tobin, 2001). These concepts have, by now, been accepted in the teaching and teacher education literature. But the response by one reviewer and the journal co-editor from the science education discipline were vicious and even personal.

COVER LETTER: Please find enclosed this manuscript entitled “[ARTICLE TITLE]” for consideration to be published in [JOURNAL NAME].... We are excited about the prospects that this kind of framing provides for taking a new look at teacher induction, development, supervision, evaluation, and research.

REVIEWER: Unfortunately, these authors have [...] chosen to “package” [teaching] rather awkwardly in a theoretical framework that will have little meaning to teacher educators and teachers, let alone those researchers who value practicality. The introduction of new terminology/ jargon is not inherently negative if it adds new insight and meaning to phenomena of concern. However, the introduction of constructs such as habitus and Mitsein do little more than obscure some rather intuitive notions that have been recognized more directly by both teachers and researchers. This manuscript, unfortunately, is an exemplar of what is wrong with the direction educational research has taken with regard to the improvement of teaching.

EDITOR: ... what this manuscript has to offer is new rhetoric without fundamentally new insights into very complex and important issues.

OUR RESPONSE: We reject the use of the notion of jargon, for there are only 4 terms that we introduced: habitus, being-in/with (formerly Mitsein), praxeology, and coteaching. We reject the notion of jargon, for the reviewer would equally reject the 20 words Inuit use to designate snow. To them, making the 20 distinctions is of vital, life-saving necessity. Similarly, in research, the words we use allow us to make distinctions (i.e., cut up the world) and therefore see phenomena otherwise not accessible. Otherwise you have to reject all science language as jargon. Even so, we have carefully revised the manuscript and have done what we can to reduce the use of technical language that might detract from readability.

In spite of our argument that the reviewer had erred, the editor did not change his view with respect to our manuscript. At the same time, by responding to the criticism, Ken and I had not only returned a response but also reified the power relation between the editor and ourselves (qua authors). Even if we selected not to submit to this journal (which both Ken and I have done in the past with selected journals), we would have had to live with the presence of the journal, and therefore with the influence its editor has on the intellectual landscape in our discipline. Ignoring an editor and “his/her” journal does not remove the effects they have on the landscape (Star, 1991) because it is in the relations and their heterogeneity that they perform agency (Callon & Law, 1997). By interacting and submitting to his editorship and by changing our manuscript, we in fact contributed to the performance of his ruthless editorial power.

When we were asked to make (minor or major) revisions to our manuscript, we are really asked to interpret (translate) the reviews (interpretations of their article) and the editor’s letter. By responding with changes, we not only translate our manuscript into a new one, but also reify editorial power. By re-writing our manuscript and by arguing with the editor, in fact by entering a relation with him, we contribute to, reify, and legitimise the performance of his power. Despite accomplishing the requested changes, the editor may still change his mind; he may change his mind even after he has already sent a letter of acceptance:

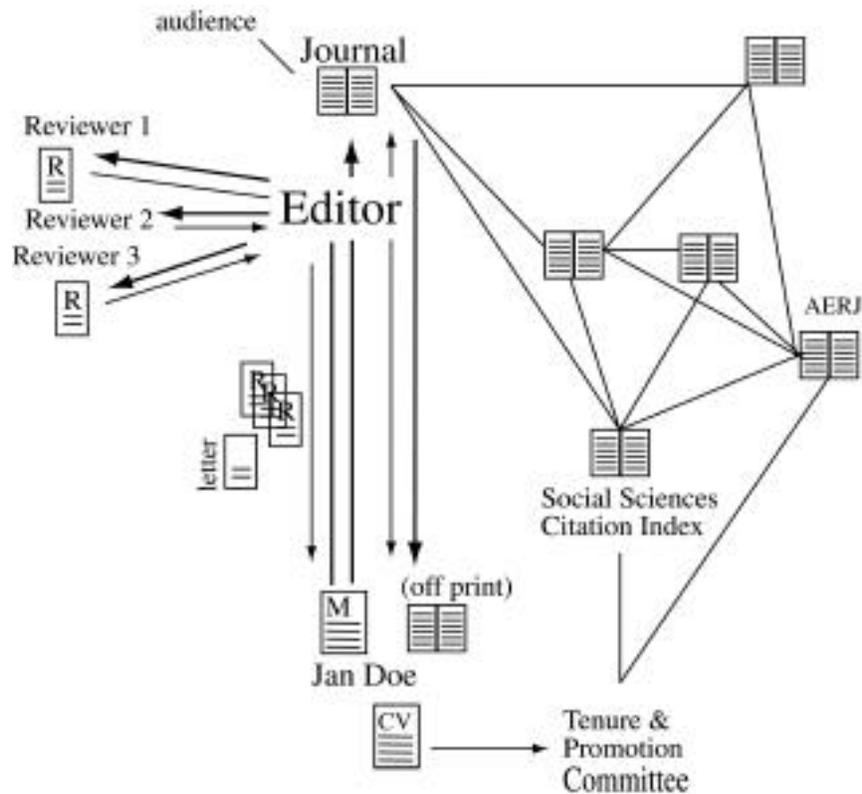


Figure 1. Journal editors are placed at a crucial node in the professional network of academe, which in turn determines the professional advancement and life of an individual professor.

Dr. McCarty [editor of APA journal] explicitly congratulated me on the manuscript's acceptance; [...] Dr. McCarty explicitly told me at the outset not to change the central theme of the manuscript but then later demanded that I do exactly that after I had already revised the manuscript consistent with his suggestions... (Scott Lilienfeld, May 21, 2001)

Similarly, an editor once told me that a manuscript was accepted for a special issue; I was subsequently told that the article would not be published and that I really should look for another journal. This hurt. As a new scholar, I neither knew what to do in such a case nor wanted to offend the editor because it was a highly reputed and ranked journal in which I really desired to publish.

Depending on the amount of reworking necessary, the manuscript generates further intermediaries, another cycle of translations, before it is entered in the publishing process. Depending on the publishing company, the copy editor and authors engage in multiple changes (translations) as they process the copy edits and galley proofs until the manuscript finally appears in the journal. When one of my articles

DERRIDA: By incorporating the knowledge deployed in reference to it, the archive augments itself, engrosses itself, it gains in *auctoritas*. But in the same stroke it loses the absolute and meta-textual authority it might claim to have. (1975, p.68)

is finally published, I always have a sense that I am only partially the author, something is lost; this something may well be a part of myself. There are so many other actors from the network who have contributed to it, succeeded in making changes (translations) themselves or getting me to make it “in a satisfactory way” that it no longer feels mine in a traditional sense. An article really is a collective product, bearing the mark of many social relations; in the end, however, it is being attribute to me, as author.

Peer review and editorial power affects us as science educators in yet other ways. New intermediaries are produced when we update our CVs, enter the article reference, change our publication counts, or enter our articles in the institutions' official CV databases. (Some institutions have official, web-bed data bases where faculty members can continuously update their official CV.) Each time we engage in changing such a document, we further re-affirm and therefore perform editorial power—far from the editor's office, it's true, but performing (confirming, maintaining) his power nevertheless. Further translation of my work occurs when the Social Sciences Citation Index (SSCI) establishes counts and lists of other authors who have drawn, in their work, on my own article. Based on SSCI, journals get ranked based on one of several criteria, for example, the impact factor.

I wanted to let you know that most recent Journal Citation Report showed that out of 101 journals published in educational research, JOURNAL ranks #10. Everyone affiliated with the journal should be proud of this accomplishment. (Letter from the editor, July 3, 2001)

“Everyone” includes (perhaps are) the editor, reviewers, and the editorial board members who maintain or increase the “standards” (see also Eisenhart, this volume). Thus, if my article is cited a lot, it does not only contribute to my own tenure and promotion case, it raises the citation rates, thereby reconfirming the power of the editor “responsible” for what goes in/is kept out of the JOURNAL. By submitting to this journal, I not only advance my own case, but also contribute to the reification of editorial power. By not submitting to the tenth-ranked JOURNAL (as I have done for several years), I still have to live with it in the professional landscape of which I am part. I have not submitted a manuscript to another science education journal after the editor made the publication of my manuscript contingent on citing and reviewing his friend’s work. Although I try to ignore this journal, I am required to deal with it when I review a tenure and promotion case of someone who does publish there.

The networks in which relations confirm a particular editor’s power reach even further. Sometimes, tenure and promotion committees draw on the SSCI publication to establish the quality of an author’s research. That is, the author’s article does not stand on its own but is judged by its relationship to other publications in the same and other journals. For example, on peer review committees, I have heard comments such as “he publishes in ‘dinky’ journals” or “this person gets her stuff into top-ranked places.” Tenure committees may also draw on the ranking of the journal with respect to other journals in order to assess the quality of my contributions to research and scholarship. In each case, a tenure and promotion committee does not only make a judgment of a person’s work but also contributes to the performance of editorial power.

Institutional Context

The publication of articles is embedded in a context that contributes to the performance of editorial power; this power derives from and is conferred by the strategic positioning of the editor. Thus, editors who construct themselves as official gatekeepers in the discipline

VOICE OVER: Discipline is one of the key concepts in the analysis of power/knowledge (Foucault, 1979). We often think of it as a domain of inquiry, such as the discipline of science education. However, discipline also forces us to conform: We have to be disciplined (how we work, how we write, what we write) to belong to a discipline. On the use of this concept in the analysis of enculturation in science see Roth and Bowen (2001).

are positioned such that they act as gatekeepers. As authors, we all work in institutional contexts where decisions about career, promotion and tenure, are in part derived from “scholarly” productivity. This productivity is measured along various dimensions, numbers of articles, “quality” of the manuscripts, number of pages, “quality” of the journal. This is particularly the case for the tenure process that (in countries such as the US) is dependent on the number of articles published—a frequently stated rule of thumb is “two articles in (good) refereed journals per year.” If an individual desires to stay in academia, writing research articles and publishing them in refereed journals are *sine qua non*. As members of these institutions, we are “interested” in getting our manuscripts published and reaping the rewards of their scholarly efforts. It is an “interest,” an interest not necessarily of our own making. If we are interested in working at the university, we have to show/document an interest in publishing—or else we probably will be denied promotion and/or tenure.

As a university-based science educator, I do not operate in some empty space but I am bound in an institutional context, a complex actor network, in which my academic career is influenced by factors and forces that seem to have little to do with science education at all. This year, an educational psychologist, two sports physiologists, and a person from language arts made the (first) decision concerning my merit increase.

LETTER TO THE VICE PRESIDENT ACADEMIC: I am writing this letter to appeal the salary recommendation communicated to me by [Dean]. Although he recognized that the decision was likely not commensurate with the portfolio that I had submitted, he suggested that he did not change the [recommendation] because my portfolio “is the easiest to defend and therefore the most likely to lead to overturn the faculty decision.” ... The purpose of this appeal is to request a fair evaluation of my portfolio that reflects my formal assignment of duties and the artifacts presented in support of my performance.

I was very displeased with their decision and experienced several weeks of chagrin before the decision was overturned and before I was awarded what I considered the appropriate evaluation and merit increase. “Peers”

VOICE OVER: A “peer” is frequently defined as “a person having technical expertise in the subject matter to be reviewed (or a subset of the subject matter to be reviewed) to a degree at least equivalent to that needed for the original work” (USNRC, 1988, p. 2).

on tenure committees may not be science educators, the “quality” of the journals in which someone publishes is determined by indices constructed outside of the field, criteria for promotion and tenure are established by committees with members from many different disciplines outside of education. Nevertheless, university-wide tenure documents often specify publications and scholarly papers as central criteria for evaluating faculty members. For example, the following excerpt constitutes the “criterion” with respect to publications at my own institution (University of Victoria):

UNIVERSITY OF VICTORIA FACULTY HANDBOOK: All evaluations for re-appointment, promotion, tenure, and salary of faculty members ... shall be based on the following criteria, of which 10.1, 10.2, 10.2.1, 10.2.2, and 10.2.3 are considered of paramount importance.

10.2.2. Publications and scholarly papers, especially insofar as they reveal the quality of research.

Whether or not it is explicitly stated, tenure and promotion committees judge the quality of a researcher’s publications. Sometimes judgements are based on an informal sense for the “importance of the journals” (Are they regional, national, or international? Are they easy or difficult to get in?), the rankings according to impact factors of a journal or total citations to an author’s work, article length (number of pages), or some combination of factors (e.g., the weighted product of the two). Individuals outside the science education community may judge a science educator’s portfolio. Thus, faculty members may publish in journals that are judged against other journals, which they may neither read nor be familiar with. Institutional contexts therefore make it necessary for individual

faculty members to publish, and to do so in journals that allow them to pursue the career trajectories of their choice. The actions taken in each institutional context therefore contribute to the performance of editorial power. Each committee constitutes an actor, a node in the actor network that works as an intermediary, which interprets (translates) one document into another which contributes to the current of intermediaries that maintain and stabilise the system (network) as it is.

As a member of the university community, I thereby contribute to the stability of a network that embodies editorial power and I contribute to the performance of editorial power. It is therefore not surprising that I often experience an almost schizophrenic impossibility:

FOUCAULT: This power [...] is not purely and simply applied, like an obligation or interdiction to those who do not have it; it invests them, passes by them and through them; and it finds support in them, just as they in it, in their fight against it, in their turn take support in the effects it has on them. This is to say that these relations descend very far into the depth of society... (1975, p. 35, my translation)

I feel powerless facing institutional stability and simultaneously contribute to this stability. I feel powerless facing editors and simultaneously contribute to the performance of editorial power. I rage against institutional immobility and editorial power and contribute to this immobility and power every time I submit a manuscript.

Journal Networks

Journals are not things that stand on their own but have their own context, that is, they are judged in the context of other journals in terms of comparison of readership, distribution, importance to the field, quality of the articles published, nature of the articles published, and so forth. There is a network within which the journals operate and are caught up, one that is established by the ranking procedures of such institutions as the Social Sciences Citation Index (see Figure 1). One criterion often invoked for tenure and promotion purposes is the impact of the author on the field, which

is sometimes measured by the citation statistics that depends (to a large extent) on the spread of the journal rather than the quality of the article. An article published in *Educational Researcher* which is automatically mailed to more than 10,000 AERA members has a higher spread and therefore likelihood to be cited than an article by the same author when it is published in *Science Education*. The “quality” of a journal is often measured by the citation statistics in the Social Sciences Citation Index or by the “expert” judgment of people in the field.

Authors Contribute to their own Suffering

Authors are actors trying to establish a network that enrolls editors, reviewers, and ultimately (when the manuscript is published) journal readers. Authors do this by enrolling other actors, authors they cite, methodologies that they use to account for what they have done to make their claims credible. They combine these with “original data,” to create research narratives that are, in some ways, reflective of the setting in which the protagonists (and authors) have lived. They draw on other actors such as previously published reports, common knowledge, and established scientific processes and experimental procedures to construct the reasonableness of their research question and experimental design. Common knowledge and widely accepted facts, concepts, and theories are more powerful supporters in an author’s scheme than other yet-unconfirmed research findings; articles by “authorities” are more powerful allies than articles by largely unknown researchers. To get the best support from their “raw” data, authors transform these into representations such as graphs or equations which are considered more powerful actors the more “abstract” they are. Each of these allies, cited articles, commonly accepted knowledge, or data is considered an actor rallied by the author to construct a network.

Citing the work of others constructs links between authors and journals. Thus, each time I cite an article that has been published in the JOURNAL, I also contribute to stabilising the network of journals within which it exists and to reaffirming and reifying the status of the journal and the power of the editor. Each citation

contributes to the maintenance of the network and therefore to the performance of editorial power. Each citation even contributes to the maintenance of the other journal that I no longer directly support by submitting articles. In the same way, each citation of my work by another author contributes to the calculation of the citation index and impact rating. Thus, I find my work referenced considerably by authors who publish in the JOURNAL to which I have not submitted an article for several years in protest over the acrimonious letters that I received from its editor. Again, I contributed to stabilising the JOURNAL and its editor—as citing author and as cited author—even though I had attempted to extricate myself from its network.

Review Process: Editorial Decisions

Actor-network theory allows me to open each blackboxed actor (provided I have the relevant data) and analyse each intermediary, to investigate how an editorial decision arises from the translation of written documents, and themselves are embodied in such documents. In the final count, editors make decisions and write decision letters—tremendous power over new ideas arises from this strategic position (Thomas, 1999). The author of the following quote saw her ideas rejected because they did not conform with those of the editor(s).

I submitted the paper (which was eventually published) to the Berkeley Journal of Sociology—it was rejected because I was being critical of feminists—not a word about the analysis and supporting evidence. I submitted to Feminist Review—after three months they sent praise and revisions; I complied and after a few more months it was rejected on the grounds the paper did not agree with “their experience” of feminism. (Martha Gimenez, June 17, 1998)

Angie Barton and Verneda Johnson (this volume) tell a similar tale about the difficulties of publishing innovative and in fact highly relevant research through the review process and into the journals. I also have repeatedly struggled with various editors to get them at least to enter an article into the review process although they initially rejected what is now an accepted framework for conceptualising teaching and learning to teach.

I have elected not to place this manuscript into the review process because after a careful reading I find that 1) it does not explicitly deal with issues of science education; 2) it does not extend our knowledge about teaching practices--e.g., your theory of practice does not report new and novel perspectives that inform preservice or inservice teacher education; and 3) it employs a format for the reporting of ethnographic research which does not make obvious to the reader how you move from the evidence to the results and conclusions reported. (Letter from the JOURNAL editor, 03/01/96)

Even if editors defer decision making to editorial committees, real people make decisions sometimes alone, sometimes as part of groups or institutions that have chosen some mechanism to arrive at a collective voice (“Even a longer network remains local at all points” [Latour, 1993, p. 117]). Editorial rhetoric, however, often presents the decision-making process as something objective, de-contextualised, and above the particular situations in which reviewers, editors, journals, and so on find themselves. This is exemplified in the following quote from a “decision” letter.

Based upon the comments of the reviewers, it is the opinion of the Editorial Team that the manuscript should not be accepted for publication in its current form. Reviewers cited several reasons for this decision. [JOURNAL editor’s letter, 12/09/97]

In this quote, an abstract “editorial team” is deemed to have an opinion. The editor used a number of rhetorical devices that attributed the decision to a “committee” and then re-attributed the source of the committee’s

FOUCAULT: The study of this microphysics presupposes that the power that is exerted there is not conceived as a property but as a strategy, that the effects of domination are not attributed to an appropriation but to dispositions, manoeuvres, tactics, techniques, and functional relations... (1975, p. 35, my translation)

decision to the reviewers. Rather than accepting responsibility for the decision, the editor attributes the decision to “the Editorial Team.” The term “Editorial Team” is a black box that takes enormous effort to open (deconstruct) (Latour, 1987). As author, I usually am not interested in mounting the effort required to open this black box or do not have sufficient energy to do it. Although the reviewers make recommendations, the editor’s letter makes it seem as if the reviewers had been directly

involved in making the decision (“Reviewers cited several reasons for this decision”). Furthermore, this discourse hides the fact that the editor chose the reviewers. For example, this same editor chose to send an article that had “anthropology” in its title to be reviewed by a cognitive psychologist. This psychologist began his review by stating that he had no expertise in anthropology, then complained that there was too much anthropology in the article, and as a consequence rejected it.

1.2. You decided to send it to a cognitive psychologist, the very position of which is at the other end of the theoretical and methodological stance taken by the article. (The person writes in fact that s/he may not be the most appropriate reviewer.) In this case, a rejection is to be expected because the person does not even know what the issues are when you do not look at representation in terms of the physical symbol system. We know at least since Kuhn’s (1970) *Structure of Scientific Revolutions* that it makes little sense to have cross-paradigmatic comparisons and evaluations of research. (From my response to the JOURNAL editor’s letter, 06/27/97)

In effect the editor rejected the article and his actions in selecting these reviewers to review this article led directly to a decision that may have in fact preceded the distribution of the article for review by the “selected” peers. (The article was subsequently accepted “as is” in a journal ranked even higher than the initial JOURNAL to which it was submitted.)

The same rhetorical process is at work in the following quote where the editor, drawing on the authority of the reviews can extricate himself from the picture so that the decision appears to have been made by the reviewers.

Your paper has been considered by the journal’s referees, whose recommendations support a decision not to accept it for publication in [the] JOURNAL in its present form. You may be interested in the enclosed referee comments which give the reasons for our decision on this paper.

Here, the editor translates the reviewers’ comments in such a way as to efface (Lat. *ex-*, out and *facies* face) their own role in the decision making process, literally take their faces out of the actor network. Although editors select reviewers, interpret reviews, and make the decision about the future of the manuscript (acceptance, revisions, rejection), they ordinarily engage in discourses that make it appear as if they had little to do with the decision about

the fate of the manuscript. Sometimes, an editor does not draw on the authority of some editorial team but on an indefinite plural and regal “we” that erases the editor as the person who made the decision. Thus, an editor may state, “Due to the methodological criticism raised by the reviewers, I regret to say that we are not interested in reviewing any other versions, revisions or re-wordings of this particular paper” (emphasis added). But editors do not always defer to the authority of the reviews. They are in a position where they can return articles without sending them out altogether, “I’ve elected not to send this paper to our referees for review, since I know from past experience that they will tell me that it is not acceptable for publication” (Editor 03/01/96). (Not only was the article eventually published, it led to a fruitful research agenda leading to many articles on the topic and several books.)

Discursively shifting agency to an abstract body (“editorial board,” “we”) editors abrogate their responsibility and accountability. If I wanted to take issue with the JOURNAL editor, he no longer has to defend his actions but defers agency to a black box that is more powerful because its functioning is hidden from view. Whereas I remain accountable for my own actions, my own writing, the editor does not have to account for his actions. He is in a panoptic situation, knowing about the review process concerning my article to which I am not privy. This differential of knowledge constitutes a differential of power. The rhetoric of the “double-blind review” makes use of the same differential in power/knowledge.

Rhetoric of (Double-) Blind Review

Double-blind reviews are constructed as being more objective. This can be questioned. The reviewing members of the community can easily recognize well-known authors despite efforts to “blind” manuscripts. Double-blind reviews encourage the emphasis of negative aspects of a manuscript rather than an emphasis on what needs to be done to make the article publishable because reviewers do not have to face the author and cannot be made accountable for their actions. The individual reviewer is not accountable to the author. This is especially the case when editors draw on people

from outside of the field. This may be in a case where a methodology is not well established—e.g., ethnography in the field of science education in the mid-80s may have prompted editors to seek additional advice from people in anthropology. This may also occur in cases where an editor seeks a particularly strong objection—that is, by sending my “Anthropology of...” to a cognitive psychologist or cognitive scientist. In this case, cross-paradigmatic “slam dunks” are often the order of the day. Blind and double blind reviews work in favour of the editors and their power because they do not have to reveal who reviewed a piece.

In the past, enculturated by the community, I personally have been as guilty as others in writing harsh reviews. Blind and double-blind reviews work in favour of the editors and their power because they do not have to reveal who reviewed a piece. For all it matters, it could be a graduate student, a scholar from a different field inclined in a particularly negative way to the approach of the manuscript, or the editor himself. On the other hand, there are journals where the reviews are open (at least when reviewers wish). It is interesting to note that the quality of these journals (e.g., *Cognition and Instruction*, *The Journal of the Learning Sciences*) and of the individual articles published in them are not inferior, but in many ways they are superior to those published in science education journals. Furthermore, some journals (e.g., *Discourse Processes*) have editorial processes that ask authors to specify individuals from the review/editorial boards with expertise in the authors’ area. Furthermore, authors may specify additional reviewers not on the board who would be suited to construct expert advice regarding a manuscript. Again, these journals are not inferior but are highly regarded in the field.

... and there is Suffering

An analysis of publishing in science education from the perspective of actor-network theory shows the stability of a network that forces science educators to become authors who submit their work and thereby perform (and stabilise) editorial power. My analysis conceptualises the networks constituted in and by academia and scientific journals, science educators and manuscripts, editors and

tenure committees. But this analysis leaves out much of my own experiences of (a) anxiety, pain, knots in the stomach, and insecurities each time a rejection letter arrives in the mail or

FOUCAULT: The individual does not become a useful force until it is simultaneously a productive individual and a subjugated individual.... [Subjugation] can be calculated, organised, technically reflected, it can be subtle, use neither arms nor terror, and yet be of a physical nature. (1975, p. 34, my translation)

(b) the exhilaration, elation, excitement, and self-worth that comes with letters of acceptance. Given that the negative sides are much more damaging to the construction of an academic Self (and more prevalent if we believe the 70+ % rejection rates of some science education journals), I will focus on this set of experiences.

Over the years, one editor or another has taken a consistently negative stance towards particular authors, their programs, and their manuscripts. Consider the following excerpt from a letter representative of all the communications that I received from the same editor to five or six manuscripts over the span of about three years.

You have not submitted an adequate report of research. We have been over this issue before. I will not accept from you or any other researcher reports of research that do not follow standards for the reporting of ethnographic research. Such guidelines do exist. You choose, however, to consistently ignore these and thus in the end your claims are not grounded.... There exist several handbooks on doing and reporting qualitative research. You are cutting corners and I won't place such reports into review any longer. You are too senior now. I've been giving you this feedback for 5 or 6 years, first as a discussant on your papers at NARST and then as editor of this journal. (JOURNAL editor's email, 02/29/96)

I cannot express the feeling of inadequacy, disappointment, self-doubt, and disempowerment I experienced when I first read these lines and those in the other five letters from the same editor. I continued to engage in my regular activities and fulfilled my obligations to institution and students, but I carried with me a knot in my stomach that prevented me from eating and drinking. It was a joyless day in a joyless world.

Such sensations become even deeper when the editor (again using the plural “we” to shift agency away from himself) chooses to make a point about a particular piece of research.

Due to the methodological criticism raised by the reviewers, I regret to say that we are not interested in reviewing any other versions, revisions or re-workings of this particular paper. (JOURNAL editor’s letter 06/19/95)

This was during the third year of my academic career. The comments hurt and made me wonder whether I wanted to continue in this job where I was exposing myself to such verbal onslaughts. But because I am senior now, I know I can publish elsewhere. I am concerned that all those young colleagues, newcomers to the field of science education, will be more discouraged by such letters than I ever was.

In actor-network terms, the editor’s letter can be seen as an attempt to construct my work and me in a particular way. He draws on “standards for the reporting of ethnographic research,” suggests that there are appropriate handbooks, appeals to my status as a senior researcher who presumably should know better than I had demonstrated, and [his] multiple feedback that I presumably had not heeded over a period of 5 or 6 years. The editor refers to a history of similar problems without having described the nature of the problem with which he is uncomfortable. Nor did he show an awareness of this being his personal perspective. Instead he adopted the voice of “we.” In this case, the editor constructed a common problem that I was to have shown in the work I submitted. This of course highlights a problem—one person (here the editor) may have a bias against another or a particular methodology. Someone might suggest that a policy about sending manuscripts to people who are in field and competent to review may solve the issue; that is a manuscript should go to peers for review. But of course, unless there is a way where editors can be made accountable for the selection of the reviewers, we may end up in the same boat as I was with other manuscripts to the same editor. (I already mentioned the article rejected on the grounds that it had too much anthropology in it.) I sent the above-cited excerpt to 25 science educators for comment. The responses I received ranged from analysis of power to outrage. It is evident from

the responses that my peers had suffered from similar abuses of editorial power.

I was shocked to hear the disrespectful tone the editor used in his/her letter to you. Although I am sure each one of us has felt some frustration reviewing journal articles, there is no excuse for abusing one's privileged position as a reviewer to block work written by specific authors or to cause harm. Maybe when an article is making us develop strong feelings in favor or against it—maybe this is the time we need to ask ourselves whose interests are being served by rejecting or accepting such an article? (RA, personal communication, May 6, 1998)

I think the hegemonic qualities of that editor's comments are something many have experienced (I have that's for sure). They are trying to impose a certain vision of what the field should be like reflecting particular, conservative standards (and citing these in rather a disembodied voice to justify this). (OM, personal communication, May 6, 1998)

Here the Editor makes a power move to claim his power of position. He instructs the author as if he were a school child who has failed to do as instructed. He assigns to himself the power of being right and this may be the most scary part of the review. Here a person has constructed himself as being all powerful and does not seem to entertain the thought that the paper that was submitted might be a source for his own learning. I do not see rhetoric like this as being appropriate in peer review. (TK, personal communication, 05/06/98)

After I had overcome the first bout of disappointment following the harsh letter from the JOURNAL editor, the letter became an occasion for reflection about the pain my own (often extremely critical) reviews had inflicted on others. I began to think about my responsibilities and obligations to the field and, in this, to each author.

Responsibilities and Obligations

Actor-network theory is a powerful tool that helped me to make salient the different actors, intermediaries, and translations that occur in the process of contributing to the microphysics of power, including through the publication of my work. However, the actor-network approach did not bring out the personal pain and suffering experienced when I received hurtful letters from the editor

that did attempt to construct my work as worthless, and unfit to be published. While I have addressed this problem of actor-network approaches through an analysis of my own authorial suffering, there is still an important aspect that has been left out but needs to be addressed. Responsibilities and obligations are not part of actor networks; yet they are important regulators in the exchange of intermediaries, of interactions between the different actors (Galen Erickson, personal comment, April 19, 1998). Often, these responsibilities and obligations, however, are forgotten and obliterated in the quest for “truth” and “quality.”

Reviewers often “sit on” the manuscript delaying the review process—in some science education journals, turn around times of up to 18 and even 24 months are not infrequent. On the other hand, it is well known that journals in physics or chemistry have turn-around times of the order of 3 to 5 months. That is, at many institutions (e.g., at my own) peer reviewers receive credits toward tenure, promotion, and salary processes; at the same time, they do not serve the community in the best way possible. Furthermore, peer reviews are often harsh and unrelenting. Enculturated into the science education community and constant reminders from editors of my responsibilities in keeping the “quality” of the journal high, I used to be one of the harshest critics. However, editors have a mediating role in this process where they draw on their experience in the field to make the wisest use of reviews. Again, rather than “slam dunking” submitted manuscripts, I think that we, reviewers and editors, have an obligation to foster and provide helpful advice to those whose research narratives do not yet enrol their audiences in a convincing way. In the words of one science educator, “Our role as reviewers is to act as agents of professional development for the advancement of knowledge and for the benefit of the community of practice in which we are embedded” (TR, personal communication, May 6, 1998).

Many journal submissions come from beginners (at the 1998 NARST conference, more than one-third of the attendees were graduate students) with little experience in writing, constructing arguments, and in the literary formats currently accepted in the field. From a perspective of enculturation, given that they want science education to survive and prosper, editors and reviewers can construct their roles not in terms of preserving quality and

purity but rather as old-timers who assist newcomers to both contribute to and transform the discipline in the process. Editors and reviewers have obligations not only to the individual author but to the field as a whole, contributing to its reproduction and transformation. Here, the power they wield can actually be turned into a positive aspect of the continuous production and reproduction of a scholarly field. This is evident from the following two science educators who have served as editors.

What I am trying to say is that editors do wield a lot of power over what gets published but this power isn't necessarily repressive and actually even the seemingly progressive power [the editor] is allowing me to wield could be construed by others as repressive. I think the question becomes what kind of person is the editor, are they progressive, innovative and open-minded? What directions are they trying to take the journal and the field? And what sort of control do the people who want to publish have over that? (OM, personal communication, May 6, 1998)

Editors certainly need to assume a responsibility of maintaining standards. In my own role as editor I have decided to send articles for review to people, like Michael, because they will give it a thorough review. My intention is not to reject but to get the best input so that the author will benefit from the feedback. I have also decided not to send manuscripts for review but have instead published them as is. I am not aware of EVER sending a manuscript back to the author without review. I see such an act as overstepping the bounds of Editorial responsibility and collegiality. (TK, personal communication, May 6, 1998)

In summary, evaluations of research articles and tenure portfolios are likely to contribute to the construction of identity and Self in the way grades in high school do (Roth & McGinn, 1998). There are therefore particular responsibilities that go with the jobs in the review process, including reviewers and particularly editors who mediate between reviewers and the authors.

In the course of my own trajectory as a member of the science education community, the importance of responsibilities and obligations not only in the production, but also in the reproduction of the field has become increasingly important. I have grown as a reviewer and editor and developed new understandings of a community's role in the production and reproduction of itself and in the construction of quality of research conducted by its members. The following shows how I approached the review and recom-

mendations of a paper which, a few years earlier, I would have rejected.

SUMMARY: I think this article addresses an important issue [TOPIC] that may have significant potential as theoretical and methodological framework in education more generally and curriculum theory more specifically. However, whereas I enjoyed reading the piece and could make sense of it given my extensive work in the area, I fear that the uninitiated reader cannot make much of it, and does not understand either the key notions nor the argument that the author tries to make. ... So I am recommending that changes be made to address what I think could be problematic for the uninitiated to [TOPIC]. I hope my comments and criticisms are helpful in the reworking of the manuscript and encourage the author to contact me (Wolff-Michael Roth, mroth@uvic.ca) if s/he has more questions. [Emailed review, Sep. 13, 1997]

Rather than hiding behind the anonymity which blind and double-blind review guarantees the reviewer, and makes it easy to write scathing reviews, I sign my reviews. (Whereas most journals allow reviewers to sign despite the double-blind review process, the former editors of the *Journal of Research in Science Teaching* decided to remove the signature without asking me.) In this way, I tend to write about what it would take to make the article acceptable to the journal. Furthermore, because the topic of the above article was so closely related to my own interests, I offered to assist the author in the process of reworking the piece such that it was eventually published.

Coda

Power is a technique that achieves its strategic effects through the disciplinary character that is used to create and regiment obedient bodies through assessment mechanisms (Foucault, 1975). Resistance to regimentation only demonstrates the necessity of the discipline that provokes the resistance in the first place. Refusal to submit to journals and thereby participate in performing editorial power will, without doubt, be punished in one's home institution. Because of the network, any effect in one locale is felt in other localities. Assessment of productivity is part of disciplinary practice that constitutes power and is a form of knowledge and dis-

cursive practice (Clegg & Wilson, 1991). This knowledge disciplines the body, regulates the mind, and orders the emotions such that the ranking, the hierarchy, produces a basis for the productive worth of individuals as they are defined by these new disciplinary practices of power.

In my analysis, I illustrated that the practices surrounding the evaluation of faculty members during tenure, promotion, and salary reviews create conditions to which members of academia have to comply. Furthermore, this pressure ripples through the network in that faculty members, after translating their university's criteria for tenure and advancement into research, have to engage in the trading and translations of intermediaries including manuscripts, letters, reviews, off-prints, citations, and so on. Resistance to participate in the "publish or perish" aspect of their work only demonstrates the necessity of the review processes. That is, it is expensive to work within academia and practice outside its sets of standards—professors who cannot author powerful narratives that enrol multiplicities of actors, texts, and other intermediaries are likely asked to leave the institution. Participation in these practices, on the other hand, produces the very factors on which the productive worth of individuals are defined. Participation, because it reifies relations, confirms and contributes to the performance of editorial powers. Thus, the translation of tenure criteria, manuscripts, reviews, editorial correspondence, offprints, and curriculum vitae creates new documents that add to the flow that stabilises the networks of academia much like the circulation and translation of grades constitutes and stabilises, as I mentioned before, the actor networks in which grades are traded (Roth & McGinn, 1998).

Foucault's concept of disciplinary practice is meant to make salient the micro-techniques of power which inscribe and normalise not only individuals but also collective bodies such as organizations through the calculation of particular modes of rationality and from distinct auspices of power/knowledge. Power/knowledge is, I argued, a relational product—to have discretion in deploying it means to enjoy the effects of a stable network of relations. Editorial power arises from the positioning of the editor in an entire network which uses number and "quality" of manuscripts as a tool to evaluate and discipline faculty mem-

bers. I articulated the strange predicament that I both contribute to the performance of editorial power and suffer from it. My actions of writing (including the use of citations) and submitting articles stabilise the very networks that also give me pain and frustration. But I also know that without participating, without being part of the network, I cannot contribute to changing it.

The initial draft for this paper was written for a symposium at the 1998 annual meeting of the National Association for Research in Science Teaching. I was thinking that we ought to produce a special issue concerned with power and prejudice in and of the peer review system and editorial power. I am not suggesting that editorial power is equivalent to prejudice. Some editors have used their position to perform power in particular way, keeping particular authors out of the journal they represented, and enacted their own prejudices in autocratic ways to the detriment of a democratic scholarship. Their prejudices about which contents and forms of scholarship have shaped the field, and perhaps discouraged many young authors from being more active scholars. My own experiences with three such editors have entered the present piece. Other editors are attempting to do their best—the fact that this special issue has appeared is to be credited to one of them—in permitting a variety of scholarship, new and old forms of writing science education research, to be published. My fundamental point is that performance of editorial power should take account of the responsibilities and obligations of an enlightened and democratic discipline. Having a person or institution that takes on the function of an ombudsman might shift the actor network and performance of power and thereby make editors more accountable to the responsibilities and obligations that they have to the field.

Here, at the end of this analysis, I encourage readers (authors, reviewers, and editors) to recall that we are all members of one, the science education community. Values such as civility and solidarity are better guiding principles than the exercise of editorial power and competition for limited journal space. As science educators, we do not have to limit our agency to reacting to the status quo—reproduction of (unjust) editorial power. As human beings we are endowed with agency and therefore with the power to act. Let us use these powers to make publishing in science education

journals a more positive and less stressful and anxiety-ridden experience. Let us wrestle with the tensions inherent in the practice of editorship by making them transparent and open those processes that currently are visible only to the editors, and therefore lend themselves to the performance of arbitrary editorial powers.

Acknowledgments

The research on which this article is based was made possible in part by grant 410-96-0681 from the Social Sciences and Humanities Research Council of Canada. I am grateful to Ken Tobin whose challenging comments on repeated rewrites of earlier versions pushed me to clarify the ideas presented.

References

- Altman, D. G., Chalmers, I., & Herxheimer, A. (1994). Is there a case for an international medical scientific press council? *Journal of the American Medical Association*, 276, 266–267.
- Callon, M. (1991). Techno-economic networks and irreversibility. In J. Law (Ed.), *A sociology of monsters: Essays on power, technology and domination* (pp. 132–161). London and New York: Routledge.
- Callon, M., & Law, J. (1997). Agency and the hybrid collectif. In B. Herrnstein Smith & A. Plotnitsky (Eds.), *Mathematics, science and postclassical theory* (pp. 95–117). Durham: Duke University Press.
- Clegg, S., & Wilson, F. (1991). Power, technology and flexibility in organizations. In J. Law (Ed.), *A sociology of monsters: Essays on power, technology and domination* (pp. 223–273). London and New York: Routledge.
- Derrida, J. (1994). *Spectres of Marx: the state of the debt, the work of mourning, and the new internationalism* (P. Kamuf, trans.). New York and London: Routledge.
- Derrida, J. (1995). *Archive fever: A Freudian impression* Chicago: University of Chicago Press.

- Foucault, M. (1975). *Surveiller et punir: Naissance de la prison*. Paris: Gallimard.
- Foucault, M. (1979). *Discipline and punish: The birth of the prison*. New York: Vintage Books.
- Latour, B. (1987). *Science in action: How to follow scientists and engineers through society*. Milton Keynes: Open University Press.
- Latour, B. (1993). *We have never been modern*. Cambridge, MA: Harvard University Press.
- Law, J. (1991). Power, discretion and strategy. In J. Law (Ed.), *A sociology of monsters: Essays on power, technology and domination* (pp. 165–191). London and New York: Routledge.
- Law, J. (1994). *Organizing modernity*. Oxford, UK: Blackwell.
- Mol, A., & Law, J. (1994). Regions, networks and fluids: Anaemia and social topology. *Social Studies of Science*, 24, 641-671.
- Newhagen, J. E., & Levy, M. R. (1997). The future of journalism in a distributed communication architecture. D. L. Borden & K. Harvey (Eds.), *The electronic grapevine: Rumor, reputation and reporting in the new on-line environment*. Mahwah, NJ: Lawrence Erlbaum Associates, Publishers.
- Pickering, A. (1995). *The mangle of practice: Time, agency, & science*. Chicago: University of Chicago.
- Ricœur, P. (1991). *From text to action: Essays in hermeneutics*. Evanston, IL: Northwestern University Press.
- Roth, W.-M. (1996). Knowledge diffusion* in a Grade 4-5 classroom during a unit on civil engineering: An analysis of a classroom community in terms of its changing resources and practices. *Cognition and Instruction*, 14, 179–220.
- Roth, W.-M. (2000, October). Cultural re/production of science education: Toward greater civility and solidarity. *NARST NEWS*, 43(3), 5-7.
- Roth, W.-M., & Bowen, G. M. (2001). Of disciplined minds and disciplined bodies. *Qualitative Sociology*, 24, xxx–xxx.
- Roth, W.-M., & McGinn, M. K. (1998). *unDELETE science education: /lives/work/voices*. *Journal of Research in Science Teaching*, 35, 399–421.
- Roth, W.-M., & Tobin, K. (2001). Learning to teach science as praxis. *Teaching and Teacher Education*, 17, xxx–xxx.

- Scarry, E. (1985). *The body in pain: The making and unmaking of the world* Oxford: Oxford University Press.
- Star, S. L. (1991). Power, technology and the phenomenology of conventions: on being allergic to onions. In J. Law (Ed.), *A sociology of monsters: Essays on power, technology and domination* (pp. 26-56). London and New York: Routledge.
- Thomas, G. (1999, August). Reviewing peer reviewing. *Research Intelligence*, 69. Available as <http://www.bera.ac.uk/ri/no69/ri69thomas.html>. (Accessed August 3, 2001)
- U.S. Nuclear Regulatory Commission. (1988). *Peer review for high-level nuclear waste repositories: Generic technical position*. Washington, DC: Author.