

RESEARCH ARTICLE

Rethinking Rhizomes in Writing About Research

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Abstract

In this essay we argue that when university researchers engage the teachers they study as collaborators and coauthors, researchers potentially act in what Deleuze and Guattari (1987) term a rhizomatic manner—that is, one in which authority and power are redistributed and shared, rather than centralized in what they call an arborescent relationship. We argue by analogy, exploring and expanding these metaphors from nature to underscore how binary logic dismisses the many possible kinds of relationships between and outside these two extremes. By extending these ideas to call for a new term—the cultured rhizome—we propose that the notion of culture ought to be a central concern of both botanists and social science researchers, given the ways in which culture mediates the environment in which relationships occur. The notion of university-school collaborative research is cast as an example of a cultured rhizome in which authority is shared, multiple perspectives are included, each perspective is reterritorialized, and greater attention is given to the cultural context of development.

In this essay we argue that university-based researchers who study classroom teachers' work will benefit from including the teachers as coauthors. Such an approach is consistent with what Deleuze and Guattari (1987) called a *rhizomatic* posture: one that redistributes authority by sharing intellectual capital and is inclusive with respect to the stakeholders' multiple perspectives on classroom processes, relationships, and outcomes. Deleuze and Guattari contrasted rhizomatic thinking and relating with what they termed arborescent ways of being in the world. They employed this figuration—an extended

metaphor—to distinguish between two stances residing on opposite ends of a political and relational continuum.

The term rhizome stems from the Greek word *rhizoma*, which refers to a mass of roots. Deleuze and Guattari (1987) adapted this term to represent social systems that expand horizontally, producing multiple shoots that interweave throughout the system and may break off to form whole new systems that create, or *map*, new possibilities for growth. No one part of the rhizomatic structure is central or authoritative; any part can conceivably generate new growth equally as well as any other.

Arborescent approaches are those with a vertical, central authority. In botany an arborescent structure is typified by trees such as the bald cypress, with its strong central trunk that begets branches whose width and strength diminish the further removed they are from the trunk. Similarly, arborescent social relationships involve a central authority (individual or body of people) whose dominance stands in contrast to the teeming, decentered, multidirectional potential of a rhizomatic stance.

Deleuze and Guattari (1987) maintained their figuration is not designed to construct a binary. In nature these growth structures are not dichotomous, a point Deleuze and Guattari recognized:

The root-tree and canal-rhizome are not two opposed models: the first operates as a transcendent model and tracing, even if it engenders its own escapes; the second operates as an immanent process that overturns the model and outlines a map, even if it constitutes its own hierarchies, even if it gives rise to a despotic channel. It is not a question of this or that . . . category of thought. It is a question of a model that is perpetually in construction or collapsing, and of a process that is perpetually prolonging itself, breaking off and starting up again. No, this is not a new or different dualism. The problem of writing: in order to designate something exactly, inexact expressions are utterly unavoidable. . . . We invoke one dualism only in order to challenge another. We employ a dualism of models only in order to arrive at a process that challenges all models. (p. 20)

Deleuze and Guattari's (1987) binary-busting binary, in which they contrasted trees (as the paradigmatic arborescent structure) with rhizomes (generally the propagatory constitution of non-woody, perennial plants and small spreading shrubs), suggests how dichotomies obscure the many possible kinds of relationships in between and aside from these two types. In this paper we employ analogy to reconsider how this horticultural metaphor may be reconstructed so that it contributes to new ways of conceptualizing social relation-

ships, particularly those involved in classroom-based educational research. In our conception this new construct is realized in what we term the *cultured rhizome*, a notion that we believe is responsive both to the botanical properties of plants and to the social applications that Deleuze and Guattari sought through their use of this metaphor.

Our specific focus is on another polarity often presumed in educational circles, that between university-based faculty (usually termed researchers) and school-based faculty (typically referred to as teachers). Depending on one's perspective, faculty members in these two settings are often viewed hierarchically in relation to one another. Many teachers dismiss university faculty, particularly those who are research-oriented, as aloof from and ill-informed about classroom realities. Wilhelm (1997), for instance, related a story told among teachers in which an out-of-touch professor, after observing teachers at work, wonders, "Well, yes. It all looks very good in practice. But my question is: will it work *in theory*?" (p. 22). At the same time, many university faculty view their studies of classrooms as providing authoritative accounts of classroom practice, with teachers serving as subjects of their research rather than as collaborators. Our interest in this essay is to examine one aspect of educational work—research—in which university-based faculty generally regard themselves as more knowledgeable and proficient. Indeed, research conducted by practitioners typically is described with a qualifier, "teacher research," to distinguish it from the presumably more authoritative studies conducted by university-based faculty.

We propose a different sort of relationship, one characterized by collaboration, that suggests the need to use the more cumbersome—yet more nuanced and respectful—terms of university-based teachers and researchers and school-based teachers and researchers (see, e.g., Smagorinsky & O'Donnell-Allen, 1998a). We next situate our argument in the experiences that have generated our interest in this topic, consider the range of people who might be regarded as authors, re-imagine roles in classroom-based research, describe in detail one problematic collaboration whose very challenges produced new and more sensitive stances, reconsider Deleuze and Guattari's (1987) metaphor in light of its horticultural origins and analogy to human relationships, and ultimately reconceptualize the notion of rhizomatic relationships as necessarily cultured.

An Illustrative Narrative

As coauthors, “each of us [is] several. . . . We are no longer ourselves” (Deleuze & Guattari, 1987, p. 3). Yet each of us makes, at times, singular contributions to our project. We now shift voice from the plural (representing the authorial team) to the first person singular (speaking from the first author’s perspective) in order to establish our collective interest in this problem.

I’ll present a brief narrative of my own history of coauthoring with the teachers from what most university-based researchers would consider to be “my” research. I began coauthoring with teachers over 10 years ago. I first coauthored with John Coppock on a series of studies involving students’ compositions of artistic interpretations of literature in his alternative school class for teenagers recovering from substance abuse (Smagorinsky & Coppock, 1994, 1995a, 1995b). Later, I collaborated with Cindy O’Donnell-Allen on a study of her classroom, conducting an ethnographic study based on my visits to one of her classes for a whole school year. From her class we published several studies of students interpreting *Hamlet* through an artistic medium called a body biography (O’Donnell-Allen & Smagorinsky, 1999; Smagorinsky & O’Donnell-Allen, 1998a, 1998b, 2000), as well as other papers recently published (e.g., Smagorinsky, Zoss, & O’Donnell-Allen, 2005) or currently under review or development.

Including John and Cindy as coauthors of the presentations and publications resulting from the research was an easy decision. I was in close touch with both throughout the writing of the research. John was doing his doctoral studies with me, and his interest in multiple intelligences and his curiosity about having his teaching studied made our collaboration comfortable and smooth. John’s curriculum and teaching ideas were at the center of the research, and it was his idea for me to study his students at work. It helped that we were about the same age and had developed a good friendship over the course of his doctoral program, which made a peer relationship during the research seem quite natural.

My contributions to the research came in terms of knowing how to collect data and analyze it. I could argue that John brought much more to the interpretation of the data, especially with respect to representing the culture of his classroom. John offered his insights into his students and their cultural orientation, his understanding of the relation between his students’ substance abuse recovery and their academic work, his knowledge of the social structure of the school and

how it contributed to what counted as knowledge in this setting, and much more. John's coauthorship of the articles seemed to be the right way to share whatever intellectual capital followed from our work together in studying his students' compositions.

Our effort required what Deleuze and Guattari (1987) called *reterritorialization* on both of our parts; that is, we each needed to enter the other's worlds and take on the other's perspective in order to function effectively. For me, this dialectical relationship meant interacting with the people at the school site so that I could set up a data collection process that was respectful of the site and its priorities and practices. Later, I needed to understand the students' performances from my position as an outside researcher and from the teacher's and students' perspectives on both the learning activity and my presence. I thus needed to alter my role from outsider to more of what I consider to be a university-based teacher and researcher. I characterize myself as a teacher in this setting because the research method required me to watch a videotape with the students of their process of artistic composition and get them to describe what they had been thinking as they worked, a process that scaffolded their reflection on their learning in ways that otherwise would not have been available to them (Smagorinsky, 1995).

For John this reterritorialization first meant recognizing the need for the class to be altered somewhat for the purposes of the research (e.g., setting up video cameras to record students at work). He further needed to theorize his classroom in ways not often available to teachers—given the demands on their time—and to contribute to the sort of formal analysis and writeup that teachers rarely have time to produce. In this way John took on the role of classroom-based teacher and researcher, planning and conducting the class activity as well as participating in the analysis and production of articles.

Like John, Cindy invited me to conduct research in her class. As was the case with John, she worked much more as a collaborator than as a research participant or subject. During the course of my year in her class, Cindy was accepted to the doctoral program in which I taught. Again, a great degree of reterritorialization was necessary. I spent a year in her class and so needed to become as much a part of the social group as possible, even supplanting the substitute teacher and teaching the classes on those days Cindy was absent. Cindy had an equally challenging reorientation when she had to make the move from classroom teacher to co-researcher, looking at her teaching and her students' learning from an altered perspective.

Coauthoring with Cindy, like coauthoring with John, was easy and appropriate—especially after she began her doctoral studies. We simply folded the research into her course work and made the data analysis and writing part of her doctoral studies. I was more experienced in writing publishable journal articles, but Cindy had expertise about her classroom, students, and curriculum that were essential to the success of the research. Cindy was the one who had adapted the idea of the body biography from a journal article (Underwood, 1987) as a vehicle for getting students to interpret literature, and it was her idea to feature students' productions of body biographies in the research. The year-long curriculum was entirely hers, many insights about the students came from her observations, and she provided most of the important contextual details that helped us situate the students' work. My role was to add an observer's perspective to her class and to make sure that the tape recorders got turned on at the appropriate times. Later I played more of a lead role in the reduction and analysis of data and the writing of the articles, facets of the research process with which I had greater experience. Given the collaborative nature of the whole research process, I can't imagine crediting myself as author in the articles' headlines and relegating Cindy to the acknowledgements section as an anonymous teacher whose primary contribution was to let me in the classroom door.

The issues we have delineated thus far are consistent with traditional ethnographic theories in which the researcher is often identified as a participant-observer in order to characterize the dual role that a researcher must occupy. The researcher inevitably affects what is being researched, rather than being a detached viewer observing life in a Petri dish (Smagorinsky, 1995). What is missing from this formulation is the role of the participants themselves when it comes to the authoring process—the construction or reconstruction of events for posterity. Typically, participants are not involved in this dimension of the research, which is left instead to the interpretive acumen, prior frameworks, and goals of the study's author—the university-based teacher and researcher, whose account of events may or may not be consistent with those of the participants themselves with their emic (i.e., insiders') perspectives on their actions.

Who is an Author, and When?

Thus far we have argued that research may benefit from a teacher's participation in the authoring process. We can see occasions when

such collaboration is not possible. For instance, first author Peter conducted a study of three of his master's degree students who met routinely while conducting independent studies (Smagorinsky, 1996). The study relied on recordings of their meetings to analyze the ways in which they scaffolded one another's learning as they moved away from professorial direction and took greater control over their own inquiries. Initially, we considered having all three students identified as coauthors of the published report. However, the recordings of their meetings contained critical commentary about their departments and schools as they discussed their approaches to teaching literature. In order to remain in good stead at their work sites, the students elected not to be identified as authors. A teacher would need to be willing to be identified in order to be included as a coauthor, which creates the problem that a teacher might underplay key contextual issues in order to gain authorship—thus compromising the research.

Another possible question about coauthorship relates to when and where to draw the line about who has contributed to a study. If we accept the Bakhtinian (1981) axiom that thinking is dialogic—that is, inherently derivative and in conversation with prior and anticipated voices—then differentiating someone who is an author from someone who is not can be difficult. If we further accept the notion that cognition is distributed (Salomon, 1993), not just across people but across the means through which we labor, then we might wonder if we should list our computers, recording devices, and other data collection and analysis instruments as coauthors. We will assume that such a generous interpretation of “collaborator” would make author listings virtually endless and confine our discussion to people who may or may not merit inclusion as an author.

We can say from our experiences as journal coeditors (Peter with *Research in the Teaching of English*, Sharon with the *Journal of Language and Literacy Education*) that editors and reviewers usually make important contributions to the final versions of published articles, though they are usually content with being thanked in the article's Author's Note. Credit to sources is managed through the inclusion of citations, and critical friends tend to be satisfied with Author's Note acknowledgements—although when a critical friend makes substantive contributions, as was initially the case with Sharon and Karen in this article about rhizomes and research, they may on occasion be elevated to authorial status. But two types of people are frequently overlooked as authors, even from a Bakhtinian perspective: research assistants and the students being studied.

Research assistants are often credited for their roles as either coauthors or in an acknowledgement (at times anonymously). The principal investigator credits them according to his or her position and disposition; we are aware of research assistants who have been promised coauthorship of research, only to find themselves eliminated when the faculty member decided that sole-authorship would serve her promotion and tenure interests more. We would urge researchers to consider the ethics of overlooking the role of research assistants in establishing the authorship for a research publication.

Students are more problematic yet. With rare exception (see Oldfather et al., 1999), students are not included as authors even when their work comprises the corpus of data analyzed for the research. Undoubtedly, the problem of listing dozens or hundreds of students as authors would make authorship overly cumbersome. Yet research traditions have excluded even case study students from participating as coauthors, even in situations where the teacher has been credited. From our own work, for instance, comes Smagorinsky et al. (2005), a case study of one boy's composition of a mask through which he expressed his identity, using artistic devices to depict facets of his worldview, experiences, and personality. The student is identified in the article's text with a pseudonym, while research assistant Zoss and teacher O'Donnell-Allen are credited as coauthors. We are troubled by our inability to resolve this question satisfactorily in our own work and see this problem as one with which to grapple as we continue to examine these complex issues.

Reimagining Roles in Research

At this point we return to the first-person voice of our first author. When Michael Smith and I were editing *Research in the Teaching of English*, we published some articles in which university researchers studied teachers' classrooms without crediting them as coauthors. One of our editorial board members, Karen Gallas, was a longtime classroom teacher and a published researcher of considerable note (e.g., Brookline Teacher Research Seminar, 2003; Gallas, 1994, 1995, 1998, 2003). Karen wrote to us with some irritation, contending that the teachers under study should have been credited as coauthors. We were so impressed by this argument that we featured her ideas in an editorial:

[Gallas] was disturbed that university researchers often spend many hours in a particular teacher's classroom, borrow extensively from the teacher's resources and knowledge, describe innovative instruction, quote lengthy interview responses or classroom interactions, and then publish articles in which the teacher receives a note of thanks but no credit for being a partner in the research. She argued instead that under such circumstances, teachers are very much coauthors of the research because their teaching, as much as the researcher's observation, is the centerpiece of the publication and because during ethnographic studies a teacher's insights about the classroom often become incorporated into the observer's analysis. Gallas persuasively argued that under such circumstances a teacher deserves credit as coauthor even if her work conditions mitigate the opportunities she has to engage in formal analysis and writing. (Smagorinsky & Smith, 1999, pp. 6–7)

Karen's ideas, which Michael and I termed part of an ethical imperative for sharing intellectual capital, had an immediate impact on our editing of *Research in the Teaching of English*; two articles in the issue in which the editorial appeared were coauthored between university-based and classroom-based teachers and researchers. A number of other articles published during our editorial term included teachers as coauthors as well, and we hope we were able to influence university-based researchers to adopt this practice in their writing for other journals as well.

What we can't say is how effectively this coauthorship credit produced the kind of reterritorialization described by Deleuze and Guattari (1987). Again using botanical images—this time to describe the reterritorialization process—Deleuze and Guattari referred to the mutual interpenetration as “a veritable becoming, a becoming-wasp of the orchid and a becoming-orchid of the wasp. Each of these becomings brings about the deterritorialization of one term and the reterritorialization of the other” (p. 10). Their notion of “becoming” refers to the ways in which the action of pollination changes both the wasp and the orchid during their moment of transaction (what we understand to be the deterritorialization) and then to the ways in which these changes are incorporated into each participant's perspective (the reterritorialization)—if indeed the changes become enduringly appropriated. We have no idea of whether or not this sort of exchange took place among authors who contributed to *Research in the Teaching of English*; we only know that the classroom-based teachers and researchers were given authorial credit for insights relevant to the study.

The Potential of Problematic Collaborations

We next describe another collaboration, one quite different from those we have previously reviewed, which illustrates how reterritorialization can alter perceptions among all those involved and produce a new conception of the phenomena under study. Again using the first author's first-person voice, we consider how adopting the perspective of the classroom-based teacher and researcher can produce an unexpected interpretation by the university-based teacher and researcher, and how contributing to the analysis can help bring about a rethinking of instruction by the classroom-based teacher and researcher.

John Coppock and Cindy O'Donnell-Allen were easy to coauthor with. I admired their teaching greatly, valued them as friends, and worked closely with them during their graduate studies. On the whole, the teaching I observed in their classrooms was exemplary—making their classes easy to write about. Since John and Cindy were not doing anything that horrified me or violated my own sense of what counts as good teaching, we could write about their classrooms without engaging in unpleasant disagreements over pedagogy or air-brushing the bad parts out of the picture. Indeed, in one case study produced from the work (Smagorinsky & O'Donnell-Allen, 1998b, 2000), we focused on what we considered to be a dysfunctional group's relationships during what was ostensibly a collaborative activity. We felt comfortable examining what some individuals (including one highly antagonistic discussant following our presentation of this work at a conference) might interpret as bad teaching, knowing that the dysfunctional group's performance helped to enrich our understanding of overall classroom dynamics. A more difficult collaborative dilemma faces a university-based teacher and researcher when the collaborating teacher is employing methods that researchers and theorists generally condemn as wrong-minded or is teaching in ways that violate the theoretical tenets that flourish in the rarified air of the university—if not in the problematic and highly constrained world of the classroom.

Our voice for the present essay now shifts to the plural in order to consider one study of a classroom-based teacher and researcher—middle school English teacher Leigh Thompson (Johnson, Smagorinsky, Thompson, & Fry, 2003). In this study, first author Tara Star Johnson was a second-year doctoral student. What we found during this study seemed initially odd but began to make sense because we chose to collaborate with Leigh instead of making her the “subject” of our study. Unlike John and Cindy, the teachers involved in this

research—a study sponsored by the Center on English Learning and Achievement (<http://cela.albany.edu/>) examining the transition teachers make from their university teacher education programs to their first jobs—have not been experienced teachers with many years of excellence in the classroom to their credit. Rather, the teachers in this study have been the profession's most vulnerable and least experienced teachers: early-career teachers who volunteered to participate in the research during student teaching and their first year of full-time teaching.

Throughout our observations of the 20 teachers who have participated in our larger CELA research, of which Leigh's case was a part, we have seen much that university-based faculty tend to find alarming: grammar worksheets, five-paragraph themes, reading comprehension worksheets, true-false tests, multiple-choice tests, and other instances of educational bad hair days. Our dilemma became how to write an article in which such instruction is the norm without projecting a judgmental air. Emig (1971) famously described the nation's writing teachers as "neurotic" (p. 99) because of their persistent use of the five-paragraph theme and other rigid formulas. While this characterization has prompted many a chuckle when shared between professors in the friendly confines of their university department, it would be awkward to employ this phrasing if the neurotic teacher herself were a coauthor of the published work.

We'd like to demonstrate how coauthoring with teachers such as Leigh has increased our sympathy for their situations and forced us to reterritorialize our perspective on their work as much as we can muster, given that a visiting researcher is limited by an etic, or outsider's understanding of how a classroom works. It was obvious that Leigh's teaching of writing was centered on the five-paragraph theme: an essay consisting of an introductory paragraph, three body paragraphs, and a concluding paragraph. Although universally reviled among university-based English educators and composition theorists, this form is a staple of writing instruction in secondary schools. Operating strictly as outsiders, our first reaction would likely have been dismay that this obviously intelligent teacher was doing something that reviewers for academic journals would undoubtedly consider to be pedagogically unsound. How, then, to write the article with Leigh as coauthor, while we questioned the practice that served as the core of her writing instruction?

By including Leigh as a collaborator and coauthor, we ended up with a much more interesting study than we would have had if we'd simply criticized her teaching decisions from our university ivory

tower. Having Leigh serve as coauthor provided the ultimate member check, in that she had to sign off on the manuscript before we could submit it for review. Furthermore, she wrote a coda at the end in which she reflected on her development as a teacher since the collection of the data. Incorporating her perspective forced us to think much more complexly about her teaching than we otherwise could have done. In university circles, the case is closed and has been for a long time: The five-paragraph theme is a rigid form that stunts students' thinking (see, e.g., Rosenwasser & Stephen, 1997). In searching the literature for our article's framework, we could find very little written about the five-paragraph theme aside from occasional broadsides dismissing it as a mindless disservice to students and their writing. The closed-case nature of university-based researchers' views of the five-paragraph theme is perhaps best revealed in the fact that it's very difficult to find a published study that analyzes it in any way. It's just part of educational orthodoxy that five-paragraph themes, as well as the teachers who require them, are very, very bad—or at least from the perspective of educational orthodoxy as practiced in universities.

However, in classrooms throughout the United States and around the world, the five-paragraph template thrives. Our fascination with Leigh's apparent endorsement of this approach to teaching writing served as the irritation that we researchers always hope will generate a pearl of a study—or to extend Deleuze and Guattari's (1987) figuration, the fence that forces a plant to spread in a new direction. We couldn't help but wonder, why does such a bright young educator teach using a method that most experts on the subject dismiss out of hand? And why is Leigh the rule and not the exception—that is, why do teachers persist with this method in spite of a belief in the university culture that it's wrong-minded?

Ultimately, we found that a number of factors contributed to Leigh's use of the five-paragraph theme, including her own experiences as a student where the form worked for her in the context of school, pressures attendant to the state writing test that used a five-paragraph rubric, and other influences. But we had to dismiss the possibility that Leigh taught the five-paragraph theme because she was a neurotic simpleton—despite the belief of many university-based faculty that only a dimwit would teach writing in this way—because so much evidence existed to support the belief that Leigh was an intelligent, accomplished, and highly regarded teacher.

Again, our inclusion of Leigh as a coauthor required us to view the situation from her perspective and avoid the kinds of oversimpli-

fication that have characterized much of the discussion about teachers' use of this inveterate form. Rather, we were forced to understand the culture in which Leigh grew as a teacher and the ways in which her work conditions framed her perspective before we could begin to analyze and interpret her decisions. We had to become reterritorialized in order to understand that within her world, defensible reasons for teaching in this manner were rife. Similarly, in writing her epilogue to the study, Leigh came to better understand the reasons why her method might be critiqued by others. Some reterritorializing was required from Leigh in order for her to stand back from her teaching and see it through others' eyes.

As part of our writing of this paper, Karen Gallas read an early draft and provided feedback. We sought her counsel because we had long admired her intelligent analyses of her own primary school classrooms and because she had championed classroom-based teachers as researchers for many years. Not incidentally, she shares first author Peter's dedication to gardening and environmental issues. Her many contributions to our thinking during this project—and insightful extensions of our thinking when asked to critique the paper at various points—produced a number of compelling points. As part of one message, she wrote:

If we take the metaphor of the tuber branching and spreading, we can see what happens when Leigh moves from the environment of a university teacher education program into that of the [K–12] school. For example, as the tuber slips under the fence from a garden that's watered twice a week (sorry, that's my picture of the university environment) into an unwatered garden (that would be the school), it is going to dramatically change. If it is dug up, it will be more shriveled than its well watered counterpart; less vigorous in its production of leaf, flower, and offshoot tubers. The cultural practices of the two different gardens, therefore, will result in different tubers on a qualitative level, and that is exactly why the cultural viewpoints of the university- and classroom-based teachers and researchers need to meet and be fully examined. As you point out, your collaboration with Leigh involved an examination of both viewpoints that resulted in reterritorialization. I suspect it also had a similar effect on Leigh. Thus, in that meeting and exploration of different cultural practices, you inherently begin a process of change. You may not change your view of the five-paragraph theme, but you will have changed in your understanding of the ecological system within which that practice is used, and you have changed how you approach collaboration with teachers.

The importance of that shift cannot be underestimated. It is critical to reform at all levels. It is critical to the ways in which we begin to

cultivate a shift from the binary thinking that has so limited our capacity to be curious. As this paper illustrates, nature can teach us how vitality and growth proceed. The tree suckers. The rhizome advances. Generativity moves horizontally underground until there is space to move up and out. If we look at those movements that have most benefited our children, I'm thinking they came from the soil of the classroom and moved up to into our awareness through those environments where school- and university-based teachers and researchers were open to one another. Self-conscious research into practice can be the embodiment of that process of cultural and environmental change.

We are particularly impressed with Karen's attention to the ecology of teaching: the cultures that provide the medium of growth, whether of plants or people. She further suggests how changes in individual relationships can contribute to changes in the ecology, which in turn may cultivate new kinds of relationships. These new relationships might include new kinds of collaborations that are valued by the university tenure and promotion system—collaborations that contribute to sharper, more sensitive insights about teaching and learning and more respectful portrayals of classrooms in educational writing.

Collaboration as Rhizomatic Relationship

Based on these experiences, we would conclude that sharing authorship requires the sharing of much more than ownership. It also requires a shared perspective on the part of university-based teachers and researchers on how classroom-based teachers and researchers experience their work. Sharing authorship is rhizomatic rather than arborescent—it involves, as we conceive it, the reterritorialization of cultural practices as part of a new and mutual process of becoming. We next review these terms and their botanical origins again and attempt to reconcile our reconsideration with Deleuze and Guattari's (1987) metaphor, in the process refiguring them to account for what we see—from a gardener's perspective—to be a critical missing element: that of the culture of growth.

To review: Rhizome is a term used to describe the ways in which particular kinds of plants propagate; that is, how they spread or multiply. A rhizome has a horizontal underground stem that shoots out new roots that may themselves be separated out to start whole new plants. Gardeners take advantage of this quality by dividing plants to

create new ones. It doesn't matter where the division originates within the original root system; as long as the new root division is healthy and planted in an appropriate soil culture, it should produce a new plant, itself capable of infinite propagation through either spreading or division. Rhizomes are harder to kill than plants with central trunks, given that any surviving root may propagate. Indeed, rhizomatic plants are often considered invasive because they overtake other plants trying to grow in the same plot.

Deleuze and Guattari (1987) adapted the term rhizomatic as a way to distinguish between human conceptions that have clear centers and lineages and those that are decentered and unruly. They called this first, paradigmatically dominant conception arborescent: its root in the term for *tree* suggests a strong, vertical, stiff center and a linear, hierarchical, sedentary, segmented structure, with branches divided into smaller and less significant outgrowths as they spread upward. From a gardener's standpoint, straight trees with single trunks represent only part of the arboreal world. Countless types of trees—including live oaks, with their gnarly, serpentine habit and banyan trees, which propagate by dropping growths to the ground from which new trunks sprout—branch out in the sort of disorderly directions, sizes, and shapes that postmodernists such as Deleuze and Guattari prefer. Even the stoutest of trees with central trunks—the arbolescent structure considered by Deleuze and Guattari to be the “oldest, and weariest kind of thought” (p. 5)—can propagate in this way, as evidenced by the grand magnolia trees that adorn the landscape of the southern United States, producing new trunks from branches that rest in the soil.

But such misrepresentation is the peril of analogies, and for that matter, of binaries. Deleuze and Guattari (1987) acknowledged this potential problem, arguing,

The book is not an image of the world. It forms a rhizome with the world, there is an aparallel evolution of the book and the world; the book assures the deterritorialization of the world, but the world effects a reterritorialization of the book, which in turn deterritorializes itself in the world (if it is capable, if it can). Mimicry is a very bad concept, since it relies on binary logic to describe phenomena of an entirely different nature. (p. 11)

Rhizomatic thought—in contrast to arbolescent thought—is non-linear, nonhierarchical, decentered, horizontal, and possessed with other qualities antithetical to the dominant paradigm. It may move in many directions, like rhizomes themselves; the propagated division

may grow just as lustily as the original root—perhaps more so if more carefully cultivated. A rhizomatic idea, argued Deleuze and Guattari (1987), “ceaselessly establishes connections [among] semiotic chains, organizations of power, and circumstances relative to the arts, sciences, and social struggles” (p. 7).

The Culture of Rhizomes and Relationships

Most gardeners would argue that these connections don't simply happen, but are cultivated. An iris, for instance, cannot have its rhizome immersed in water for more than 24 hours or it will begin to rot at the root. A sun-loving plant, whether arborescent or rhizomatic, will grow poorly in the shade. Varieties of phlox that thrive in the arid southwest wither in the mildew of the humid southeast. In other words, the metaphor of the rhizome begs for considerable troubling in order to be useful in the social sciences or humanities. That troubling begins for us with a term common to both gardeners and social science researchers, *culture*. How individuals and related individuals grow in a particular setting or medium is a consequence of the conditions that mediate their development. Simply being rhizomatic is not sufficient; for both plants and people, an environment of appropriate fertility must provide the setting for development. Karen made the following point in relation to the idea of cultured rhizomes:

What the rhizome metaphor triggers for me, as I reflect on the dilemma you addressed about collaboration and the ways in which teachers' pedagogical practices are mitigated by the conditions within which they teach, is that teaching needs to be more pervasively viewed as part of an ecological system. As you point out, an iris in one region might thrive, while in another it will rot and die—depends on where you are. Gardeners/horticulturalists/botanists—all operating within the same field of endeavor—know this and would never suggest a cultural practice universally just because they like a plant so very much for its elegance and beauty. Here in California I had to shift my ideas of what is aesthetic and enjoyable from a cottage garden mentality to an arid gardening mentality. It took a lot of failure for that change to take place in me—a lot of seeing that what I had learned about best soil practice in a New England garden didn't make any sense here. Thus, the metaphor alerts us to the fact that “best practice,” based on past research and the construction of what appear to be sound theoretical positions, is only “best practice” if the ecology of the environment in which it is being implemented is an approximate match to the ecology of the environment in which the model was developed. Practice is local and the only

way we can really get a handle on what it means to teach effectively is through true collaboration among classroom teachers and the researchers who study their classrooms. I could give you other examples of how some of my most dearly held theories about teaching were trashed when I went to teach on the Navajo reservation in New Mexico, while others were absolutely confirmed, but that would take too long.

We return to the issue of coauthoring between school- and university-based teachers and researchers and the possibilities of considering this reformulated notion of rhizomatic research. This construct needs to be responsive to issues of culture and to recognize that many possibilities exist in nature and society between the binary suggested by the arbolic/rhizomatic dichotomy—the sort of interrogation of dualisms that we presume Deleuze and Guattari (1987) would encourage. Traditional practices in publishing educational research assign the teacher in the least authoritative role, greatly subservient to the researcher who holds naming rights to the teacher's practices and can construct the teacher in whatever manner the researcher finds suitable. This approach represents the arbolic model that Deleuze and Guattari contest and that we hope to question in this essay.

The figuration of the cultured rhizome has possibilities for providing a different conception of researcher/researched relationships, one that makes them dynamic rather than binary. Like the grafted plants that are available from trees and shrubs, however, these relationships must be cultivated with care. Simply adding a teacher's name to a study's authorship does not necessarily ensure a collaborative relationship if the teacher's insights and perspective are not seriously considered and included in the interpretation of data; that is, if all involved are not suitably reterritorialized through the process. If the teacher remains on the periphery of the work, whatever cosmetic effect is achieved in the coauthorship simply serves to disguise the teacher's subordinate relationship in the construction of knowledge from the research and diminishes the inquiry's potential for discovery. The goal of collaborating with teachers instead of making them subjects of study, then, requires a paradigmatic, cultural shift in how university-based and school-based teachers and researchers engage with one another during the course of research. Under these new conditions, we hope, our field can produce new ways of generating knowledge and sharing the intellectual fruits.

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