

On (Not) Overcoming Our History of Hierarchy: Complexities of University/School Collaboration

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Abstract:

Science educators have recently begun to enact and study new, collaborative forms of professional development. Yet, few recognize that doing so requires contesting historical meanings of “university–school collaboration” and “professional development,” both of which may operate to sustain a hierarchy model of collaboration. The hierarchy model maintains the flow of information and knowledge from universities to teachers to students. In science education, the hierarchy model may be strengthened by science’s own history of hierarchy. This study describes the authors’ attempt to contest the hierarchy model by facilitating a collaborative planning project with elementary teachers. Critical discourse analysis is used as the primary theoretical and methodological tool to (1) explain how the hierarchy model was shaped by and shaped the group’s actions, interactions, and identities; (2) explain the complexities of collaboration by moving beyond deficit-based explanations (e.g., blaming individuals or organizational structures); (3) offer theoretical and methodological approaches for understanding better the nature of collaboration and practical solutions for those attempting to challenge the history of hierarchy. In focusing on how meaning is made in interaction, the authors demonstrate how language and interaction are inextricably bound with history and culture.

Article:

INTRODUCTION

Teachers and university-based educators have a troubled past (Apple, 1986; Edelsky, 1991; Greenwood & Levin, 2000). Historical meanings of “research” (as critical, exploitive, and disempowering for teachers) and “professional development” (as mandated, decontextualized, and often irrelevant to teachers’ concerns and interests) animate these problematic relationships. As such, the two groups operate to sustain a hierarchy model (Gee, 2001), which is based upon historical notions of the flow of information and knowledge (i.e., from universities to teachers to students). The model implies that those possessing knowledge on the higher parts of the hierarchy will impart that knowledge to those on the lower parts of the hierarchy. In science education, this inheritance of the hierarchy model may even be strengthened by the “culture of power” (Barton & Yang, 2000) that accompanies science.

In an explicit attempt to contest the hierarchy model, we created Project BLAST (Bringing Literacy and Science Together), a collaborative planning team of university-based educators (the authors), classroom teachers, and preservice teachers who came together to create integrated science and literacy curriculum units. Our intended collaborative model was based on what Flinders (1992) and Zigo (2001) call “collaborative labor,” whereby university-based educators engage as comembers in the participants’ community and place secondary importance on research goals. This model implies that the relationship between participants goes beyond reciprocity or “exchange of goods.” It is meant to be transformative—participation transforms all participants’ views. In the case of Project BLAST, we hoped that sustained interaction and joint activity would promote shared meanings of science, inquiry, and literacy so that, together, we could find productive ways to integrate science into the elementary curriculum, excite students about learning science, and foster students’ literacy development. Yet, despite our best intentions, in the end, we reproduced the hierarchy model, leaving all participants with the feeling that the project was less than successful. How and why did this happen?

Although previous literature has not been forthcoming with failed attempts at collaborative relationships with teachers, we suspect our project's difficulties are representative of many institutional encounters (Gee, 2001). These kinds of conversations are not typically published, but take place behind closed doors. As such, people develop lay theories about why their collaborative projects fail, typically ascribing projects' difficulties to internal attributions, such as misunderstanding of one another's goals and perspectives, competing interests, and lack of knowledge and experience.

In disclosing and systematically analyzing Project BLAST's difficulties, we aim to challenge these lay theories and argue that highlighting individual deficits masks the ways meaning is made in interaction with others (Gee, 2001). The purpose of this paper is threefold. First, we demonstrate how our group's language, actions, and interactions reproduced the hierarchy model. Thus, instead of examining individuals' deficits, we analyze two excerpts of talk to demonstrate the problematic nature of everyday communication in institutional settings. In tandem, our second purpose is to illustrate how the hierarchy model functioned to define appropriate identities, meanings, and interactions for participants. That is, we explain the ways the hierarchy model was shaped by and shaped our interactional achievements. Despite good intentions to challenge historically problematic relationship between schools and universities, our language and practice is inextricably connected to history and culture. A crucial third purpose is to move beyond such deterministic explanations to propose ways teachers and university-based educators might act and interact in ways that challenge this history, i.e., disrupt the hierarchy model.

Our paper contributes to the growing body of literature related to collaborative professional development, as it not only demonstrates specific struggles in enacting true collaboration, but also provides an explanation that challenges lay theories for why these struggles persist. In presenting a first-person account of our struggles, we hope to speak to others attempting to challenge the hierarchy model. Yet, because this paper is, at its core, an account of the strength of history and an attempt to challenge that history, we believe our story speaks to any science educator trying to enact and/or study reform, as so often those failed attempts are explained via individual or organizational deficits. In presenting a focus on how meaning is made in interaction, science educators might use our story to stop pointing fingers to blame one another to understand the reproductive and transformative aspects of all participants' actions and interactions.

UNIVERSITY/SCHOOL COLLABORATION: HISTORY AND ATTEMPTS TO CHALLENGE HISTORY

For most teachers in the United States, professional development takes two forms: mandated, district-sponsored staff development and voluntary participation in workshops and courses, often provided by university-based educators (Stein, Smith, & Silver, 1999). Both experiences frequently result in a set of decontextualized experiences, treat teaching as a routinized and technical practice (Little, 1993), and stress additive, rather than transformative change (Stein et al., 1999). In such approaches, teachers are often disempowered, as their knowledge is considered less valuable when compared with that of university researchers. This typical professional development is steeped in the historically powerful hierarchy model.

The research literature has well established that traditional models of professional development are not effective in promoting long-term change and robust teacher learning (Fullan, 2001; King & Newmann, 2000; Putnam & Borko, 2000). Much of what we now know about effective teacher development butts up against these historical meanings. A recent national survey of science teachers indicated the following features of effective professional development: (1) a focus on content knowledge; (2) active learning; (3) coherence with other learning goals already in place at the school (Garet et al., 2001). Further, professional development should take place over longer periods of time and should involve collective participation from teachers (Birman et al., 2000). This research literature prompts us to be creative about professional development for science teachers—how might we enact “effective” professional development?

Innovative approaches to professional development take seriously teachers' knowledge, goals, context, voice, and experience. Two examples in science education are Japanese lesson study, which involves continuing

improvement of research lessons that are actual classroom lessons taught to students (Fernandez & Chokshi, 2002; Lewis & Tsuchida, 1998), and coteaching and cogenerative dialoguing, which involves participants “working at one another’s elbows” in the classroom and reflecting on and theorizing about the teaching after the lesson (Roth, Masciotra, & Boyd, 1999; Roth & Tobin, 2001; Roth et al., 2002). Each of these approaches assumes a form of collaborative relationship between university-based educators and teachers. The literature about such approaches details their effectiveness in promoting learning for all participants and transformed practice, but does not examine the collaborative relationships (presumably foundational in facilitating such learning and transformation) as primary units of analysis.

There are some studies outside of science education, however, that do attempt to explain the complexities of collaboration between university-based educators and teachers, most of which point to power differentials, pseudocollaborative arrangements, lack of trust, and different and sometimes competing goals of researchers and teachers to explain the difficulties. For example, a study by Stein et al. (1999) described the difficulties that experienced professional developers faced when enacting collaborative forms of professional development. They argued that the new paradigm for professional development demands attention to teachers’ knowledge and beliefs about what comprises collaboration, how teachers learn, and how teachers access and use knowledge all with a careful eye toward the particularities of teachers’ local contexts. However, neither Stein, Smith, or Silver were personally involved with the professional development—they described and interpreted the work of other professional developers.

Abell’s (2000) study about her coteaching efforts with an elementary teacher is the only self-reflexive study about collaborative professional development in science education of which we are aware. She broke ground with this study by describing the difficulties of a university science educator enacting a truly collaborative relationship with an elementary teacher. Our paper answers Abell’s call to become more reflexive about our work with school-based educators.

CONCEPTUAL FRAMEWORK

Critical Discourse Analysis

To understand better the complicating aspects of collaboration in institutional settings, we use critical discourse analysis as both theory and method. Critical discourse studies “focus on how language as a cultural tool mediates relationships of power and privilege in social interactions, institutions, and bodies of knowledge” (Rogers, 2002). We employ various tools of inquiry associated with Gee’s (1999) theory and method to examine two seemingly innocent excerpts of data from our introductory planning meeting to demonstrate meanings that were present throughout the project that constrained collaboration.

Gee (1999) outlined two primary functions of language: (1) to construct and reconstruct social activities and (2) to construct and reconstruct human affiliation within cultures, social groups, and institutions. He drew on the work of Wieder and Pratt (1990) to say that language (a written or spoken “utterance”) has meaning only when it communicates a “who” and a “what.”

What I mean by a ‘who’ is a *socially-situated identity*, the ‘kind of person’ one is seeking to be and enact in here and now. What I mean by a “what” is a socially-situated *activity* that the utterance helps constitute. (p. 13, emphasis in original)

To understand how we make meaning of socially situated identities and activities, Gee suggested “tools of inquiry” to analyze language in practice. We outline relevant tools of inquiry below.

Discourses. Gee (1999) distinguished between the big “D” Discourse and the little “d” discourse in theorizing about language. Little “d” discourse refers to language in interaction, while Discourse refers to language and “socially accepted associations among ways of using language, of thinking, valuing, acting, and interacting, in the ‘right’ places and at the ‘right’ times with the ‘right’ objects (associations that can be used to identify oneself as a member of a socially meaningful group)” (p. 17). For example, a scientist presenting her work at a

conference enacts a scientist Discourse. To successfully pull off being a scientist, she uses language in a certain way, but she also must think, act, interact, dress, and use tools in certain ways. Discourses are formed and transformed in moment-to-moment interactions, but they are also inextricably tied to history and culture. They “exist as the work we do to get people and things recognized in certain ways and not others, and they exist as maps that constitute our understandings” (p. 23).

Discourses are not static. They get constructed in similar ways in interaction, yet they are adequately rooted in history and culture to be recognizable. In this paper, two Discourses serve as a lens to understand the particular tensions that arose in our group—academic Discourse and teacher Discourse (Gee, 1999; Labaree, 2003). General features of the academic Discourse include an emphasis on the global versus the local, the analytical versus the normative, reflection over action, and process over product. Teacher Discourse emphasizes the opposite—local versus global, normative versus analytical, action over reflection, and product over process. These Discourses represent taken-for-granted ways of acting, thinking, and believing—they are not always intentionally enacted. This conceptual lens enables a shift in theorizing about collaboration. Instead of focusing on what individuals do, learn, and think in a group and the ways individuals’ actions are coordinated to accomplish a task, we focus on how meaning gets made via our coparticipation in activity (Gutierrez et al., 1999).

Cultural Models. Within a particular Discourse, how does a “normal” activity get defined? The cultural model mediates between the micro (interactional) and macro (institutional) levels. Gee (1999) related cultural models to storylines of simplified words or situations; they are our taken-for-granted assumptions about a set of relationships that are normal for a particular social or cultural group. A cultural model relevant here is the hierarchy model (Gee, 2001), whose “storyline” goes something like this: University professors come into a school, armed with special knowledge and skills that will help teachers fix problems in schools. The professor is usually an outsider, unfamiliar with the school’s context. In delivering the professional development, the professor does not draw on teachers’ existing knowledge and expertise, and in fact, treats teachers as though they are empty vessels to be filled with the professor’s knowledge. This cultural model has come to define what counts as “normal” professional development in schools.

Socially Situated Identities. Just as making meaning of an activity is a social endeavor, so is being a certain kind of person (enacting an identity) within the group. As Gee (1999, 2001) explained, a socially situated identity is not something that one simply claims all by oneself—being “somebody” requires the participation of others. One cannot be a “professor” unless one enacts that identity *and* gets recognized by others as enacting that identity. Enacting a certain identity involves thinking, acting, feeling, and speaking in ways that allow us to get recognized by others (and ourselves) as “*doing* being an X,” where X is some identity recognizable to others and ourselves (Gee, 2001, p. 26, emphasis in original). So, it is one thing to be recognized as a “professor” (with all its associated historical and cultural meanings). It is quite another to be recognized as a “different kind of professor” because these “different ways of being a professor” are not as tied to history and culture as is the prototypical professor identity. This concept (socially situated identity) is valuable in understanding how our interaction shaped and was shaped by our enacted identities (who we were and who we were able to be) in the meetings.

METHODS

Context and History of the Project

Project BLAST was conducted at Heatherwood Elementary School¹, a K-5 school of approximately 400 students in North Carolina. Heatherwood is an urban school; 91% of 1 The school’s name and teachers’ names are pseudonyms.

the students are members of an ethnic minority, 20% are English language learners, and 85% qualify for free or reduced lunch. In 1996, Heatherwood’s scores on standardized end-of-grade tests ranked in the 6th percentile of public elementary schools across the state. Their low-achieving status sparked a major school-wide reform effort, focusing heavily on implementing a new literacy program. Over the years, Heatherwood made steady

progress in improving annual testing scores and was recognized statewide as a school that was beating the odds with a population of traditionally low-achieving test takers.

BLAST participants included three second-grade teachers (Susan, Christine, and Rhonda). With 3 years of teaching experience at Heatherwood, Susan had the most seniority. Christine was Susan's student teacher 3 years before and was in her second year of teaching. As a visiting teacher from Australia, Rhonda had the most teaching experience (10 years in Australia), but her seniority was compromised because her experience was in a different context. She taught fourth grade in the year prior to the study. In addition, two preservice teachers who were interns at Heatherwood volunteered to participate in BLAST because of their interests in elementary science education. Finally, the first author (Heidi) supervised preservice teacher interns at Heatherwood. The second author (Sandy) was a doctoral student and research assistant at the university and a part-time fifth-grade teacher at another local elementary school. Heidi's expertise is in science education, while Sandy's expertise is in content literacy.

Susan and Christine received a grant the year before our project to plan science units that used expository text to support Heatherwood's push to get more reading into the curriculum. When Heidi heard that they only had time to plan one unit, she gauged their interest in continuing the project with the help of she and Sandy in planning the units, paying for substitutes for planning time, and buying additional materials. The teachers responded enthusiastically, and Heidi wrote a grant to continue the project's funding. As we demonstrate below, this history shaped the possible meanings of the project and the relationships between participants.

Data Collection and Analysis

Over a 6-month period (from December 2001 to May 2002), we audiotaped BLAST's eight planning sessions (each lasting about 3 h), resulting in over 500 pages of transcription. As well, we conducted initial and exit interviews with participants using semistructured protocols (Schensul, Schensul, & LeCompte, 1999) and took field notes and kept research journals. For this paper, we focus primarily on the interactions between participants and use research journals and interviews for triangulation purposes.

Our analysis was informed by Gee's (2001) study about a university researcher's facilitation of a collaborative planning group. We were struck by the similar themes we saw in our data. In particular, we explored the ways academic and teacher Discourses (themes in Gee's study) got enacted in our own group and the implications of those enacted Discourses. The discourse analysis employed for this paper was informed by an ethnographic analysis.

We began with a macrolevel ethnographic analysis to elicit primary themes in the data that represented academic and teacher Discourses. To do so, we used Spradley's (1980) semantic structure analysis, which involved reading and rereading all of the transcripts, searching for categories of cultural meaning, looking for relationships among the included terms in each category, and focusing on dimensions of contrast that highlighted different meanings of the cultural categories for members of different groups (e.g., teachers and university researchers). This latter part of the analysis revealed that the teachers' meanings of the project, collaboration, and professional development differed drastically from those we (Heidi and Sandy) held. We then examined, on a microlevel, how these different meanings got constructed in moment-to-moment interaction. We employed the microanalysis on multiple excerpts of data to ensure that the themes we identified in the ethnographic analysis played out throughout the data at the microlevel. For this paper, we highlight discourse from our introductory meeting to demonstrate the strength of the hierarchy model in shaping our group's interactional achievements from the beginning moments of interaction.

We analyzed each group member's response to Heidi's query in the first meeting: "I want each of us—from our own perspective—to take about one minute to talk about why we're here." To limit the scope of the paper, we focus on Heidi and Susan's answers only, as these two emerged as the institutional spokespeople for their respective institutions (Heidi for the university and Susan for Heatherwood). For each excerpt of discourse chosen for careful analysis, we went back to the original audiotape to transcribe for linguistic detail (See

Appendix A for transcription conventions). To get at meaning embedded within lines, we employed multiple lenses (Fairclough, 1995; Rogers, 2002). At the microlevel, we examined linguistic detail such as word choice, grammar, turn-taking, and interactional properties of texts (e.g., use of pronouns and third person). Further, we attended to the ways institutions (Heatherwood, the County Office) and institutional meanings (e.g., of curriculum, teaching) got constructed and transformed through discourse. We paid attention to institutional meanings embedded within the discourse of the participant, the participant's relationship to the institution, and the ways the power of the institution got formed and transformed through discourse. Finally, we analyzed how our local meanings created and sustained larger systems of meaning (e.g. the teacher and university Discourses) and participants' identities through the discourse's ideological nature.

RESULTS

We present the results in three subsections. In the first two subsections, we employ critical discourse analysis to understand Heidi and Susan's response to the request Heidi put forth for the group at the first meeting: "I want each of us—from our own perspective—to take about one minute to talk about why we're here." Our analysis highlights the ways our language, actions, and interactions shaped and were shaped by academic and teacher Discourses, which perpetuated the hierarchy model. While it is important to understand how and why the hierarchy model got reproduced, we also wanted to look for instances in the data where the hierarchy model was challenged. Thus, in the third subsection, we present how a change of venue and roles disrupted the reproduction of the hierarchy model.

The Academic('s) D(d)iscourse²

We begin with an analysis of Heidi's response, demonstrating: (1) how her discourse inadvertently reproduced the hierarchy model, despite her efforts to contest it; (2) how the academic Discourse and hierarchy model shaped her identities and meanings of the group, collaboration, and professional development. (See Appendix B for Heidi's response in its entirety.)

Stanza 1: Establishing Climate/Constructing the Leader Identity. Despite our intentions of creating a university/school relationship that was truly collaborative, my (Heidi's) introduction and participants' responses began to establish me as the group's "leader." Stanza 1 (Figure 1) consisted of my attempt to establish the climate in the meeting. In trying to "establish climate," however, I also promoted myself as the facilitator of the meeting. In expressing my own excitement, I wanted to prompt the engagement of all other participants (e.g. line 4, "I hope you guys are excited about it too"). Indeed, each introduction that followed my own (except for Susan's) was prefaced by "I'm excited because..." implying that my attempt to establish a climate of enthusiasm and excitement was recognized and taken up by other meeting participants. My enacted identity as leader was further represented by the fact that I took the first turn in explaining what the meetings meant to me. These markers at the linguistic level, coupled with the fact that I wrote the grant to fund the project, elicited volunteers for project participation, and gathered everyone together for the first meeting buttressed my enacted leader identity, despite my hopes to enact a "collaborator" identity.

Stanza 1	
1.	And for <u>me</u> ..
2.	I'm so <u>excited</u> about this
3.	[laughter from group]
4.	I hope <u>you guys</u> are excited about it too
5.	[laughter from group]
6.	because <u>I</u> am just..
7.	<u>Ahhh!</u>
8.	bouncing out of my <u>seat</u>
9.	ready to <u>start</u> ..
10.	start <u>this</u> //
11.	Um..

Figure 1. Stanza 1 of Heidi's introduction.

Stanzas 2 and 4: Establishing the Meaning of the Meetings. My hesitancy to define our central tasks in the meeting is illustrated in Stanzas 2 and 4 (Figure 2). For example, in line 15, instead of stating that this is about “curriculum planning,” the sentence is inflected, so that my statement becomes a question—e.g., “curriculum: (notice elongated “m”—i.e., what do I want to call it?) planning?” (i.e., is this what we are doing?). The ambiguity continued throughout—e.g., in lines 38–41, I described our project as “[bringing] these people from really diverse perspectives in to... do some common kind of thing.” In leaving this “thing” unnamed, I also left the meanings of our group ambiguous and up for grabs. This linguistic device, called “hedging” (Gee, 2001), “mitigates the force of a verbal action” (p. 34). In not wanting to appear too pushy or complicit with the hierarchy model, I left open what would get accomplished in this group. The information in this stanza implied that we would come together and try to create interesting learning experiences for kids. This masked the concrete products of the meetings and the ways we might label the products “successful” (e.g., what is an interesting learning experience?). On one level, my hesitancy to define the meetings and the meetings’ products was my attempt to negotiate the meanings of the meetings with participants. Yet, a message that is too ambiguous tends to promote agreement rather than negotiation (Eisenberg, 1984). Only later did we learn of our discrepant meanings. Further, the ambiguity muddled my own interests and further enabled the reproduction of the academic Discourse and its emphasis on global, abstract concerns.

Stanza 2	Stanza 4
12. Just because for <u>me</u>	31. I’m just excited about this different <u>model</u>
13. it’s just <u>such</u> ..	32. of unit <u>planning</u> ..
14. a <u>different way</u> of thinking about	33. this <u>collaboration</u> //
15. <u>curriculum: planning</u> //	34. And that for <u>me</u>
16. That so <u>rarely</u> do you have these	35. is one of the <u>big reasons</u> —
people with really..	36. and that’s why I want to <u>study it</u> //
17. different kinds of <u>expertise</u>	37. What does this <u>look like</u> ..
18. coming <u>together</u>	38. when you bring these <u>people</u>
19. and trying to <u>do</u> —	39. from really <u>diverse perspectives</u>
20. kind of <u>make</u>	40. in. to. to. to <u>do</u>
21. interesting <u>learning experiences for</u>	41. some <u>co:mmon</u> kind of thing//
<u>kids</u> //	42. So I’m excited about <u>that</u> //

Figure 2. Stanzas 2 and 4 of Heidi’s introduction.

These stanzas also reflect the academic Discourse in other ways. In labeling participants of the meeting as “these people,” I rendered the identities of the meeting’s participants as “types” (Gee, 2001). As my introduction continued, I perpetuated a dual meaning of the participants—as general representative types and as local actants in the here and now (e.g. line 38, “these people,” line 46, “these classrooms”). In Stanza 4, our group itself was reified as a representative type—“this different model of unit planning” (lines 31 and 32), and I emphasized my interest in the group as a something to “study” (line 36). These stanzas provide textbook representations of the academic Discourse—an emphasis on the global voice, which privileged more theoretical, abstract and general level concerns.

Stanzas 3 and 5: Distinguishing This Project from Typical University/School Relationships. Stanzas 3 and 5 (Figure 3) serve similar purposes—to distinguish our meetings, curriculum development, and professional development from those typical in encounters between university- and school-based educators. This structure is a striking example of my need to distance us (Heidi and Sandy) from “those other people” (university folks) who do things hierarchically. I was so adamant about this point that it warranted two fifths (or 40%) of my introductory message. If nothing else, this is evidence for my desire to contest the hierarchy model.

Stanza 3 provides evidence of linguistic strategies I employed to distinguish our work as collaborative curriculum unit planners from the ways curriculum development typically gets done. In line 22, I used the strategy of labeling the curriculum developers as “these curriculum experts,” which accomplished the purpose of distancing our group from “those” other people. The complication here, however, was that, as a science

educator who advocates reform-based instruction, I believed that there were some quality materials out there for teachers to use as a foundation for building a strong elementary science curriculum.

Stanza 3	Stanza 5
22. Usually you have these <u>curriculum experts</u>	42. And for <u>me</u> ..
23. who are outside of the <u>classroom</u>	43. it's professional development for <u>me</u>
24. and don't really <u>know</u> //	44. to <u>learn</u> more about
25. And . then they give you <u>this</u>	45. what <u>really</u> goes on
26. and then they say OK, go ahead and .. and <u>do it</u> //	46. in these <u>classrooms</u>
27. And then you know	47. and.. to learn from <u>you all</u> //
28. a lot of it doesn't <u>work</u>	48. And.. also to <u>think about</u>
29. or it <u>works</u>	49. how well some of these ideas I have in <u>my head</u> ..
30. or— (low pitch)	50. may or may not <u>play out</u>
	51. you <u>know</u> ?..
	52. in <u>reality</u> //
	53. [laughter from group]

Figure 3. Stanzas 3 and 5 of Heidi's introduction.

In other words, I could not legitimately distance myself too much from “those” people. As the stanza progresses, this dilemma became apparent as I say that “a lot of [what the curriculum experts give teachers] doesn't work” (line 28), and I have to backtrack to say, “or it works” (line 29), and eventually my message fizzles in line 30 to, “or—(low pitch)” at which point I changed the subject completely. Gee (2001) refers to such shifts as the “speaker's dilemma.” While we may have some overall plan of what we will say in a situation such as this one, we do not plan out every aspect of our language. Thus, as we begin talking, the details of our language are played out in a moment-to-moment fashion, filling in the plan—and sometimes changing the plan. The speaker's dilemma is especially acute in institutional settings; as an institutional spokesperson, one is forced to speak authoritatively without being able to plan every aspect of one's speech and without knowing how participants will respond to the messages in one's speech. The speaker's dilemma seemed even more problematic for us as we were trying to explicitly contest strongly held historical meanings of university/school relationships. Our own meanings were inextricably tied to those historical meanings, and this history constrained the roles we played and who we were able to be (our identities) in the group.

In Stanza 5, I tried again to emphasize the distinguishing nature of our project. In this stanza, I enacted a socially situated identity as a “learner” versus an “expert.” This was not disingenuous—I sincerely believed that I would learn more about how to define good instruction for historically marginalized students from these teachers. I defined this project as “professional development for me” (line 43), assuming that the teachers also defined this project as professional development for *them*. This assumption invoked the hierarchy model (i.e. anytime university educators and teachers come together, it is assumed that one will label it “professional development” for the teachers).

While these stanzas provide evidence about my intentions to contest the hierarchy model, our analysis makes clear the ways intentions to challenge history are not enough to actually promote transformative meanings. These stanzas reflect the ways the hierarchy model and my relationship to the institutions (of science education, of the university) enabled and constrained my identity and meanings of the group. In the next section, we examine Susan's discourse, as she emerged as the institutional spokesperson for Heatherwood.

The Teacher(s) D(d)iscourse

Here, we analyze Susan's introductory discourse, demonstrating the power of the teacher Discourse and the hierarchy model in shaping her enacted identities and her meanings of the meetings, professional development, and collaboration. Coupled with the analysis of Heidi's discourse above, this analysis provides insights beyond deficit-based explanations regarding the complexity of our collaboration.

Stanza 1: False Start and Introduction. Stanza 1 (Figure 4) highlights Susan’s attempts to construct her identity. In lines 2 and 3 (“It’s what most of you complain about”), she begins by seeking solidarity with the group. However, it seems that she was not quite sure of this strategy of solidarity seeking, as she lowered her tone at “complain about,” stumbled a bit in line 4 (“I mean I”), and shifted the topic to reflect a more positive message. In line 5, her “I” message is a good indicator of her identity construction work—“I like to work with other people,” a message that positions her as a collaborator and team player. Indeed, much of her introduction is spent on the work of constructing various identities.

<p>Stanza 1</p> <ol style="list-style-type: none">1. Well <u>for me</u>2. it’s um..3. what most of you <u>complain about</u> (low pitch)//4. I mean I..5. I <u>like</u> to work6. with other <u>people</u>7. that they give me <u>ideas</u>8. and we <u>bounce</u>—

Figure 4. Stanza 1 of Susan’s introduction.

The hint of negativity in Susan’s introduction, false start in deciding how to position herself, and subsequent identity construction work represented a struggle that Susan faced as a project participant. In her final interview, she had this to say about her role:

In the beginning I really felt like I was the negative aspect of the group... Because, the way Rhonda and Sandy would say, “Oh we can do this or we can do that,” and I’m saying, “No, you can’t do that here, you know, that’s just not the way we do things.” Part of it is, and this is one of my weaknesses that I have to work on, is I have to be more open... to the different ways of doing things. But you think, well I’ve already done this and it worked well, why should I change it? So I sort of think I was the condescending voice at times. But I also felt like people were looking towards me to make the key decisions and sometimes that was hard because I didn’t want to be that person because of the fact that I didn’t want everyone thinking this is Susan’s plan. (Interview, 5/7/02)

In her reflection, Susan highlighted her own struggles with being positioned as a certain kind of person. She felt as though she was a “negative aspect of the group,” but we know that identities are not constructed in a unidirectional manner. Susan was recognized as the institutional representative because she was older than the other teachers, had more experience at Heatherwood, and was the only one of the three teachers who would be at Heatherwood the following year. This institutional representative role was a lot for a third-year teacher to shoulder—especially given the fact that the “Heatherwood-style”³ of literacy (as a discrete set of skills) clashed significantly with the notion of literacy we promoted (as a set of tools that was iteratively supported by science inquiry). In other words, as others proposed ideas that fell outside of Heatherwood’s prescribed style of teaching literacy, Susan felt compelled to shoot down the idea. This “Heatherwood-enforcer” identity was enacted throughout the project.

Our analysis here points to the ways an institutional representative’s identity is shaped by her relationship to an institution; Susan felt compelled to take on the Heatherwoodenforcer identity, given her age, experience, and status in the school. At the same time, we demonstrate the ways Susan’s Discourse shaped and was shaped by the power of the institution. Susan seemed almost protective of maintaining Heatherwood’s ways of doing things (“That’s just not the way we do things”) and also used the institution’s power as a tool to bolster her self-proclaimed inclination for resisting change.

Stanza 2	Stanza 3
15. <u>Christine and I</u> you know 16. have done this about a <u>year</u> <u>now</u> // 17. We <u>bounce things off</u> of each other—	9. I <u>heard</u> that um.. 10. Ms. Northrup had an <u>excellent</u> first science lesson 11. I mean.. 12. I heard <u>all about that</u> // 13. (Quiet laughter from group) 14. Um..

Figure 5. Stanzas 2 and 3 of Susan's introduction.

Stanzas 2 and 3: Expository Asides and Identity Construction Work. In Stanzas 2 and 3 (Figure 5), Susan used a linguistic strategy we term “expository asides” to reinforce her collaborator and experienced teacher identities. Linguistically, expository asides are typically marked by a pause in speech and convey additional information or evidence to support claims made by the speaker. In Susan’s case, expository asides functioned effectively as “identity work” (Gee, 1999), creating additional information about Susan’s orientation toward collaboration and teaching. For example, in Stanza 2, Susan displayed her history and experience as someone who worked collaboratively with Christine on integrated science and literacy units for a year. In Stanza 3, she simultaneously implied that she had something to learn from Ms. Northrup, a preservice teacher (indicating a collaborator identity) even as she congratulated Ms. Northrup on her “excellent *first* science lesson” (implying her own experienced teacher identity). Why did Susan feel the need to bring up her knowledge and experience throughout this introduction? While one could interpret Susan’s work in constructing an experienced teacher identity as compensation for her actual lack of teaching experience (a deficit-based explanation), we propose an alternative explanation.

We argue that this identity construction work could be interpreted as a reaction to the strength of the hierarchy model. In typical university– school “collaborations,” teachers’ knowledge is not considered valuable. Perhaps Susan’s need to display the knowledge and experience that she brought to the group was her way of (implicitly) contesting the hierarchy model. So, while Heidi attempted to contest the hierarchy model by hesitating to display any of her knowledge and expertise, Susan may have been contesting it by making sure her knowledge and expertise was brought to the table and recognized.

Stanza 2 also hinted at Susan’s definition of collaboration. She used the phrase “bounce ideas off each other” to describe her successful collaboration with Christine. This phrase was not incidental. She used it elsewhere, in Stanza 1, and in two other meetings (1/19/02, p. 2; 2/28/02, p. 4). This phrase could have multiple meanings. It could mean enacting a brainstorming session of ideas or getting feedback to inform future action. In addition, the transformative aspect of “bouncing off ideas” is ambiguous. It could mean that a few ideas will stick and get added onto the existing framework, while others bounce off and get ignored. In the next section, we provide an analysis to get a better understanding of Susan’s meanings of collaboration.

Stanza 4: Establishing the Meaning of the Meetings. Susan’s “bouncing off” model of collaboration takes shape in Stanza 4 when she said, “We’re going to balance each other out” (Figure 6, line 21). One image that comes to mind with the word “balance” is that of a see-saw, where the participants are on either end, trying to balance their weight to steady the see-saw. This meaning of collaboration implied that participants were at opposite poles, and the group process kept one or the other from going too far in any direction. The exact nature and meaning of the various positions that needed balancing is not made clear in Susan’s introduction. However, our ethnographic analysis of the rest of our data led us to conclude that Susan was right in predicting that we would need some balancing in managing the bipolar positions implicit in the academic and teacher Discourses (e.g., between the global and local, emphasis on process versus product and reflection versus action).

Stanza 4

18. So I think
19. between all of us
20. um.. you know
21. we're going to balance each other
out
22. and come up with some really great
23. hands-on
24. integrated lessons//

Figure 6. Stanza 4 of Susan's introduction.

Of the possible meanings of “bouncing off” and “balancing,” we interpret Susan’s meaning as largely nontransformative. In other words, for Susan, bouncing an idea off someone does not lead to transforming core beliefs, values, and practices. We base our interpretation on multiple forms of evidence. First, Susan admitted in an interview and meetings that she was not open to change (Fieldnotes, 2/27/02, 3/5/02; Interview, 5/7/02). Second, she viewed her position as representing the school, making her more protective of Heatherwood’s boundaries, saying, “No, you can’t do that here, you know, that’s just not the way we do things” (e.g., Interview, 5/7/02; Fieldnotes 1/29/02, 2/6/02, 3/5/02). Third, Susan assumed a naysayer role throughout the meetings, which she also acknowledged in the interview: “I was the condescending voice at times” (5/7/02). This “bouncing off” notion of collaboration serves well the status quo (one is not forced to transform one’s practice) and traditional models of professional development (as discrete ideas that get added to a bag of tricks, many of which get eventually discarded). Susan’s introductory discourse represents a possible reaction to the hierarchy model in that she predicts from the beginning our need to “balance out” one another’s perspectives.

In addition to illuminating her meaning of collaboration, Stanza 4 also revealed Susan’s meaning of the meetings—“We’re going to come up with some really great hands-on integrated lessons” (lines 22–24). Susan’s meaning (as a way to get lessons planned) was a telling juxtaposition to Heidi’s meanings (a way to think about curriculum planning, a way to collaborate, a research opportunity, a form of professional development, an opportunity to think about how abstract ideas play out in reality). Once again, the dichotomy between local (demands of classroom practice) and global (thinking about and investigating processes) was played out in the competing academic and teacher Discourses.

Gee’s (1999) “cultural model,” as a tool of inquiry, is helpful here. Within the teacher Discourse, there are taken-for-granted assumptions about how the work of planning gets done. In Susan and Christine’s eyes, the “work” of planning (or the “storyline” associated with planning) involved what Christine called a “to do-list” in our postinterview (5/7/02). You sit down, you have your objectives laid out before you, and you plan the lessons. These routines and behaviors are so implicit that describing the process to someone else would be difficult. Indeed, in an early meeting, Heidi tried to get Susan to articulate how she went about planning and interpreting the importance of the objectives listed in the county’s curriculum guidelines. After a bit of probing, Susan got somewhat frustrated and responded

I just teach everything I can that’s listed in the Standard Course of Study... I know you’re trying to find out how I do it, but I just teach. I mean I *plan* a unit. (1/31/02, p. 7, her emphasis)

Our cultural model of planning, within the academic Discourse, differed considerably. From our perspective, the “work” of planning, especially collaborative planning, involved negotiating meanings of the subject matter (science and literacy), meanings of our pedagogical approach (inquiry and integration), and meanings of the objectives laid out by the county’s curriculum. All of this “work” is done iteratively with the “to-do list.” It is no wonder that we experienced the tensions we did. The form of “work” we promoted was not recognizable as “planning work” to the teachers, while we viewed the teachers’ definition of “planning work” as somewhat incomplete.

Stanza 5

25. 'Cause I mean
26. I already know my kids//
27. They go to the media center
28. and they're pulling out big animal boo:ks
29. and stuff//
30. So there's i:nterest there..
31. we just have to motivate it
32. and get it integrated into what we're doing
33. and you know//
34. Hopefully
35. get the ones that aren't interested in it
36. interested in it//

Figure 7. Stanza 5 of Susan's introduction.

In Stanzas 2, 3, and 4, we expose the ways the teacher Discourse and the hierarchy model enabled certain meanings of the meetings (as a way to get units planned), collaboration (to bounce ideas off of one another, to balance each other out), and planning (as a “to-do” list). These meanings were in stark contrast to our own, which we recognize now as being shaped by the academic Discourse.

Stanza 5: Expository Aside and Establishing the Need for Our Meetings. The beginning of Stanza 5 (Figure 7, lines 25–29) represents yet another expository aside. Susan used a striking number of expository asides throughout her introduction; three out of her five stanzas contained an expository aside. The expository asides helped construct different aspects of her identity and also, are strongly indicative of teacher Discourse. Susan's introduction was personal and local, situated in her teaching and planning experiences. This strongly “local voice” was a striking juxtaposition to the strongly “global voice” in Heidi's introduction.

Spaces of Possibility

In demonstrating the ways that our interaction was inextricably tied to history and culture, we are concerned about applying an overly deterministic lens to explain the difficulties of university/school collaboration. If our meanings and identities only serve to reproduce history and culture, then we ignore the transformative potential of everyday activity (Holland et al., 1998). Our commitment to understanding this potential led us to re-examine our data to look for spaces of possibility (Carlone, 2004) to look for instances when we might have disrupted the hierarchy model.

In reading and rereading our transcripts, we noted only one *sustained* interaction (lasting more than 10 min) that seemed to really force us out of our teacher and academic Discourses and our implied default identities (e.g., Heidi as abstract, global thinker and leader; Susan as Heatherwood-enforcer and skeptic) (1/17/02). This was during a hands-on science activity led by Amanda, one of the preservice teachers, to demonstrate an inquiry-based lesson plan format. In this case, university-based educators and teachers let go of their Discourses to play new roles as learners, and Amanda, the preservice teacher, played the facilitator role. As such, this activity enabled us to take on and get recognized as different kinds of people and, for a moment, promoted a very different meaning of the meetings (i.e., as coparticipation in activity, joint meaning making). We then looked to our fieldnotes and researcher journals for other instances where we felt able to take on previously unrecognized identities.

Another such activity (not audiotaped) was a group field trip to the elementary school where Sandy taught. This took place right before the group's last meeting, but we decided that such a trip would allow the group to see and experience the kind of integration of science and literacy we (Heidi and Sandy) promoted. Since none of the rest of us had been to Sandy's school before, we all came to the experience as novices and learners, which were new identities for Heidi and Susan. The change of context eased Susan out of her “lead teacher” identity and Heidi out of her “group facilitator identity.” No longer were these two institutional representatives, but newcomers. Because we observed a model lesson taught by Sandy, she was recognized as an experienced

teacher (the “lead teacher” in this case), an identity that was marginalized in our typical planning activities. In addition, there is some evidence that the activity challenged the teachers’ taken-for-granted meanings of science and literacy and expanded their local Discourse just a bit. For example, Susan commented after the field trip that she wished Sandy would have taught a model integrated lesson at Heatherwood earlier in our group’s process, “It might have opened our eyes, like wow you can actually do this, you know, it might have made us step outside the box a little bit more” (Interview, 5/7/02). Christine similarly implied that seeing Sandy’s teaching forced her to see science and literacy in a new way: “We were kind of stuck in our own little pocket, this is our world and this is how Heatherwood is, and that’s just the way it is. And Sandy brought in another perspective of the way science and literature can be taught and that’s what I really liked about [the fieldtrip]” (Interview, 5/7/02). All participants noted this activity as an energizing and illuminating highlight of the project (Fieldnotes, 3/7/02). For example, Christine said, “I think that’s what I liked most, is being able to go to another school and see how they do things a little differently... Personally for me I would like to see, like, to go to Sandy’s school again and pick brains” (Interview, 5/7/02). These excerpts provide evidence for the teachers’ perspectives expanding just a bit beyond their very local experiences at Heatherwood.

In this experience, we all stepped out of the roles that we partially enacted and were partially ascribed to us in the context of the planning group. Further, the focus on collaborative planning and the abstract process of developing lessons (more global) was briefly disrupted by real-time classroom experience with children (more local). Instead of attempting to explain the nature of integration that we were espousing, the teachers experienced students engaged in this integration. At the same time, the meaning of “local” practice expanded just a bit to include educational practices outside of Heatherwood. In other words, by observing science and literacy practices at another school (not as “local” as Heatherwood), the teachers were freed up to think a little more globally about their own practices. In a sense, this activity brought the local and global Discourses closer together. Perhaps more of these kinds of activities would have allowed us to come to the task of planning with a new understanding of our activity and the roles each of us might play in contributing to the activity. While we understand that we can never completely shed our institutional selves (nor would we want to, necessarily), joint, embodied activities may promote new meanings and identities for participants. In these joint activities, participants would have to renegotiate and perhaps reflect on their taken-for-granted ways of doing, being, and believing.

DISCUSSION

In this section, we present lessons learned about university/school collaboration, citing the nature of our jobs, the nature of science, and the nature of identity as contributing factors in making collaboration between university and school-based science educators difficult. We then provide reflections about overcoming our history of hierarchy, offering up both theoretical and methodological approaches for researchers interested in understanding better the nature of collaboration and practical solutions for those attempting to challenge that history.

The Complexities of Collaboration

The Nature of Our Jobs. The tensions between academic and teacher Discourses do not disappear by recognizing their existence and trying to encourage academics to see things the ways teachers do and teachers to see things the way academics do. Instead, these distinctions in Discourses, in defining normal ways of thinking, valuing, acting, and interacting, stem from what Labaree (2003) called “irreducible differences in the work roles occupied by teachers and researchers” (p. 17). Teachers’ and academics’ jobs entail different uses of time, meanings of success, daily routines, work relationships, and intrinsic and extrinsic rewards. Thus, the two groups approach problems in education differently. Labaree’s (2003) discussion of teachers’ and researchers’ conflicting worldviews is helpful in understanding why collaboration between the two groups is difficult. We highlight three of the relevant tensions defined by Labaree below.

First, teaching is a highly normative practice, focusing “on the effort to produce valued outcomes,” while educational research is much more analytical, focusing “on the effort to provide valid explanations” (p.17). As such, academics put a lot of effort into understanding more fully the nature of educational problems, while

teachers may interpret these efforts as “so much intellectual fiddling while the classroom burns” (p. 18). In our group, this tension between the normative and the analytic was present in the introductory discourse, throughout the entire group process, and noted by teachers at the end of the project as a frustration:

[F]or a classroom teacher it’s kind of like, “Let’s do it. We don’t have time for this.” But then on the flip side, it’s like, well it was more analyzing, and I guess that’s what you do, you know, analyze it to figure out how to think ... And you know, for us (teachers) like, you don’t have time to analyze, you just have to keep going. (Christine, Interview, 5/7/02)

In addition to the normative versus analytical tension inherent in the teacher and academic Discourse, there exists a tension between the particular and the universal (Labaree, 2003). Teachers generally see things on a case-by-case basis—“the general rule of teaching is that general rules don’t help very much” (Labaree, 2003, p. 17). A teacher’s worldview implies that good teachers must take into account the individual needs and contexts of diverse students, and every case is different. And, each teacher will handle each situation differently, depending on her individual preferences, strengths, weaknesses, and particular teaching context. On the flip side, a researcher’s job stresses the “the development of generalities that hold across cases” (Labaree, 2003, p. 20). In the introductory discourse, this tension was foreshadowed by Heidi’s depiction of the group as an object to study and by Susan’s emphasis on her knowledge of her own students (“I already know my kids”). The tension became more acute as our meetings progressed, with a struggle over the meaning of collaboration. Heidi continually brought up generalities about what the science education community knows about “good” science teaching, while Susan kept insisting that “everyone is different” (1/17/02) and “everybody’s personality brings in different types of teaching styles” (1/31/02), implying that all ways of doing things were equally effective. Our push to look for ways to come up with *shared* meanings required that we look for commonalities across perspectives, while Susan wanted to honor and respect all perspectives [“Everyone has their gifts and strengths” (Interview, 5/7/02)] without moving beyond differences.

This tension between the particular and the universal implies a third tension—that between the experiential and the theoretical (Labaree, 2003). Teachers’ experience “naturally emerges as their primary bank of professional knowledge” (p. 20). When coupled with a particularistic worldview, this experiential worldview implies that “only teachers have the expertise to speak with authority about the teaching and learning of their own students” (p. 20). Labaree argued that teachers often use their experience as a “trump card” to deny other kinds of knowledge in interpreting what happens in “their” classroom. On the flip side, scholars view the particulars of a classroom in a larger context, examining them through the “normalizing lens of theory” (p. 21). As such, this perspective may deny the teacher’s experience as an important source of knowledge, or at the very least, it does not view teacher’s knowledge as canonical. These worldviews are evident in the introductory discourse excerpts. For example, the experiential worldview might explain why Susan spent so much of her introduction displaying her experience and knowledge, while the theoretical worldview might explain why Heidi situated our group’s unique approach to planning within larger meanings of curriculum planning (“It’s just such a different way of thinking about curriculum planning”). These differences in worldviews may also explain why, throughout the group process, so many people in the group felt as though their knowledge was marginalized (Heidi’s research journal, 1/29/02; 2/6/02; 2/27/02; Interview with Christine, 5/7/02).

These conflicting worldviews complicate deeply university and school-based educators’ efforts of collaboration. In pulling back to examine the binaries outlined above (normative vs. analytical, particularistic vs. universal, experiential vs. theoretical), the latter (academic) side of the binaries have historically been granted more power, prestige, and status. Certainly, these binaries feed well our history of hierarchy. Adding to that fuel, however, has to be a consideration of the power and status inherent in science itself.

The Nature of Science. While many of these conflicting worldviews may come up with collaborative professional development efforts in other disciplines, the history of hierarchy is strengthened when these efforts take place within the context of science. For nearly a decade, science educators have taken seriously the influence of science’s strong sociohistorical legacy (Carlone, 2004) on the ways science gets taught, learned,

and constructed within and outside of school science. Science is positioned as a subject for the intellectually gifted and embodies a “culture of power” (Barton & Yang, 2000) that recruits few and alienates many. Coupled with (and perhaps partially a result of) this daunting legacy is the fact that science is the subject in which many elementary teachers feel very uncomfortable teaching. The BLAST teachers were not representative of most teachers in North Carolina in that they were motivated to include science in their weekly curriculum, while many simply avoid teaching it or teach it only when there is extra time in the schedule (Jones, Jones, & Hargrove, 2003). Yet, they did not define teaching science as the “center” of the job; this spot was given to “literacy” (Transcripts 1/31/02, 2/14/02; Fieldnotes, 2/27/02; Interview with Susan, 5/7/02; Interview with Christine, 5/7/02). Further, their science biographies denoted an uneasy relationship with science (Transcripts, 1/17/02; Interview with Susan, 11/29/01; Interview with Christine, 11/30/01).

In understanding the influence of the hierarchy model on our group’s interactions, we aim to bring issues of power to the fore. Certainly, the power differential embedded in our different relationships to science—Heidi as a university science educator and Christine and Susan as newcomers to science—played a part in reproducing the hierarchy model. Our hunch here is supported by Abell’s (2000) experience. In discussing her coteaching efforts with an elementary teacher, Sandra Abell cited the teacher’s discomfort with science as one of the features that complicated their collaboration. Abell’s perceived knowledge of science initially constrained the collaborator identity she tried to enact. Her study not only implies that the nature of an elementary teacher’s perceptions of science might influence collaboration, but also how vital it is to understand how the nature of identity construction shapes and is shaped by the collaborative process.

The Nature of Identity. Gee (2000–2001) defined identity as, simply, “[b]eing recognized as a certain ‘kind of person’ in a given context” (p. 99). In any given social situation, we are not free to become anyone we wish (Holland et al., 1998). Like Gee, we believe accounting for recognition is one key in explaining the difficulties our group faced in particular, and why it is so difficult to transform the historically problematic relationships between universities and schools in general. Gee (2001) said that we cannot “speak or act meaningfully outside any and all Discourses. [Our] words or actions would then literally be *unrecognizable*” (p. 27, emphasis in original). In our project, Heidi wanted the group to recognize her as a “collaborator,” but her language, actions, beliefs, and values were not part of (and oftentimes, in opposition to) the teacher Discourse that framed the meanings and actions of the teachers. There was uncertainty and ambiguity embedded in available identities in the meetings. How could Heidi resolve these multiple identities—who she wanted to be in the group (a collaborator, a contributor, a learner), who she was asked to be in the group (a group facilitator/leader, the university spokesperson), and what was inescapably part of who she was and why she was there (a professor and researcher)? Attempting to resolve all of these identities is complicated enough, while the historical meanings associated with these identities complicated the issue even further.

A second relevant aspect of Gee’s (2000–2001) view of identity is the difference between what he calls an institutional-identity (I-identity) and an affinity-identity (A-identity). An institutional-identity is a *position* (rather than a state or trait) granted to someone by a set of authorities within an institution. For example, Gee explained that his role as a professor is governed by the power of “authorization” of the institution—i.e., the institution, through its laws and norms, “authors” the position and the privileges and responsibilities that accompany that position (p. 102). I-identities can be both actively taken up by participants or imposed onto the occupant of the position. Susan, for example, felt as if her I-identity as “lead teacher” was ascribed to her, rather than something she actively pursued. A major point here is that the source of power that determines an I-identity and the power that one is “subject” is the *institution*.

An affinity-identity, on the other hand, arises from the power of a set of distinctive *practices* through the process of participation and sharing within an “affinity group.” This affinity group is bound together by an “allegiance to, access to, and participation in specific practices” (p. 105). In retrospect, we believe we were trying to create an affinity group, whereby we engaged in a form of “collaborative labor” (Flinders, 1992; Zigo, 2001), stressed distributed expertise (Brown et al., 1993), used available tools and technologies to aid in our planning work, and participated in other distinctive learning practices. Ideally, this group would have

functioned to create identities of thoughtful, creative practitioners, whereby members felt equally responsible to one another and for the success of the products.

We argue that, with the exception of the two activities mentioned in the “spaces of possibility” section above, our group’s members never moved away from institutional-identities to create affinity-identities. We note three main problems with our quest to create affinity identities. First, as mentioned above, the nature of our jobs promoted differing worldviews, values, and goals. Thus, the normative/analytical, particular/universal, and experiential/theoretical tensions prompted different (sometimes competing) meanings of the meetings. Second, though each member of the group technically “chose” to participate in this group of her own free will, one’s institutional position loomed large in this decision. The principal was enthusiastic about the idea and actively “encouraged” teachers to participate. Heidi’s position as an assistant professor at a university that encouraged combining research and professional development efforts factored into her decision to initiate the project. As Gee (2000–2001) argued, “institutionally sanctioned” affinity groups may or may not produce A-identities because of the considerable power the institutions retain in such groups.

Third, the practices with which we tried to promote affinity were squarely situated within the academic Discourse (stressing mostly global, analytic, reflective kinds of work). The work of “planning,” as we were enacted it, did not promote affinity identities for teachers because these were not practices recognizable enough to be seen as “productive” work. How could teachers form an allegiance to practices that fell well outside their Discourse?

The complexities of collaboration discussed above may seem insurmountable, placing us in a never-ending cycle of hierarchy model reproduction. However, we argue that though the tensions outlined above may never completely disappear, there are ways that we might challenge this history of hierarchy.

On Overcoming Our History of Hierarchy

Critical Discourse Analysis as a New Way to Examine Science Education Reform Efforts. Science educators often try to understand successful or failed attempts at reform by highlighting parts of the system (e.g., a model of professional development, a particular set of curriculum materials, a certain classroom atmosphere) that either work or needed tweaking, or by understanding how individual strengths (e.g., teacher knowledge, understanding, and skills) contribute to success or how individual deficits might be bolstered to ensure success in the next reform attempt. These perspectives may perpetuate the status quo by masking the ways power gets produced and reproduced in moment-to-moment interactions, enabling and constraining successful reform.

We argue that critical discourse analysis is a good methodological and theoretical tool for science educators who want to understand better the enabling and constraining aspects of reform efforts. The purpose of such an analytic tool is not to identify blame, correct “misconceptions,” appease egos, or bolster skills and knowledge. Instead, the purpose of this tool is to demonstrate the ways our language and theories are inextricably connected to historical, cultural, social, and institutional meanings. In university/school partnerships, for example, the hierarchy model is so much a taken-for-granted way of how we operate, even those who resist this model can get swept away with it. This model is “available” to all of us—even to those of us who are committed to transforming it. In contrast, alternative models are not available to us in the same ways. For example, how does one act, as a university-based educator in a professional development project, if one is not the facilitator or leader? What is one’s role? Will others recognize and, through interaction, help construct and maintain this role (rather than marginalize it) when it is enacted?

In addition to highlighting the sociohistorical nature of our moment-to-moment interaction and everyday activity, critical discourse analysis moves us well beyond a deficit model lens. In this study, for example, we could have attributed Susan’s negativity to a personal deficit (e.g., she needed to be more open, she was too closed minded), but then we would have missed the ways her relationship to the institution (Heatherwood) shaped her enacted identity. Similarly, if we attributed Heidi’s inability to nail down a specific purpose to a lack

of organization or knowledge of effective agenda setting, then we miss the ways the hierarchy model shaped her decisions about what to put on the table.

Critical discourse analysis brings issues of history, culture, and power to the fore, allowing us a better understanding of the reproductive nature of interaction, especially in institutional settings. Yet, understanding how and when our interaction was reproductive in nature allowed us to recognize how and when our interaction enabled transformation.

Coparticipation in Activity as a Way to Contest History. This study's findings suggest that productive collaboration cannot happen without coparticipation⁴ in meaningful activity. Our group's activities of unit planning could not be considered meaningful for two main reasons. First, the planning activities, as enacted, were too squarely situated within the academic Discourse. Second, the planning activities did not challenge our socially situated identities in any way; we were ascribed roles that we did not actively pursue and/or embrace, and our attempts to take up alternative identities were not recognized. The activities described in the "Spaces of Possibility" section (the field trip to Sandy's school and the student-led activity) could be considered more "meaningful" to all participants because the activities enabled the use of teacher (vs. academic) Discourse and enactment and recognition of broader socially situated identities. Participation in activities such as these may allow us to act outside of historical roles and relationships, offering up stronger possibilities to challenge the persistent hierarchy model. What might such coparticipation look like?

Recently, science educators have been developing, adopting, and adapting new forms of teacher education and professional development that involve the kinds of coparticipation we advocate. Our explanations for productive university/school collaboration shed new light on the promise of science educators' current efforts to promote collaboration between university-based science educators, school-based educators, and preservice teachers. Many science educators have recently argued for such collaborations to involve some sort of coparticipation in activity. For example, in much of Wolff-Michael Roth and Kenneth Tobin's recent work (e.g., Roth & Tobin, 2001, 2002; Roth et al., 2002, 2004), this coparticipation takes the form of coteaching and cogenerative dialoguing. This approach involves two teachers working "at one another's elbow" in the classroom followed by a cogenerative dialogue to reflect on, theorize about, and design changes to their teaching. Roth, Tobin, and colleagues demonstrate the success of such an approach in promoting learning for all participants, helping preservice teachers learn to teach, and enabling change in practice. Using our framework, we might understand the success of this activity by highlighting the ways it straddles both teacher and academic Discourses and enables the enactment and recognition of multiple socially situated identities. The university researcher involved in coteaching and cogenerative dialoguing, for example, has to enact and get recognized as a "teacher," operating within the teacher Discourse while in the classroom. In the dialoguing sessions, the teacher has to enact and get recognized as enacting a more academic identity, as the participants theorize about the teaching experience.

Japanese lesson study, another relatively new form of professional development for science educators in the United States, also promotes coparticipation in activity in the ways we advocate here (Fernandez & Chokshi, 2002; Hiebert & Stigler, 2000; Lewis & Tsuchida, 1998; Watanabe, 2002). The format involves teachers (and, in some cases, university-based educators) collaboratively planning, teaching, observing, reflecting on, and revising lessons focused on specific learning goals. Once again, such an approach utilizes both teacher and academic Discourses and the enactment and recognition of broader socially situated identities.

Other opportunities for coparticipation might come in the forms of going to workshops or conferences together, visiting other schools together, presenting at a conference together, or other kinds of activities that might allow all participants to get excited together, feel productive together, or feel creative together. These might also be activities that allow participants to authentically learn together, in new ways, located in new venues, and enabling new identities to be taken up and recognized. Coparticipation permits participants to act and interact within multiple kinds of Discourses and to take on new (perhaps previously unrecognizable) identities.

We come away from this project with a profound understanding of the ways our language and interactions are inextricably bound with history and culture. In denaturalizing what we took to be natural, we uncovered the ways our group's interactions shaped and were shaped by the hierarchy model. It was only when we understood the ways this happened that we were able to begin to see instances in the data where it did not happen. We carry these insights with us as we continue our efforts to contest the hierarchy model.

Notes:

² Though Heidi and Sandy analyzed the data together, Heidi wrote this section of the paper to promote reflexivity about the part her discourse played in reproducing the hierarchy model.

³ "Heatherwood-style" is the teachers' phrase. It speaks to the strength of the institution's values and promoted practices.

⁴ We use "coparticipation" instead of "participation" to highlight the egalitarian nature of participation in the proposed activities.

APPENDIX A Transcription Conventions

We do not speak or think in a continuous stream—our language is produced in small spurts (Gee, 1999). Our transcription involved chunking each person's speech into lines and stanzas (Gee, 1999). We define each below.

Line Each line of discourse is a "small spurt of speech" that "has one salient piece of new information" (Gee, 1999, p. 106) and is marked by stress (increased volume, length, and/or changed pitch). Each line is usually marked by a pause or slight hesitation.

Stanza Each stanza is identified as a slightly larger block of information that includes "sets of lines devoted to a single topic, event, image, perspective, or theme" (Gee, 1999, p. 109).

Underlined words Indicate emphatic stress or a noticeable rise in pitch. As Gee (1999) explained, "English speakers mark the information saliency of a word by how much stress they give the word" (p. 106).

// Marks the end of a "basic speech unit" that conveys one coherent bit of communication. One recognizes a basic speech unit by a significant fall in pitch, announcing a closure of sorts (Gee, 2001).

.

Indicates a slight (less than 1 s) pause.

..

Indicates a 1-s pause.

:

Denotes sound stretch ("U:m").

APPENDIX B

Heidi's Transcript in Its Entirety

Stanza 1 (Introduction—establishing climate)

1. And for me..
2. I'm so excited about this
3. [laughter from group]
4. I hope you guys are excited about it too
5. [laughter from group]
6. because I am just..
7. Ahhh!
8. bouncing out of my seat
9. ready to start
10. start this//

11. Um..

Stanza 2 (Establishing the meaning of the meetings)

12. Just because for me

13. it's just such..

14. a different way of thinking about

15. curriculum: planning?

16. That so rarely do you have these people with really..

17. different kinds of expertise

18. coming together

19. and trying to do—

20. kind of make

21. interesting learning experiences for kids//

Stanza 3 (Distinguishing the project from typical university/school relationships)

22. Usually you have these curriculum experts

23. who are outside of the classroom

24. and don't really know//

25. And. then they give you this

26. and then they say OK, go ahead and.. and do it//

27. And then you know

28. a lot of it doesn't work

29. or it works

30. or— (low pitch)

Stanza 4 (More about the meaning of the meetings—what they will do for me)

31. I'm just excited about this different model

32. of unit planning..

33. this collaboration//

34. And that for me

35. is one of the big reasons—

36. and that's why I want to study it//

37. What does this look like..

38. when you bring these people

39. from really diverse perspectives

40. in. to. to. to do

41. some common kind of thing//

42. So I'm excited about that//

Stanza 5 (Distinguishing the project from typical university/school relationships)

42. And for me..

43. it's professional development for me

44. to learn more about

45. what really goes on

in these classrooms

and.. to learn from you all//

And.. also to think about

how well some of these ideas I have in my head..

may or may not play out you know?..

in reality//
[Laughter from group]

APPENDIX C

Susan's Transcript in Its Entirety

Stanza 1 (False start and introduction)

Well for me
it's um..
what most of you complain about (low pitch)// I mean I..
I like to work
with other people
that they give me ideas and we bounce—

Stanza 2 (Expository aside—establishing history and experience)

Christine and I you know
have done this about a year now//
We bounce things off of each other—

Stanza 3 (Expository aside—establishing expertise)

I heard that um..
Ms. Mason had an excellent first science lesson I mean..
I heard all about that//
(Quiet laughter from group)
Um..

Stanza 4 (Establishing meaning of the meetings)

So I think
between all of us
um.. you know
we're going to balance each other out and come up with some really great
hands-on integrated lessons//

Stanza 5 (Expository aside—establishing expertise and need for meetings)

'Cause I mean
I already know my kids//
They go to the media center
and they're pulling out big animal books
and stuff//
So there's i:nterest there..
we just have to motivate it
and get it integrated into what we're doing
and you know// Hopefully
get the ones that aren't interested in it
interested in it//

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