'Soft power' and the negotiation of legitimacy: Collective meaning making in a teacher team

Mind, Culture, and Activity

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Abstract: This article interrogates the 'soft power' of teacher teamwork by probing the ways in which authority conditions the appropriation of institutional motives through collective meaning making. The study analyzes the interaction of a teacher-leader and a science teacher team across two settings of professional development organized to promote curricular reform in their U.S. secondary school. The premise of the analysis draws on frameworks from cultural-historical theories, sociological perspectives, and social semiotics to view authority as the outcome of relations of power and control. The analysis reveals how the negotiation of legitimacy in interaction functions to open up or close down possibilities for acquiring motives appropriate to subject matter, teaching, and student learning in teachers' professional practice. The article makes a novel contribution to post-Vygotskian theoretical development in its presentation of authority as an attribute of the dialectical relationship of person and society in the production of institutionalized objects.

Keywords: educational change, knowledge base for teaching, teacher leadership, participative decision making, semiotics, sociocultural patterns

INTRODUCTION

Post-Vygotskian theorists have long wrestled with the apparent opposition between an emphasis on the sign-mediated nature of collective meaning making associated with sociocultural analyses and a focus on object-oriented activity and practical action in cultural-historical perspectives (Daniels, 2001; Davydov & Radzikhovskii, 1985; Engeström, 1999; Holland & Cole, 1995). This study asserts that the problematic of power and its pathways in interaction highlights the necessity of developing frameworks that bring together semiotic and activity-based analyses. The study explores authority as a social and cultural resource in the mutual appropriation of motives related to professional practice through collaboration among teachers. Such a cultural-historical perspective on authority counters realist views of authority as an entity held by persons. However, the exploration of authority as an attribute of the dialectical relationship of social and individual motives demands a robust conceptualization of the ways in which motives are an institutional project and product, which is particularly important in studies that focus on change in the institution of schooling. For this, I draw on the sociological perspectives of Bernstein (1977, 2003 (1990)) and the social semiotics of Halliday and Hasan (1989), bodies of work inspired by the legacy of Vygotsky and Luria. These frameworks align with a cultural-historical rendering of authority as relational, a joint construction that involves the appropriation of cultural tools, such as concepts and patterns of discursive action. Bernstein's framework extends the analysis to an understanding of how power and control legitimize particular motives and associated tools. In so doing, power and control operate to sustain enduring patterns of positioning, or social relations, between persons. The study traces the ways in which the recognition and realization of authority aligns with the interwoven positioning of persons and cultural tools in the appropriation of institutional motives.

The analysis pays close attention to the dynamics of soft power approaches to implementing change. The exercise of "soft power" relies on influence and affiliation

through consensual, collaborative work rather than the exercise of coercion or force through hierarchical "hard power" to achieve institutional aims (Nye, 2004). The soft power explored here lies in the discursive actions of senior teachers in a team of teachers, examining in particular the teacher-leader, a senior teacher appointed to lead the team in two settings, a longstanding curriculum group that the teachers themselves organized and a newly-created workshop that the school administration required teachers to convene as part of a reform initiative.

A substantial body of research into teacher professional development over the past three decades has traced the dynamics of interaction in teacher teams in ways that highlight patterns that sustain or block the elaboration of collective meaning (Horn & Little, 2010; Little, 1982; Wilson & Berne, 1999). The term "professional learning community" has come to characterize ways of organizing that yield generative patterns of interaction among teachers in the service of school-wide reform (DuFour & Eaker, 1998; Harris & Jones, 2010; Hord & Sommers, 2008; McLaughlin & Talbert, 2001). Such patterns, according to Talbert (2010), "focus teaching on student learning, creating rich knowledge resources and networks and engendering a social service ethic and mutual accountability" (p. 568). The school that allows such interactions to flourish is one in which reform has shifted "a culture of bureaucracy to a culture of professionalism" (ibid.), an implicit appeal to soft power.

These normative characterizations describe ideal relationships among teachers and between the everyday, craft knowledge of teaching and teaching as a professional discipline. However, these ideals do little to explain the dynamics of soft power, the processes through which collective meaning about teaching gets produced and reproduced through collegial interaction. Much depends on teachers' experiences of the practice of education within particular settings and the ways those experiences are shaped by a host of seemingly innocuous features (Cobb, McClain, de Silva Lamberg, & Dean, 2003; National Academy of Education, 1999). More than three decades of research has amply articulated the ways in which systemic barriers to collective work are high within schools, encompassing such characteristics of the profession as norms of autonomy in teaching that derive from a professional "culture of privacy" (Little, 1990), the web of entanglements beyond skills and knowledge alone that constitute competent practice (Eraut, 1994; Greeno, 1998), and the "cellular organization" of schools and school systems (Lortie, 2002/1977). Such features of a school have a pronounced effect on opening up or blocking opportunities for expanding exemplary practice (Cobb, et al., 2003; Engeström, 1998) and determine much about the possibilities for or constraints on collective meaning making among teachers.

A cultural-historical perspective provides the means for exploring how such features of setting, which Engeström (1998) refers to as the "motivational middle level" (p. 77), condition the everyday interactions among teachers and between teachers and students. Motivational in these terms refers to the cultural historical notion of object motive, the "relationships that organise a person's action in the situations in which they are acting" (Chaiklin, 2011, p. 212). The middle level with motive in view encompasses the ways in which the taken-for-granted features of setting condition activity and articulate the horizon of possibilities for change in that activity over time. At the level of the teacher team, middle level features include the means of assessing student learning, the use of time, the organization of space, interactions among teachers and between teachers and administrators, and the relationships of those within the school to the world outside the school walls (Engeström, 1998).

Crucial features of the motivational middle level are the patterns of interaction, or conversational routines, that enable the co-production and reproduction of what is taken to be legitimate practice (Horn, 2002; Horn & Little, 2010). Integral to conversational routines are social relations that articulate the ways in which professionals in schools position themselves and one another through interaction, bounding teaching as object and orienting towards the sense-forming motives (Kaptelinin, 2005, p. 14) of an institution that legitimize meaningful practice—what it means to be a teacher and to teach.

Accepted patterns of interaction and associated collective motives condition what is considered a legitimate tool within a given institutional setting. However, the designation of legitimacy arrives with baggage. As Wertsch (1998) emphasizes:

> The reasons for using a cultural tool is not simply tied to superior levels of performance. Instead, the use of a particular mediational means is often based on factors having to do with historical precedent and with cultural or institutional power and authority. (p. 42)

Wertsch emphasizes the need for theory development and empirical study about the ways in which power operates in the relationship among persons, mediational means and institutional motives (Wertsch & Rupert, 1993). Other writers in the field have also recognized the need for such a form of theoretical engagement (Daniels, 2008b; Hedegaard, 2001; Mäkitalo & Säljö, 2002). The underlying question presupposed here has to do with the construction of legitimacy of the tool and the collective motives associated with its use as a mediational means. Bernstein (1993), building on insights of Vygotsky and Luria around the ways in which social interaction regulates orientations to meaning, has critiqued post-Vygotskian theory for overlooking the relation between the structure of the tool and the context of its production.

> The metaphor of 'tool' draws attention to a device, an empowering device, but there are some reasons to consider that the tool, its internal specialized structure is abstracted from its social construction. Symbolic 'tools' are never neutral; intrinsic to their construction are social classifications, stratifications, distributions and modes of recontextualizing. (Bernstein, 1993, p. xvii)

Daniels (2008b) uses this insight from Bernstein to ask: "(W)hat theoretical and operational understandings of the social, cultural, historical production of "tools" or artefacts do we need to develop in order to empirically investigate the processes of development?" (p. 152). This study provides one answer to that question by elaborating a pragmatic orientation to authority in professional interaction as the intertwined negotiation of social relations *and* relations amongst concepts, or epistemic relations, in the construction of legitimacy around aspects of teaching practice.

The negotiation of relations is especially evident in the role of teacher-leader. Teacher-leaders hold highly-charged places in the promotion of sensemaking around fundamental aspects of school reform. Their role within the organization may be more or less formalized; yet, soft power or indirect control is the primary means through which they are expected to work (York-Barr & Duke, 2004). Teacher-leaders occupy what Long (2001) characterizes as an "intercalary position" inserted between different domains of practice—disciplinary teaching and school management—as well as different organizational levels that require them to respond to their own group's concerns as well as the expectations of others. Thus the negotiation of social relations and epistemic relations becomes especially pronounced in organizational positions that have such

potential influence on the valence of the motivational middle level and the construction of the legitimacy of mediational means within the settings of teachers' every day work.

Background

The analysis presented here draws on data collected as part of a study of comprehensive school reform within "Lincoln-Gateway High School", the sole public secondary school in the "Gateway School District", an urban district in the upper Midwest of the United States.[1] The centerpiece of the reform was the implementation of a shared pedagogical framework across all departments in the school. The school of 1,500 students had been through several years of a contentious effort to reorganize, culminating in 2003 with a highly-critical report of the school's administration and its approach to curriculum by a regional accrediting body that periodically inspected the school. The criticism centered around large disparities in student achievement across the school. The report intensified scrutiny by state education officials, who had already targeted the school for the low performance of minority students on state mandated standardized tests. With accreditation suspended following the report, the state department of education threatened to assume direct management of the school if the local school district and the school itself could not rapidly address concerns raised.

The school administration responded by shifting the school to a dramatically different "block schedule" timetable, effectively doubling the length of most class sessions, allowing students to complete what had been a year-long unit in one term. The expanded time for classes also meant that students took half the number of subjects each term, reducing their course load from seven subjects to four within a term while increasing the overall number of subjects students could take in a year from seven to eight (i.e., four subjects in each of two terms). The shift to longer class periods aimed to promote "deeper learning and greater achievement" for greater numbers of students.[2] To help with the transition to block scheduling, the local district allocated a large sum for teacher professional development in the year preceding the timetable reforms. Administrators made use of a provision in the collective bargaining agreement with the teachers' union that allowed the district to mandate after-school professional development with additional pay in exceptional circumstances.

The planning for the shift to the new timetable thus became a central concern of school-wide professional development in the year preceding the shift (2004-2005). The school-organized professional development effort sought to introduce a general pedagogical framework by using on-site coaching and collaboration. The school administration selected an approach already familiar to some of the senior teachers at the school. Descriptions of the selected framework, Teaching for Understanding, noted that it was widely used to plan, conduct, and analyze teaching aimed at developing learners' capacities to apply understanding flexibly in varied situations (Blythe, 1998; Wiske, 1998; Wiske & Perkins, 2005).

The school leadership expected teams of teachers organized by subject to use the approach as a tool for learning from, rendering problematic, and reinventing their own and others' teaching practices. School leaders described Teaching for Understanding as offering the teaching faculty, "a common language across grade levels and subjects for

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[1] Pseudonyms are used for institutional and individual names.

[2] "Administrators' Information Packet," internal communication, 13 September 2004.

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thinking through, discussing, and articulating curriculum choices and documents."[3] The teacher leaders in each subject area were charged with bringing the reform to fruition through planning and carrying forward the professional development associated with the timetable reform. For many subject areas, the role of the teacher-leader in carrying forward reform was new. However, the science department at the school had a longstanding tradition of formal teacher-leader roles funded through federal grants to the local district, resources that gave science teacher-leaders a measure of autonomy from the school administration (Rudolph, 2002).[4]

This research generates data from the interaction of the team of physics teachers and the teacher-leader with whom they worked across two settings of professional development, one of which was organized by the school administration as part of the reform initiative and the other of which had been organized by the teachers themselves several years before the most recent reforms were put into place. The school-organized professional development workshop that focused on Teaching for Understanding was run by Helen, the physics teacher-leader, who met biweekly with the school's nine physics teachers. Helen determined topics to be addressed in each workshop session with teacher-leaders from other subject areas and a coach who had many years of experience using the framework. The specific contents of each workshop were worked out by each teacher-leader in collaboration with the teachers with whom she worked to account for the differing needs of each group. The overall aim of the workshop sessions was to develop specific plans, including a detailed syllabus and exemplary lessons, in preparation for teaching in the new timetable while aiming for "deeper learning and greater achievement".

More than any other teaching team in the school, the group of physics teachers were well-versed in collaborating to develop new curricula. All physics teachers participated, with varying degrees of commitment, in a biweekly meeting known as the "physics first group", which had been running consistently for five years, well before the current wave of reforms. The curriculum that gave the name to the group, "Physics First!," reversed the traditional sequence of U.S. secondary school science (i.e., biology, chemistry, physics) to teach physics to students in the first year of high school.

Among the main tenets of Physics First was a push for teachers themselves to collaboratively develop their own curriculum. The nine physics teachers, including the teacher-leader, were widely recognized within the school and in the district for their collaboration. The group of physics teachers had worked out effective ways to continue their collaborative work during periods of upheaval, supporting one another around areas of immediate concern and, more broadly, collaborating on common goals set by a curriculum to which all, the most senior and most junior colleagues, contributed.

An observational study of interactions in this group (Eddy Spicer, 2006) identified three participants in particular who were acknowledged as experts in a number of areas crucial to the productive work of the group: Helen, the teacher-leader; Louise, an expert in teaching science through inquiry; and Roger, the most senior teacher on the team. (Table 1 lists the teachers who took part in the study and participated in the two groups.) These physics teachers had been at the school the longest and had all been involved in

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[3] "Rationale for TfU for L-G," internal communication, 28 April 2004.

[4] Among the disciplinary areas, science teaching has a relatively long tradition in both differentiated staffing and teacher collaborative work, due to federal funding and curricular reforms in the United States that emphasized the value of teacher inquiry for promoting student inquiry (Rudolph, 2002).

organizing and sustaining the teacher-led Physics First Group and the development of the Physics First curriculum from its earliest stages.

[TABLE 1 ABOUT HERE]

It was Helen, the teacher-leader who maintained the most multifaceted roles in the group. Observations of her interactions with the group show her serving as arbiter of key information in three critical areas for the group: the Physics First curriculum, the tenets of Teaching for Understanding, and relationships with "powers-that-be" external to the group. The latter involved school-level issues (especially the school schedule and professional development requirements), the district science department, and district and state curriculum standards for physics.

Conceptual Framework

An understanding of the dynamics of authority in conversational routines requires a way of explaining how teachers position themselves and one another in professional exchanges, as well as how such positioning relates to specific modalities of control through which institutionalized motives are reproduced. The sociological theory of Bernstein (1977, 2003 (1990)) and the social semiotics of Halliday and Hasan (1989; Halliday & Matthiessen, 2004; Hasan, 2002b) provide the means for understanding how the realization and recognition of authority through patterns of interaction differentially position persons with respect to the appropriation of cultural tools.

Bernstein's research at the broadest sweep considers the communicative and semiotic features of power and control in how schools are organized, what is taught, and how teaching and learning happens (Erickson, 2009, p. 137). Fundamental to Bernstein's project is that experience in social settings forms, deforms and transforms what constitutes knowledge and its development (Hasan & Webster, 2009, p. 120). Bernstein's (2000) concept of framing relates to the notion presented earlier of "soft" and "hard" power. Framing is a conceptual tool for understanding the control of social relations through positioning; control molds not only how participants make meaning within interaction but also and, most important, which meanings are available to be made. The qualities and degree of control, as expressed by framing, are conditioned by relations of power that exist beyond any particular interaction. Framing characterizes "*how* meanings are to be put together, the forms by which they are to be made public, and the nature of the social relationships that go with it" or, put simply, "*who* controls *what*" (Bernstein, 2000, p. 12, emphasis in original). Positioning, in this view, is a manifestation of both relations among ideas as well as relations among people. The ways in which people position themselves and one another through framing in any particular interaction thus reflect institutionalized motives; that is, positioning in interaction shapes the possibilities for the ways cultural tools come to be used, the patterns of interaction that are legitimate and hence the kinds of meanings that may be conveyed through that interaction.

Framing is manifested through control over the selection of topics, the order with which topics are addressed, the criteria that determines legitimate interaction, the pacing of interaction, and the ways in which hierarchical relationships among participants are realized through interaction (Bernstein, 2000, p. 12). Control over these qualities may be more or less explicit. Strong framing entails hard power relations, in which both "who" and "what" clearly demarcate a non-dominant participant's deferral to the verbal actions of a dominant participant, as with child and parent, follower and leader, or novice and expert.

The premise of this study is that strong framing entailed by hard power is antithetical to the sustained interaction and apparently equal exchange of ideas that define collective meaning making (Bernstein, 2000, p. 95). But this is not to say that power and control are absent from the equation in soft power interactions that hinge on influence. The apparent masking of authority is the distinguishing feature of modalities of control identified with soft power, in which no single participant or group of participants maintains explicit control. Hasan (2001) emphasizes that this indicates "a qualitatively different kind of power and a different mode of control" (p. 65), not the absence of control.

Collective meaning making through soft power operates through networks of social and epistemic relations that reflect a wide variety of strategies of control, manifested in interaction by the range of patterns of positioning available to participants. The premise of the study is that conversational routines that permit an array of patterns of positioning nonetheless operate to channel relations among people as well as relations among ideas in ways that encourage the appropriation of institutional motives. The conditioning influence of the motivational middle level through patterns of interaction is not as apparent as in strongly-framed interaction, but control is no less pervasive. To refer back to the earlier quote from Talbert (2010), whose appeal to soft power foretold a shift from "a culture of bureaucracy to a culture of professionalism" (p. 568), the strategies of control of professionalism are qualitatively different from those of bureaucracy. The ways in which control operates in soft power patterns of interaction is the central concern of this study.

Methods and Sources of Data

Bernstein initially developed the concept of framing as a means of analyzing how "principles of control are transformed into specialised regulation of interactional discursive practices" (Bernstein, 2000, p. xviii). Inspired by Bernstein, the social-semiotic theories of language of Halliday, Hasan and others offer an analytic framework, which includes terms and approaches for exploring the social activity of meaning making with and through language in particular situations (Eggins, 2004, p. 87; Lemke, 1995, p. 6). My analysis of team discourse derives from speech function labels elaborated in Eggins & Slade (1997, see in particular pp. 169-226) and Eggins (2004, pp. 141-187), which build on Martin's (1992) considerations of meaning making through dialogue (pp. 31-91) and Eggins' (1990) studies of casual conversation. Underlying all is Halliday's conceptual characterization of the nature of dialogue (Halliday, 1994, pp. 68-69; Halliday & Matthiessen, 2004, pp. 106-111), a characterization articulated in close connection with Bernstein's research (Hasan & Webster, 2005).

Eggins' and Slade's description of casual conversation in functional terms offers ways of elaborating just what happens to the proposition that initiates interaction in a given exchange, which is of vital importance to discerning the knowledge building processes of talk in collaboration. Speech function labels also offer ways of exploring the interpersonal function of language by looking closely at particular patterns of positioning adopted in interaction. The codes developed for my study focus on how *information* is exchanged and *who* takes on what position with regard to that exchange of interaction. These codes are a way of systematically describing what happens to the development of ideas as the exchange unfolds both in terms of relations among ideas as well as relations among people.

Data Sources and Sampling

The primary data for this study are transcripts and fieldnotes from audio recordings and observations of team interaction in the settings described earlier, a teacher-organised group and a school-organised workshop. I selected two sequences for discourse analysis for each of the two settings, one each drawn from an early and a late event. Before I identified these key sequences, I reviewed my out-of-field event summaries for every event in both settings. My first sampling criterion was that the event be considered successful in terms of generating a "successful" work product from interactions that had direct implications for teachers' ongoing work. I defined success as (a) generative use in other settings beyond the event in which it was created and (b) comments in interviews or through observations by teachers about the efficacy of the work product in accomplishing the goals for which it was intended. I then analyzed these events for sequences of interaction that were most critical to the production of the work product that came out of the group's interaction.

These sequences of interaction, which I call sequences of pedagogical understanding, are excerpts of joint activity that are concerned with elaborating, through justifications and explanations, topics related to teaching, subject matter, and student learning. Such portions involve retrospective and prospective discussions of classroom processes, as well as discussion of interactions with students.[5] I identified these sequences by looking for clearly demarcated passages of interaction through which a set of topics related to the creation of the final product was "introduced, negotiated, and brought to completion" (Wells, 1999, p. 236). I then carried out detailed transcriptions of these passages, which ranged in length from twenty to fifty minutes, using the CHAT transcription conventions (MacWhinney, 2000).

Once I completed coding, co-coding to check validity and reliability of my approach, and recoding,[6] I first looked at the categories of codes within a given sequence as a whole (synoptically). I then looked at how patterns of codes unfurled over time (dynamically) to identify supportive and challenging patterns associated with sustaining or closing down interaction. Finally, I explored differences and similarities in the distributions of speech function and patterns of positioning across settings.

Findings

My findings identify patterns of positioning that trace the ways soft power operates through the weak framing of interaction. Weak framing was a crucial aspect of the most generative sequences of interaction, those which contributed substantially to the development of curriculum that aligned with the wider goals of the reform initiative. Below I pay particular attention to how such weakly-framed interaction serves in collective meaning making and, consequently, in the appropriation of institutional motives.

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[5] In characterizing sequences, I drew on the work of Horn (2002) who uses the term "episodes of pedagogical reasoning" to define a unit of analysis in her study of collegial interaction in teacher teams. She does so in the service of explaining ways teachers represent and engage with examples of classroom experience in their collegial interaction (see p. 12). In functional terms, her study puts primary emphasis on ideational meanings.

[6] To check the reliability of coding, I asked two colleagues to code 12 exchanges amounting to 20% of the overall turns in each of six sequences. I found an average of 78% agreement when comparing my coding with each of the two others across all 12 exchanges, varying from a high of 94% to a low of 67%. Over several rounds of discussions and coding, I revised the codebook and re-coded all sequences.

Sustaining interaction through weak framing

Everyday notions of authority in interaction conjure certain common patterns of positioning. These might typically include such speech moves as declaring, asserting one's ideas; resolving, reconciling contested ideas; and contradicting, contesting another's ideas. Declaring, resolving, and contradicting exemplify what one expects of an authority in interaction. Across the six sequences, those acknowledged as experts were more likely than others to use these speech functions. However, when those acknowledged as experts exhibited authority in these ways, the ensuing exchange did not continue for long. As one might expect, the exchanges crucial to generative collaborative work occurred through interactions that drew in a range of participants, not just those deemed to be experts on a particular topic. Less expected are the ways that authority operated in the most highly-interactive patterns, effectively maintaining control of intersubjective meaning making by handing that control over to others in carefully articulated ways.

Challenging

The pattern of positioning I have labeled challenging differs from contradicting in that the speech moves associated with challenging sustain debate. Challenge might come in the form of questions or statements that present a contrasting point of view in a way that invites rebuttal. This is the pattern most commonly considered an essential part of "critical collegiality" (Lord, 1994) and yet, the relations of authority under which it appears are tightly constrained. Both the resolving and contradicting speech roles described above depend on other interactants' deferral to the speaker whose statements are taken as uncontestable. Challenging happens when others in the group do not defer but question another's statement or challenge someone's contradiction of a statement.

The example below, taken from a later session of a school-organized workshop (Excerpt 1), highlights an interaction among Helen, Roger, Chet, and Ana involving 'challenging' patterns of positioning. In addition to Helen, the designated physics teacher-leader, several others in the group had clearly formed social roles acknowledging their expertise in the mastery of physical concepts. This was true of Roger, who as previously noted, had taught at Lincoln-Gateway for many years and was sought out by colleagues for his insights into physics. It was also true of Chet, a newly-arrived teacher with a breadth of previous experience. Chet taught undergraduate physics in the evenings at a nearby community college and had led his former secondary school's physics department for many years in a neighboring town before taking a post at Lincoln-Gateway. Ana is a teacher in her third year of teaching who plays an important role in this interaction by developing and clarifying in ways that serve to draw in others.

Excerpt 1: School-organized Workshop, 26 May 2005 (exchange 5: 133-169) [7]

> *Chet:* I know that Tom Tsu's new book <comin out> [>] about physics is all energy [//] it's <pushed> all through energy [//] the whole thing. (1)
>
> *Ana:* <It's> [<] # Yeah well you know in terms of um, like abstractedness… you know like waves and electricity definitely are more abstract than motion and energy. (2a) You know in terms of like starting a little bit more concrete (2b) and moving to more abstract topics? (2c)
>
> *Roger:* It's also the order the textbook does it (3a) which means you won't run into the situation where if you're asking a homework problem in chapter eighteen it'll say as you remember from chapter six. (3b) My kids will say well we haven't read chapter six. (3c)
>
> *Ana:* Wait you're saying motion then what? (4)
>
> *Roger:* Well if you [///] the [//] I mean the more classic order would be # motion probably followed by energy... (5)
>
> *Chet:* Um hm. (6)
>
> *Roger:* And then <heat waves electricity> [>] or electricity waves. (7)
>
> *Chet:* <waves> [<] (8)
>
> *Helen:* Right. (9a) But that puts all the math [//] all the most mathematical stuff up front. (9b)
>
> *Roger:* Right. (10)

Chet refers to the forthcoming secondary school physics textbook (move 1) from a leading textbook author in physics, a move that shows Chet to be well-informed about current approaches to teaching high school physics. Roger, on the other hand, looks back to traditional order as authoritative (move 3a). Helen, subsequent to this portion of the sequence, refers to her experience with the school's Physics First curriculum and her knowledge of students' versatility with math.

In this interaction each holds a perspective that puts one person's authority about the topic at odds with another's. Note that unlike Ana's moves, all of the main moves made by the three more senior teachers are full declaratives and none involves a rising tone that might

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[7] The following basic transcription conventions are used in the excerpts:

#	pause between words
##	long pause between words
xxx	unintelligible speech, not treated as a word
xx	unintelligible speech, treated as a word
[?]	unintelligible, preceding word is best guess
[!]	stress
[text]	transcriber comment or local event (e.g., laugh, groan, etc.)
[//]	self-correction
[///]	restart
text(text)text	partial or non-completed word
…	trailing off
<text> [>]	overlapped speech
<text> [<]	overlapping speech
(number)	a turn made up of a single move, e.g., (3), appearing at end of turn
(number letter)	a turn made up of more than one move, e.g., (3a), appearing at end of each move

show openness to others' opinions or a question tag at the end of the sentence that would explicitly ask for confirmation. Along with the challenge, however, are minor moves that continue to hold the interaction together and move it forward. The repetition of others' words (Chet, move 8) and short affirmations (Roger, move 10) are ways that participants demonstrate intersubjectivity despite disagreement. These moves, combined with Ana's inquiries, serve as mortar for the metaphorical bricks that each of the senior teachers are laying down as they try to sort out a mutually agreeable stance.

Supporting through tracking and co-developing

In thematic terms, stating the facts or one's opinion or taking up a challenge to uphold one's authority all depend on a functional notion of authority as a provider of authoritative information. But maintaining solidarity as well as eliciting others' contributions—both of which are crucial to generative interactions in a group—demand an apparent handing-over of one's authority in subtle ways that do not depend solely on providing information but on building shared understanding. These kinds of supportive interactions are far more common in this data set than the challenging pattern presented above.

The following describes two distinct patterns of positioning that support sustained interaction, *tracking* and *co-developing*, along with a third pattern that arises in the combination of these, *co-developing through tracking*. Tracking moves verify information in the prior move. They range from a simple "check" on what has been said to an expansion of the proposition by asking for clarification or volunteering additional details. Two of the most commonly appearing tracking moves in these transcripts are *tracking-clarify* and *tracking-probe*. Tracking clarify moves elicit clarification of what the speaker assumes to have been implied by a prior move and include requests for elaboration. Tracking probe moves introduce further details or tease out implications of information in a prior move for ratification by others. Tracking probe moves are a conciliatory way of introducing new elements to the conversation without directly challenging a prior speaker. Frequently tracking probe moves include a tag question at the end ("isn't it?") or a tag question might be implied.

The following example (Excerpt 2) comes from a 38-minute sequence of a break-out group meeting among Helen, Louise, and Josie. This sequence took place one hour into a two hour meeting on 31 March 2005. The small group of three met to revise student hand-outs for a "Parallel and Series Circuits Lab" that Helen and Josie planned to teach over the coming week and which Louise was just finishing up. The outcomes of the meeting were revised student hand-outs that described the lab and a new graphic organizer that aimed to help students organize what were heretofore unstructured observations of different circuits they had built. Helen, with Josie listening in on this part of the sequence, queried Louise about a "series and parallel circuit" lab she had just finished teaching and which Helen and Josie were going to teach the following week. They were seeking advice about setting up the lab from Louise, who had a reputation for inquiry learning.

Excerpt 2: Teacher-organized Group-B, 31 March 2005 (exchange 23: 1482-1545)

> *Helen:* Louise, so you used this version here? (1)
>
> *Josie:* The shor(t) [//] the series and parallel circuits lab. (2)
>
> *Louise:* Yeah. (3)

Helen: And you had them [///] so did you tell them how to set th(ese) [///] so you didn't tell them how to set up the bul [//] light bulbs (4a) and what did they come up with? (4b)

Louise: So half of them set up things in series and half of (th)em <set up in parallel> [>]. (5)

Helen: <(be)cause they> [<] only had two lightbulbs, right? (6)

Louise: Naw they had the little packages that came with it in the series and parallel kits which had like three # bulb holders and two batteries. (7a) So some of them like immediately hooked everything [!] that they had together and had to be <beaten> [>] [joke] and other ones… (7b)

Josie: [laugh] (8)

Helen: (Be)cause if you gave them [//] if all you gave them was two lightbulbs # then all that they could come up with is # <a series and a parallel> [>]. (9)

Louise: <a series and a parallel> [<] (10a) although # some of (th)em would hook up # a series in like [//] I mean a parallel circuit that's like a figure eight with a battery in the middle (10b) and some of them would hook it up with like a figure eight with a battery at one end? (10c)

Helen: Yes # um. (11)

Louise: Right exactly. (12a) So their choices are sort of limited # which is good. (12b)

Helen: Yeah, ok. (13)

The interaction between Louise and Helen opens up possibilities for elaboration through Helen's tracking probe moves and requests for clarification. This excerpt shows both moves that elicit additional information by requesting further clarification (move 1) or by teasing out implications for ratification (moves 4b, 6). The latter can be seen in Helen's coupled statement and question in turn 4, moves a and b: "So you didn't tell them how to set up the light bulbs. And what did they come up with?" Louise's responses demonstrate how tracking probe moves, initiated by Helen (moves 4b and 6), work with Louise's resolve moves (moves 5 and 7a) to form a simple adjacency pair; in one instance, (move 7a), a "repair" corrects misinformation.

The series of moves including questions, tracking probes and other-development put Helen in the role of supportive interviewer and Louise in the role of willing interviewee, elaborating, clarifying and correcting. Louise is not giving direct advice about what the other teachers should do. The combination of moves was frequently used by the more experienced teachers within the teacher-organized group at various times to debrief details of others' approaches to teaching. This is a dialogic version of the monologic pattern identified by Horn (2007) as teaching "replays", in which one teacher recounts what she had done in her classroom, offering up extended anecdotes to raise questions about what went on or to address another teachers' concerns. Note that the acknowledged expert in this pattern is the teacher from whom information is being sought, not the interrogator. However, the interviewer maintains interpersonal control through her questioning.

Co-developing and co-developing through tracking

The pattern of co-developing appears frequently throughout the data set when several participants build on one another's contributions in closely aligned ways, with one speaker after another completing the preceding speaker's move. I first describe the co-developing pattern in Excerpt 3 and then describe an elaboration of the basic pattern that

occurs with the introduction of tracking moves, *co-developing through tracking* in Excerpt 4. As Excerpt 4 illustrates, co-developing through tracking allows for the greatest degree of flexibility in the positioning of interactants as well as the elaboration of ideas through interaction.

An excerpt from a March 29th meeting shows how the basic pattern of co-developing allows for the elaboration of ideas but does not readily allow for shifts in positioning. Below, the three participants (Mary, Ana, and Helen) had been struggling with identifying an end-of-unit activity for a unit on energy. Mary and Ana work together to define just where such an activity might focus.

Excerpt 3: Teacher-organized Group, 29 March 2005 (exchange 11: 654-694)

> *Mary*: ## We really we want them to explain # the um: right conservation of energy. (1a) Right <ultimately> [>] +/? (1b)
>
> *Ana*: <energy> [<] transfers. (2)
>
> *Mary*: Yeah and cuz so <they could describe> [>] # energy transfer (3)
>
> *Helen*: <might be just> [<] (4)
>
> *Mary*: # in a food+web … (5)
>
> *Ana*: Um hm. (6)
>
> *Mary*: in [/] in some [//] in their body (7)
>
> *Ana*: So in any biological system. (8)
>
> *Mary*: It doesn't matt(er) [///] Yeah so <I don't particularly care> [>] if they know (9)
>
> *Ana*: <so it should be some> [<] (10)
>
> *Mary*: Yeah # yeah. (11a) In the body [///] in the thing. (11b)
>
> *Ana*: (Be)cause it seems like…. (12a) [sigh] I don't know. (12b)
>
> *Mary*: ## So if you could # describe energy flow in the food chain and like get down to like the macro molecule level (13a) and also the loss of energy for the (13b) [///] You know what I mean like heat [//] loss of heat energy um. (13c) [///] Loss of energy in the form of heat. (13d)

In this excerpt, mutual development sustains for several turns in a rapid way, with one speaker after another completing the preceding speaker's move (moves 1 to 11b). As Sacks et al. (1974) point out, this kind of latching is not evidence of competition for time to be heard—none of the participants express frustration or challenge the rights of others to complete their thoughts. Rather, co-development allows for a quick vetting of new ideas (Sawyer & Berson, 2004). The excerpt above takes a revealing turn with Ana's disavowal ("I don't know.") in move 12b, after which she withdraws from interaction. Mary then assumes responsibility for continuing the development of ideas on her own, which she does through prolonging moves. Ana's aborted effort (move 12b) illustrates how co-developing contributes to the mutual development of ideas but does not allow for shifts in social relations. The next pattern positions Ana quite differently.

Co-developing through tracking permits greater flexibility in the social relations among participants through a mix of other-completion of moves along with tracking moves. The example below (Excerpt 4) comes from the May 26th school-organized workshop. This workshop began with an open-ended discussion around, as Helen put it, "What we would like to have ready by the time we get started in September." After members of the group proposed possibilities, Helen led the group in prioritizing which topic to discuss during the workshop. They chose to begin with the item with which this excerpt is concerned,

"the sequence and order" of the curriculum. The product that resulted from this meeting was a revised order of units that highlighted energy as an integrating theme throughout. This revised plan was subsequently elaborated in the group's summer workshop. In this excerpt, Helen, Chet, and Ana discussed how much prior knowledge students would need to carry out a "water wheels" lab towards the end of the course.

Excerpt 4: School-organized Workshop, 26 May 2005 (exchange 20: 1007-1051)

Chet: I think that they understand what K E [kinetic energy] and P E [potential energy] is hopefully at that point # and work (1a) and then you understand and you have the water reservoir (1b) and it has potential energy and can you now apply some of these things into a project (1c) and if they have to then they have to revisit it. (1d) Some of them will and some of them won't. (1e)

Helen: I mean I think the efficiency piece of it could be new. (Partnership for 21st Century Skills)

Chet: which is where the heat hit kit kicks in, right? (3)

Helen: Right yeah. (4)

Chet: Because everything is lost to heat # pretty much. (5)

Helen: And the water wheels ties in really well with the research project. (6)

Chet: Right. (7a) We could always try it. (7b)

Helen: Yep. (8)

Chet: And if we don't like it <go back to something else> [>]. (9)

Ana: <You could also do it> [<] like in terms of like lifting: like mechanics problems that were tying forces? (10a) You know what I mean? (10b) Like energy it takes to [//] like just more force problems? (10c)

Helen: Um hm. (11)

Chet: Um hm. (12)

Ana: Like work and force # kind of connection there. (13)

This excerpt proceeds through an initial series of self-development moves (Chet, moves 1a-1e), then other-development of ideas already presented (Helen, move 2), followed by a brief tracking probe move (move 3) and resolve (move 4) that check for mutual understanding, and then further development until Ana introduces a new idea for ratification through Ana's final tracking probe move (move 10c). There is a step-wise progression of tracking and development, with the development moves functioning as markers of agreement that enable another speaker, Ana in this case, to enter the interaction with a tracking probe move (move 10a) that offers yet another opportunity to expand the interaction.

DISCUSSION

My presentation of findings has focused on characterizing patterns of positioning that involve those acknowledged as experts during interaction. I noted how the strong framing of interaction limited the range of available positions for interactants as well as possibilities for further interaction. I then emphasized weak framing and the ways in which it opened up sustained interaction around a topic. Of the three patterns associated with weak framing that I identified, co-developing (excerpt 3) was the most constrained in terms of positioning, as it limited participants to close elaboration on a given topic. The other patterns hinged on acknowledgement of shared expertise among participants but in

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different ways. Tracking (excerpt 2) occurred with the need to elicit information or experience from others and was typically led by a dominant participant serving as interviewer. Challenging (excerpt 1), on the other hand, entailed interaction among those with divergent views of a common domain. The final pattern discussed, co-developing through tracking (excerpt 4), offered the greatest flexibility to the most participants in that involvement in interaction did not depend on prior acknowledgement of expertise by others, an essential aspect of the challenging pattern.

Table 2 summarizes the ways in which different values of framing along a continuum from strong (+) to weak (-) for both ideas as well as social relationships are manifested in either supportive or confrontational patterns of positioning in interaction. The patterns of positioning are arrayed to show that weak framing increases the possibilities for sustained interaction among a wider group of interactants. Patterns of positioning that rely on explicit control through strong framing of both the social and ideational order entail deference. Implicit control through weak framing of either ideas or social relations requires a *negotiation of legitimacy* through support or confrontation. The negotiation of legitimacy can be in terms of the ideas under discussion (co-developing) or in terms of interpersonal relations (tracking) or both (co-developing through tracking, challenging).

[TABLE 2 ABOUT HERE]

I noted earlier that Hasan (2001) maintained that weak framing involved a wide variety of strategies of control, which corresponds with soft power approaches to the exercise of influence. Positional relations in the teacher-organized Physics First Group were seen by group members, both junior and senior, as symmetrical; participants emphasized in interviews that all were treated as equals. However the preceding analysis of interaction reveals that interpersonal relations were not symmetrical. Those who made use of the greatest range of speech moves in interaction and employed dominant patterns of positioning were those who were acknowledged by the group as experts in various domains, such as inquiry teaching, traditional physics teaching, physics disciplinary knowledge, and the craft knowledge of having worked in the school over a long period of time. These areas are closely tied to the Physics First curriculum and the legacy of its development by the group. Weakly-framed interaction enacted through the kinds of patterns discussed here supported the more junior teachers in making substantive contributions, contributions that aligned with boundaries already established by the group (e.g., Ana's contribution in move 10, excerpt 4). Most notably, the articulation of the alignment of both social position and substantive contribution was intricate and nuanced in the highly interactive pattern of co-development with tracking.

The one group member who participated in the most diverse range of patterns of positioning was Helen, the teacher-leader (Eddy Spicer, 2006). Within the group, she and others clearly portrayed the soft power aspects of her role, i.e. serving primarily as a support for the group in the teaching and continuous development of the Physics First curriculum. This view of her role was borne out to a great extent by the prominence of weak framing in intragroup interaction. She had a formal role through which she held authority in institutional terms as teacher-leader; however it was the ways in which she enacted this through weakly-framed interaction that shaped the possibilities for an expansive range of patterns of positioning, constituted by relations among ideas as well as relations among the members of the group. In cultural-historical terms, patterns of positioning shaped the collective appropriation of institutional motives that oriented meaning making towards institutionalized objects, illuminating how soft power operates within interaction.

CONCLUSION

My aim has been to explore the ways that soft power operates in patterns of positioning associated with the development of shared understanding. These patterns of positioning are one aspect of the motivational middle level in schooling, the taken for granted features of setting that orient activity towards institutionalized motives that are deemed appropriate. Patterns of positioning offer a unit of analysis that bridges the concern of sociocultural analyses with semiotic mediation and the concern of cultural-historical perspectives with historically formed, object-oriented activity. Attention to the ways in which control operates through patterns of positioning connects a detailed understanding of the pathways of semiotic mediation with the social production of institutionalized objects, and thus holds the potential of revealing institutional structures as historical products.

The study reported here presents a microsociological examination of the operation of soft power through patterns of positioning. The analysis implies that patterns such as *co-development through tracking* might constitute emergent institutional structures in the supposedly flattened forms of teacher collaboration that feature so prominently in contemporary approaches to school reform. Soft power entails the negotiation of a constellation of institutionalized objects, associated activities and related domains of expertise, in this case including such areas as inquiry teaching, physics as a scientific discipline, Physics First as an approach to the teaching of physics, and the "block schedule" as a means of reaching diverse learners.

This research highlights the ways in which authority operates in key moments of interaction intended to build collective professional understanding through the negotiation of legitimacy. As revealed by patterns of positioning, this negotiation depends on flexible social relations or collective thematic elaboration or both. The elaboration of authority as the outcome of "soft power" interactional dynamics contributes to understanding the dialectical relationship of persons and society in the production of institutionalized objects. Attention to patterns of positioning gives empirical insight into how authority is mutually and dynamically constructed through the appropriation of motives. Negotiating legitimacy in this way shifts the framework of control from "standardised practices of supervision to those of socialisation" based on "more relaxed modes of communication" characteristic of soft power (Tyler, 1988, p. 155). Legitimacy through soft power transcends hieratic allegiance to the reform-oriented agenda of the bureaucracy of the school by intensifying the means of control (Nealon, 2008).

An emphasis on patterns of positioning suggests a way of moving beyond the critique of microsociological analyses that "have little connection to macrotheories of social institutions and the structure of society" (Engeström & Miettinen, 1999, p. 8). By pointing towards ways of examining institutional artefacts as historical products, this study builds on the work of those in the cultural-historical tradition who have developed theoretical tools that aim to forge just such a bridge (e.g., Daniels, 2008a; Hasan, 2002a; Hedegaard, 2012). However, the accomplishment claimed here is, as yet, more limited in scope. To establish the validity of patterns of positioning as more than a promising tool would require analyses that extend beyond one setting and one span of time, allowing for analyses of development over time as well as comparisons across a range of settings. Nonetheless, the study contributes a cultural-historical perspective to the sociology of everyday knowledge in education through its emphasis on probing the operation of soft power in the processes of collaborative work, which has become a fundamental element of reforms of schooling in the current era.

ACKNOWLEDGEMENTS

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