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**Academic Discussions:
An Analysis of Instructional Discourse and an Argument for an Integrative
Assessment Framework**

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Abstract

This paper describes the structure of academic discussions during the implementation of a literacy curriculum in the upper elementary grades. We examine the quality of academic discussion, using existing discourse-analysis frameworks designed to evaluate varying attributes of classroom discourse. To integrate the overlapping qualities of these models with researchers' descriptions of effective discussion into a single instrument, we propose a matrix that 1) moves from a *present/absent* analytic tendency to a *continuum-based* model and 2) captures both social and cognitive facets of quality academic discourse. We conclude with a discussion of how this matrix could serve to align teachers' and researchers' identification of quality academic discussion and the process by which users could measure improvement in students' discourse skills over time.

Keywords

Academic discussion – Discourse analysis – Accountable talk – Classroom discussion –
Elementary education

PRELUDE

United by an interest in the relation of engaging social themes and the development of comprehension skills within an elementary grade language arts curriculum, our research team became intrigued by the powerful teaching possibilities associated with the use of thematic read-alouds for purposeful academic discussion. In our research, we define *academic discussions* as conversations between two or more students centered on an educational topic that is supported by academic materials (e.g. a book, short story, chart, graph, explicit instruction from the teacher, etc.). While the teacher may be an active participant in an academic discussion, ideally students dominate the talk by introducing evidence and reason based claims, questioning information, and making perspectival interpretations.

When the implementation of a new language arts curriculum in a New England school district provided us with an opportunity to observe and assess late elementary school-level academic discussions, we formulated several questions: *What facets of discourse does the existing literature suggest are most important and how can these facets be evaluated in classrooms? What indicators of quality academic discussion do current models of analysis aim to identify? Is there an integrative or comprehensive way to evaluate and measure the quality of academic discussion that is informative for practitioners and researchers?* The opportunity to explore these questions arose as we examined classroom discourse transcripts, reviewed existing frameworks and research, and considered how quality discussions in classrooms can be reliably and validly captured and compared.

LITERATURE REVIEW:

Theoretical Foundations for Academic Discussion as an Instructional Tool

Several theoretical frameworks support the relationship between academic discussion and student learning. Vygotsky's theory of language as a tool critical to the development of cognition in children (Vygotsky, 1981 & Wertsch, 1991) framed social interaction as a vehicle for meaning making and postulated that children's cognitive processes are individualized through the act of communicating. Bakhtin (1981, 1984) also saw social interaction as an opportunity for learners to collaborate ideas in order to derive meaning and co-construct knowledge: As he noted, "truth is not born nor it is found inside the head of an individual person, it is born between people collectively searching for truth, in the process of their dialogic interaction" (1984, p. 110). In other words, Bakhtin viewed discussion as an interactive educational process in which learners help each other formulate and solidify information over time.

The theoretical shift towards the construction of knowledge through dialogic interactions and language has prompted scholars to explore the role of discourse in classrooms. More recent sociocultural theorists have recognized classroom discussion as an instructional method (Cazden, 2001; Halliday, 1993). According to Halliday (1993):

The distinctive characteristic of human learning is that it is a process of making meaning – a semiotic process; and the prototypical form of human semiotic is language...

Children now learn language not only in the home and neighbourhood but also in school; and with new modes of language development come new forms of knowledge, educational knowledge as distinct from what we call common sense. (p. 93).

Mercer, Wegerif, and Dawes (1999) discuss the ability for classroom dialogue to harness educational benefit and describe discourse as possessing three functions, "a *cognitive tool* which children come to use to process knowledge; as a *social* or *cultural tool* for sharing knowledge amongst people; and as a *pedagogic tool* which one person can use to provide intellectual

guidance to another” (p. 96). Aligned with Bakhtin, sociocultural discourse theorists view the classroom as its own functioning society, and within that society, members use dialogue to communicate intentions and formulate shared meanings (Mercer et al., Cazden, 2001; Halliday, 1993).

These theorists maintain that individual student’s cultures and backgrounds are essential ingredients in the construction of discourse-based knowledge (Bakhtin, 1984; Halliday, 1993, Cazden, 2001). Halliday’s (1993) work suggests that language is used to help learners of differing backgrounds create shared meaning within a collective realm. Articulated in a metaphor by Cazden (2001), classroom discussion can be likened to a musical performance; the teacher “may even consider herself the only ‘native speaker’ in the classroom culture, yet she has to depend on ‘immigrant students’ for help in enacting a culturally defined activity” (p. 40). This implies that within the society of the classroom, multiple cultures and perspectives reside, yet through academic discussion, the students and teacher co-create their own culture and knowledge appropriate for that context.

Academic Discussions Have Value and Ideally Would Occur More Frequently: Empirical Evidence

Years of research have provided evidence that students who engage in academic discussions are more effective at group problem-solving, show signs of improved reasoning skills, and experience higher levels of individual achievement (Fisher, 1996; Johannessen, 2003; Larson, 2000; Michaels, O’Connor, & Resnick, 2008; Mercer, Wegerif, & Dawes, 1999; Wells, 2007; Wells & Arauz, 2006; Westgate & Hughes, 1997). Furthermore, the K-12 Common Core State Standards Initiative (2010) requires that “students actively seek to understand other perspectives and cultures through reading and listening, and they are able to communicate

effectively with people of varied backgrounds” (p. 7). A recent study on the effects of a vocabulary intervention program “that taught new content, deep reading and comprehension skills, discussion, argumentation, and writing” among middle school students suggested that students exposed to these skills are better prepared for state standardized tests (Snow, Lawrence, & White, 2007, p. 341). Mercer, Wegerif, and Dawes’ (1999) study on primary school children’s use of language, collaborative activities, and reasoning skills found that the use of meaningful academic discussion helped students work more effectively together on problem-solving tasks. Academic discussion provides students with opportunities to sharpen their individual reasoning skills (Mercer et al., 1999 & O’Connor, 2011), as well as understand the reasoning of others (Larson, 2000).

Larson (2000), examining six high school teachers’ implementations of academic discussions, found that conversation encourages a higher order of thinking by exposing students to multiple perspectives. The students’ conflicting views allowed them to compare their own logic to that of others, and to safely make informed choices to keep or change their initial opinions. Furthermore, differing points of view allow students to practice disagreeing with others in a respectful, productive way (Fisher, 1996). This process of dialogue is seen as important to prepare students for adult citizenship roles (Larson, 2000; Michaels et al., 2008; Westgate & Hughes, 1997). Developmental psychologists have claimed that adolescents’ discussion and argumentation skills are “of critical importance in their own right in contemporary life. Moreover, these skills may be a key to the development of the individual expository skills to which educators have given great attention and that remain a significant educational challenge”. (Kuhn & Crowell, 2010, p. 13).

Beyond the development of peer collaboration and reasoning skills, engaging in quality academic discussion enables students to experience individual achievement and the construction of otherwise untapped knowledge. “The very act of discussing allows students to connect what they learn in school to their own life in ways other methods of instruction may not” (Larson, 2000, p.667). Students who have established a solid sense of background knowledge prior to the discussion (Anderson & Pearson, 1984; Larson, 2000; Michaels et al., 2008; Rumelhart, 1980) will benefit from the discussion as an opportunity to connect what they have read in school to what is happening in their world. Quality conversational skills are perceived as a way to communicate meaning and construct further knowledge (Fisher, 1996; Johannessen, 2003; Larson, 2000; Mercer et al, 1999; Westgate & Hughes, 1997). Ideally, academic discussions would take place during all curricular subjects, and across all grade-levels (Gamoran & Nystrand, 1991; Goldenberg, 1991; O’Connor, 2001).

Despite evidence supporting its many scholastic and social benefits, meaningful academic discussion is actually quite scarce. In a study of the effects of instructional strategies on achievement in eighth grade Social Studies and English classes, Gamoran and Nystrand (1991) found that authentic discussion that allowed students to contribute their own thoughts and ideas as an integral part of the academic content occurred on average less than one minute per day. In a follow up study that examined the dynamics of academic discourse in eighth and ninth grade English and Social Studies classrooms, their research found little quality discussion taking place; “...discussion in English took 50 seconds per class in eighth grade and less than 15 seconds in ninth grade. Average time for discussion in Social Studies was 42 seconds in eighth grade and 31.2 seconds in ninth grade” (Nystrand, Wu, Gamoran, Zeiser, & Long, 2003; p.178). These discussions were dominated by question and answer recall formats that required students

to retell previously memorized facts but did not press or pull for elaborated conversation.

Gamoran and Nystrand (1991) hypothesized that an increase to 10 minutes of quality academic discussion per day would have a great impact on student achievement.

Current Tools and Frameworks Used to Identify and Evaluate Academic Discourse

Our examination of the literature found that terminology, identifying elements, and evaluation frameworks for discussions varied on several important dimensions. According to our review, components of quality academic discussion include peer perspective taking, strong reasoning skills, an ability to connect factual knowledge to the topic, and an embracing attitude towards newly introduced ideas (Anderson & Pearson, 1984; Applebee, Langer, Nystrand, & Gamoran, 2003; Barton, 1995; Fisher, 1996; Kuhn & Crowell, 2010; Larson, 2000; Mercer et al., 1999; Michaels et al., 2008; Nystrand et al., 2003; O'Connor, 2001; O'Connor, 2011; O'Connor & Michaels, 2007; Rueda et al., 1992; C. Snow, 2011; Wells, 2007; Westgate & Hughes, 1997).

To better understand the building blocks of academic discussions, to identify effective elements of discussion, and to determine how discussion can be shaped to maximize learning, researchers have developed frameworks specifically aimed to evaluate the nuances of student and teacher speech interactions in classrooms. These tools are multiple in number and varied in analytical purpose. For example, some look specifically at the chains between student and teacher utterances (Wells, 2007; Wells & Arauz, 2006; Sinclair & Coulthard, 1975), others count the exact instance that target words occur (Mercer et al., 1999), and even others attempt to capture the collective climate of classroom discourse interactions (Mercer et al., 1999; Michaels et al., 2008). To analyze and apply each of these frameworks to our data would have been a daunting and time-consuming task; instead we selected from the literature several highly cited

researchers' frameworks that tended to build in part on the works of Vygotsky and Bakhtin as the theoretical underpinnings of their own research to apply to our classroom discussion transcripts.

A. Macro-Analytic Approaches

We identify the macro-level of discourse analysis as examining the overall climate or broad structures of student and teacher interactions that affect the productivity of a discussion. In a study that assessed the relationship between primary school children's use of language, collaborative activities, and reasoning skills, Mercer et al. (1999) differentiated among three types of talk that can be identified in classroom observations: *disputational talk*, *cumulative talk*, and *exploratory talk*. These researchers focus on how students can use talk to further their own capacities for reasoning (Mercer et al., 1999).

Disputational Talk is identified as uncooperative, competitive discourse among students. This type of discussion is full of disrespectful exchanges; students can be found arguing, refusing to listen to the ideas of others, and making decisions based solely on their own thoughts. While conflict or disagreement can promote conversational depth, *disputational talk* emulates a type of discourse that is counterproductive and combative.

Cumulative talk is characterized by cooperative dialogue between students where they intend to build upon each other's ideas, yet the conversation does not progressively analyze the focal topic. During *cumulative talk* students fail to critique or derive reason out of the connections between their own thoughts and the thoughts of their peers—they amicably, yet uncritically, share and compound information (Mercer et al., 1999). The polite, turn-taking nature of *cumulative talk* may be misinterpreted as quality classroom discourse.

Exploratory talk is that in which partners engage critically but constructively with each other's ideas. Statements and suggestions are sought and offered for joint consideration. These

may be challenged and counter-challenged, but challenges are justified and alternate hypotheses are offered. In exploratory talk, knowledge is made publicly accountable and reasoning is visible in the talk. *Exploratory talk* can be either heated or calm in tone, yet its participants remain respectful to their peers and share the common goal of dilemma resolution.

Education researchers Michaels et al. (2008) introduced a parallel, yet expanded approach to the *exploratory* type of talk, which they call *Accountable Talk*. Their emphasis on the ‘social formation of mind,’ that is, the importance of social interaction in the development of individual mental processes” (Michaels et al., 2008, p. 285) provides a view of classroom discussion as an instructional method that blends theories of sociolinguistics and psychology to support the notion that dialogue promotes student learning (Vygotsky, 1981; Michaels et al., 2008). *Accountable Talk* holds students responsible for the integration of their own reasoning and knowledge with that of their peers. “Through talk, students are encouraged to draw on their home-based genres of argument and explication, while practicing and honing new representational and discursive tools” (Michaels et al., 2008, p. 286). Discursive tools are techniques that teachers can model and teach in order to encourage students to express their ideas in ways that are new or different from the standard way they are accustomed to communicating with others. Teachers may scaffold or sequence the introduction of discursive tools in order to help students learn the value of explaining ideas, exploring concepts from multiple perspectives, justifying dialogic stances, and validating newly introduced evidence. *Accountable Talk* “promotes equity and access to rigorous academic learning” and can benefit students from a variety of sociocultural backgrounds (Michaels et al., 2008, p. 283).

While similar in theory, there are differences between *exploratory talk* and *Accountable Talk*. *Exploratory talk* aims to place students on an "even playing field." Students are interested

in understanding the claims of others, but ultimately weigh that input as equal in value to their own ideas. This creates a negotiation effect, and encourages students to explore discourse processes, such as compromise, in order to find a solution. *Accountable Talk* expects students to move to an arena where the perspectives and opinions of others are considered in conjunction with individual ideas and feelings. Rather than simple reciprocity and compromise, *Accountable Talk* places importance upon both respectful argumentation and understanding others through shared analysis of experience, where in the classroom the experience is the knowledge to be understood.

Michaels et al. (2008) identified three facets of *Accountable Talk*: *accountability to the learning community*, *accountability to standards of reasoning*, and *accountability to knowledge*. The first accountability category, *learning community*, identifies talk where students actively listen to each other's ideas, ask clarifying questions for the purpose of better understanding, and contribute ideas that build upon their classmates' comments. The second category, *standards of reasoning*, requires that students both provide and request logical examples to support any stated opinions or ideas. The third category, *knowledge*, is defined as talk that offers facts that can be confirmed or refuted by all participants in the conversation. In order to promote learning and comprehension through a socially oriented literacy curriculum *and* qualify as *Accountable Talk*, an academic discussion ideally includes all three facets. Analytically, the categories are easy to separate, yet in practice they are intertwined and complexly related. According to Michaels et al. (2008), it is difficult to distinguish between the facets of accountability and is "rarely possible to examine a transcript and code utterances as belonging to one facet or another" (p. 293).

B. Micro-Analytic Approaches

More nuanced than the macro-level, we identify the micro-level of discourse analysis as focused on specific talk moves and turns taken by both the students and the teachers, and how each of those turns may affect discussion as it unfolds. Some discussion-oriented theorists refer to the quality of academic discussions with less focus on the formulation of extended conversation, and rather with emphasis on the evaluation of particular dialogic exchanges through the use of detailed coding frameworks (Nystrand et al., 2003; Rueda, Goldenberg, & Gallimore, 1992; Sinclair & Coulthard, 1975; Wells & Arauz, 2006). Discourse analyses within these frameworks operate under a similar philosophy; there are varying degrees of conversational effectiveness, and quality conversation results in heightened learning for all students. These theorists also agree that the teacher's role is facilitator and that meaningful academic discussions are primarily directed by the student participants. Furthermore, the literature suggests that discussions capable of promoting deep comprehension are usually presented by the teacher in the form of a complicated dilemma or question that does not possess a single obvious answer (Goldenberg, 1991; Johannessen, 2003; Michaels et al., 2008), yet the discussions have continuity, coherence, and are predominantly carried along by the students (Barton, 2005). "Discussion with these characteristics becomes a process that promotes understanding and improved perspectives on issues" (Larson, 2000, p. 663).

Challenges to the Analysis of Classroom Discussions

While there is an abundance of literature on the importance of differentiated aspects of classroom discourse and what constitutes quality discussion, there remains a need for an integration of theories that achieve a consensus on how to identify and evaluate meaningful academic discussion. Without an integrative framework, a common definition of quality discourse, and an analytical rubric, the analysis of discussion heavily relies on implicit

understandings, general and unspecified constructs, and subjective interpretations by observers, practitioners, and researchers. Even as our team utilized existing models of discourse analysis to code and interpret our data, a lack of an agreed upon concept of progress toward quality academic discussion was problematic to our analysis. In light of this experience, we 1) consider the limitations and strengths of existing frameworks in assessing observed discourse, and 2) contemplate ways in which a common developmental continuum-based model may achieve that integration.

PURPOSE OF THE STUDY:

Our team was initially drawn to the topic of classroom discourse through the study of a discussion-oriented language arts curriculum that focused on social relations. The primary purpose was to document the presence and quality of discussion-based instruction within the classrooms and to observe these discussions as they took place over a three-month period within the context of the newly introduced curriculum's implementation. As our work progressed, we found indications of a disconnection between teacher and theoretical descriptions of discourse quality; as such, we adopted a secondary purpose aimed at understanding what constitutes a high-quality discussion and the development of an integrated assessment framework designed to meet the combined needs of practitioners and theorists within the field of academic dialogue.

AN EXPLORATORY PROJECT TO ASSESS DISCUSSION DEVELOPMENT OVER TIME:

The Curriculum & Partnering School

The curriculum highlighted in this paper featured developmentally appropriate read-aloud texts for students in Kindergarten through grade six. These books were intended to foster discussion about self and society amongst students and teachers. Texts were chosen to provide

opportunities for student reading, writing, and oral language development across the scope of six social development themes (Self Understanding; Understanding of Others; Conflict Resolution; Family, Friends and Community Relationships; Societal Awareness; and Social Justice & Civic Awareness). Our partner school, a Title I elementary school in a low-income rural town of New England, adopted the curriculum over the summer in hopes of increasing students' standardized reading scores while preventatively combating teasing, violence, and bullying problems. With a population of approximately 360 students, the class sizes ranged from 13- 22 pupils. 98% of the students were English speaking Caucasians. All grades in the K-6 school adopted the new curriculum, yet we elected to focus our research on grades three through six.

METHODS:

Gathering Information—The Partnership with Teachers:

Phase 1--November through December 2009: We began observing the implementation of the curriculum and visited during the times when read-alouds and classroom discussions were in progress. We noted how teachers implemented the curriculum, identified challenges teachers faced in facilitating classroom discussions, and considered policy and practical suggestions for hosting stronger discussions. By December, seven teachers had volunteered to form with us researcher-practitioner partnerships that allowed both parties to reflect, analyze, and consider curricular read aloud implementation and classroom discussions. Each member of our research team partnered with 1-2 teachers for a period of three months. While participation was voluntary, each teacher was compensated with a small monetary stipend and course credits from a local higher education institution.

Phase 2—February through May 2010: Our research team collaborated with the teachers to devise data collection methods through *teacher-researcher interactions*; three of

which are reported here in detail. These teacher-researcher interactions allowed us to gain insight into not only the instructional strategies employed by the teachers, but also the thoughts and motivations behind their pedagogical choices. The diverse media of communication also helped us maximize data collection, provided participating teachers with an outlet to voice their reflections, and enabled researchers to study conditions under which classroom discussions normally occurred and where discussions might be most fruitful. The type and frequency of our teacher-researcher interactions are outlined below:

Teacher-Partner Communication Method 1: Classroom Observations of Social Themed Read Alouds

Frequency: Each researcher observed their respective partner teacher's classroom on three occasions, over the span of three months. Each observation was 20-60 minutes in length.

Researchers used a combination of digital recordings and written notes to take records during both the classroom book read-alouds (10-40 minutes) and ensuing academic discussions (10-30 minutes). On some occasions, when the read-aloud text was either particularly long or contained foreign terminology difficult to pronounce, some teachers opted to use a compact disc player to broadcast a recording of the book. During Observation 1 in February, we took extensive observational notes, but did not audio-record conversations. At Observation 2 in March and Observation 3 in April, we audio-recorded the classroom conversations and later transcribed these observations.

Teacher-Researcher Partner Communication Method 2: Post Observation Teacher-Researcher Conversations

Frequency: Each researcher met with teachers to review classroom observation findings on three occasions. These meetings occurred on the same day as the Classroom Observations. Each conversation lasted 30-45 minutes.

These conversations provided opportunities to enhance our understanding of classroom observations, teachers' pedagogical motives, and teachers' perceptions of student engagement. They also allowed teachers to reflect on perceived challenges in facilitating classroom conversations, and allowed us to ask questions and offer suggestions to the teachers. During Post Observation Conversation 1, our team took extensive observational notes, but did not audio-record conversations. At Post Observation Conversations 2 and 3, we recorded the classroom conversations and later transcribed the conversations.

Teacher-Researcher Partner Communication Method 3: Weekly Email Prompts

Frequency: Each researcher emailed teacher-partners prompts to respond to weekly over the course of three months.

Once per week for eight weeks, we posed one common reflective question to all of our teacher-partners, which allowed teachers to consider their personal pedagogical style, challenges in leading discussions, student voice, and other relevant discussion topics. The use of email allowed flexibility in response time and the digital preservation of the teachers' thoughts and reflections. Emailing also helped us develop a consistent and regular rapport and way to share data with the teachers, despite geographic barriers.

Our research team collaborated weekly to write, edit, and approve the following week's prompt, which was distributed to all teachers in all grade levels. Upon receipt of teachers' written responses, we notified each teacher that her submission had been received, followed up on any questions or comments, and provided constructive feedback. (See Appendix A.)

Analytic Method:

Our literature review on existing models of classroom discourse analysis revealed suggestions for facilitating fruitful academic discussions (Barton, 1995; Johannessen, 2003; Larson, 2000; Mercer et al., 1999; Michaels et al., 2008; Westgate & Hughes, 1997), yet there was a significant gap in the literature pertaining to how practicing teachers could verify the quality of their own students' discussions.

Our data from teacher interviews, teacher responses to email prompts, and teacher study sessions indicated that some teachers felt that their discussion facilitation skills improved throughout the course of our research project. In March, after two months of participating in the research project, a fourth grade teacher reflected, "I don't know if it is just with practice, but the discussions have been getting so much longer and we don't do as much reading—it's really good. And I feel like it is all sort of clicking." Another fourth grade teacher echoed those same thoughts by stating, "I don't know if all of a sudden it's clicked and I'm feeling more connected, but already [the students'] discussions are richer and deeper than they were. They are getting much better with it. Whereas before, I'd be sitting there and you'd be picking and picking and trying to get the kids to make connections."

To analyze the quality and development of these academic discussions, we coded the teacher-interview transcripts based on four categories of quality talk that emerged from the literature: *perspective taking* (Selman, 2003; Wells & Arauz, 2006; Larsen, 2000), *knowledge* (Chinn & Anderson, 1998; Larsen, 2000; Michaels et al., 2008; Fisher, 1996; Mercer et al., 1999; Rueda, Goldenberg, & Gallimore, 1992), *reason* (Habermas, 1985; Michaels et al., 2008; O'Connor & Michaels, 2007; Fisher, 1996; Mercer et al., 1999), and *attitude* (Mercer et al., 1999; Goldenberg, 1991; Fisher, 1996; Rueda et al., 1992; Nystrand et al., 2003). *Perspective*

taking was identified as any instance where a student acknowledged, articulated, or interpreted another student's point of view or exhibited a willingness to alter one's own point of view.

Knowledge was identified as any instance where a student pointed to evidence from a text or previously acquired information as support for a claim. *Reason* was identified as any instance where a student used logic, argumentation, or justification to support a claim. *Attitude* was identified as any instance where a student exhibited strong positive or negative feelings towards the activity or other students.

Each interview transcript and email reflection was coded based upon when the teacher discussed or mentioned perceiving an improvement in any of these four categories. In all cases, we used consensus coding to establish a profile of each teacher's assessment of the discussion. When comparing our interview transcripts and email reflections on each session over the sequence of classroom read-aloud discussions, we noted whether teachers reported an increase or improvement in instances of student perspective taking, knowledge, reason, and attitude. We then coded each observation transcript of academic discussion using the same four categories. This process helped us to identify discrepancies between our coding scheme's analysis and the teachers' perceptions of those discussions; while the teacher interviews and emails indicated significant perceived improvement over time, transcripts of classroom discussions indicated little improvement in academic discourse quality. This divide pushed us to recognize a need for increased sharing of resources and findings between researchers and practitioners, and inspired us to develop research-based assessment tools that would more accurately identify variations in the quality of academic discussions and monitor improvement of students' discourse skills over time. Given the discrepancy between teachers' reports of perceived improvements in classroom discussion and our informal analysis, we decided to shift our method of analysis to existing

discourse assessment tools that could systematically identify actual improvements in the discussions.

Analytic Frameworks Applied to Our Data

While their terminology may vary, discourse researchers tend to agree on indicators of meaningful classroom discussion (Larson, 2000; Mercer et al., 1999; Westgate & Hughes, 1997). To gain a better perspective on the quality of discourse exhibited in our data, we selected three classroom analytic frameworks—Mercer, Wegerif, & Dawes' *Key Linguistic Features of Exploratory Talk* (1999), Sinclair and Coulthard's *Discourse Analysis Model* (1975), and Wells' *Coding Scheme for the Analysis of Classroom Discourse* (2006)—to apply to a sample of our data. In the *Assessing our Data Using Microanalytic Frameworks* section of this paper, we review how the features of these frameworks include both *conversational skills* and *linguistic features* that overlap, yet vary in complexity.

Frequently referenced within the realm of classroom discourse analysis, Wells' *Coding Scheme for the Analysis of Classroom Discourse* (2006) was included because of its distinction between monologic and dialogic stances among students; we were interested in better understanding how to identify the presence of dialogic spells within an academic discussion. Wells joins Michaels et al. (2008) in their position that students' development of knowledge is optimized and effectively co-constructed through engagement in discourse with peers. Wells (2007) explains that his work is inspired by the works of Vygotsky and Bakhtin to emphasize the “importance of encouraging dialogue in all educational settings in order to enable learners of all ages to construct knowledge together, and thereby to enhance their individual understanding of the world and their potential for action in it” (p. 244). The purpose of Wells' (2006, 2007) framework is to allow theorists and practitioners not necessarily to evaluate discussion quality,

but to reflect upon the many elements or ‘episodes’ that are combined to produce an academic discussion.

Our inclusion of Sinclair and Coulthard’s discourse analysis framework was prompted by our research into the Initiation-Response-Follow-Up/ Evaluation (IRF/E) patterns often adopted by teachers. Sinclair and Coulthard (1975) developed their speech-act theory to examine specific moves enacted by the teacher and students within classroom discussions. Their theory was prompted by research that indicates classroom dialogue tends to follow a specific chain of action. These chains follow an IRF structure (Sinclair & Coulthard, 1975). A prototypical example would include an exchange where the teacher first *initiates* a question or the introduction of information, then waits for a student to *respond* to the initiation, and finally the teacher concludes the exchange with some type of *follow-up* question or *evaluation* of the student’s response. As our team was interested in learning more about the chain of dialogue between students and the teacher, and how these exchanges may affect the flow of academic discussion, we elected to apply Sinclair and Coulthard’s (1975) model to our own classroom transcripts.

Finally, we adopted Mercer, Wegerif, and Dawes’ (1999) focus on key linguistic features of exploratory talk because the coding scheme was straightforward and accessible. Their concept of key phrases (*because, agree, I think*) and length of utterances to analyze classroom talk proved to be practical units of measure by which we could analyze our own data. In line with Vygotsky, Mercer et al. (1999) view language as an avenue for cognition and see classroom discussion as an opportunity to enable students to communicate emerging information and meanings to themselves and their peers. They explain that one of their goals is “to help improve classroom education as a process for developing children’s communication and reasoning skills.” (Mercer et al., 1999, p. 97). This focus led to Mercer (2000) to explore children’s *inter-thinking*

abilities defined as the process in which children engage in dialogic inquiry to co-construct meanings and information (Vygotsky, 1981).

RESULTS OF ANALYSES

We divide the *Results of Analyses* section of this paper into two parts. In Part 1, we analyze excerpts of student discussion transcripts, using both those macroanalytic and microanalytic discourse frameworks previously reviewed. (Detailed information pertaining to the specific context of each of these classroom discussions, in the form of an unpublished manuscript [Snow, Ross, Elizabeth, & Selman, 2010], is available by request.) Our Macroanalytic approach identifies broad categories of student discussion, including disputational, cumulative, and exploratory talk. In the Microanalytic section, we code a single discussion excerpt sample using three independent microanalytic frameworks. We evaluate our sample data using all three frameworks, discuss limitations to our analysis, and begin to synthesize potential framework qualities.

In Part 2, we propose an *Academic Discussion Matrix* that utilizes a continuum-progression model to fuse qualities of existing discourse-analysis models in the literature with researchers' descriptions of quality facets of classroom talk into a single assessment tool. The matrix is meant to be the foundation of future practical tools that guide practitioners and researchers to a consensus of what constitutes quality discussion, as well as increase their capacity to evaluate those discussions holistically.

PART 1—Assessing Student Discussions Using Existing Macro- and Micro-Analytic Frameworks

A. Classroom Observation Findings: Assessing our Data using Macroanalytical Frameworks

In accordance with recent evidence (Mercer et al., 1999), we were able to locate very few examples of *exploratory talk* in the classroom conversations that we observed; the majority of our coding revealed examples of *cumulative and disputational talk* occurring in classrooms. Sequence 1 exemplifies the type of *disputational talk* we observed. In this example, the teacher has asked her students to debate whether boys and girls should be allowed to play sports together, as she records their thoughts on a chart. This conversation was inspired by the biography *A Strong Right Arm: A Story of Mamie “Peanut” Johnson* (Green, 2002), in which the lead character is an African American female who defies the odds to become a professional baseball pitcher.

Sequence 1: Fourth Grade- Class 2, Observation 2—March 2010
Example of Disputational Talk

58- T: What are some reasons that boys and girls should not play baseball together?

59- S1: They could start fighting.

60- T: Will boys fight with boys?

61- S: YES [many students say yes at same time]

62- S1: The girl could get hurt.

63- T: Could a boy get hurt?

[Many students reply at one time, interrupting each other.]

64- S2: [Speaking over each other] Not like that.

65- S3: [Speaking over each other] No.

66- S4: [Speaking over each other] Jeffrey got a black eye playing baseball

67- S5: [Speaking over each other] I got hit in the head by [inaudible]

68- S4: [Speaking over each other] I was hit in the head by a baseball bat not a baseball.

69- S6: [Speaking over each other] Well... [pause]

70- S7: The girls, the girls... [pause] Sometimes parents are more protective of girls than boys, so boys could get in some serious trouble because if they pitched too hard and they hit them in the eye.

71- S9: I think...

72- T: So, maybe I'll put boys play too rough. Is that what you're saying?

73- S9: Yeah

[Many students reply at one time, interrupting each other.]

74- T: And parents are... [pause] How do I say this?

75- S10: Protective

76- T: More protective of girls. What's another reason that girls should be?

77- S11: Not fair.

78- T: Why is it not fair for boys and girls to play together?

79- S11: Because they...I don't know.

80- T: Go ahead. You can say it.

[Inaudible]

81- S12: The boys might pick on the girls.

82- S13: [Student whispers] Girls could pick on the boys.

83- S14: [Another student—interrupting] Girls could pick on the boys.

84- S15: [Another student—interrupting] Girls could pick on boys.

[Inaudible—Many students reply at one time, interrupting each other.]

85- T: Shhhhhhhh

86- S16: Girls could say, “We're better than you, we're better than you” [teasing voice]

87- S17: Oh, you're weird.

[Inaudible—Many students reply at one time, interrupting each other.]

88- T: Can I put down that girls tease boys?

89- S18: Some girls have bad aim.

In Sequence 1, the students are asked to participate in a discussion of gender roles in sports, yet they quickly slip into a pattern of interruptions, ad hominem arguments common to this age range, and topic neglect. This excerpt exemplifies *disputational talk*; chaotic bickering and competitive utterances overshadow the core concept introduced by the teacher. The notions of fighting and injuries transition into an opportunity for students to speak over one another.

Value is placed on the exclusive presentation of one's own ideas or personal stories, with little to no evidence of any effort to listen to or respond to peers' points of view. Peer disrespect escalates into a tone of antagonism as the girls taunt the boys and one student calls another "weird."

Samples of *cumulative talk* were the most common in our observations. Sequence 2, below, exemplifies the type of *cumulative talk* observed in a third grade classroom. The teacher challenges students to consider *Uncle Jed's Barbershop* (Mitchell, 1995), a book set in a time of segregation, where the only black barber in town faced many challenges while trying to open his own barbershop.

Sequence 2: Third Grade- Class 6, Observation 2—March 2010

Example of Cumulative Talk

37-T: How might you feel if you worked that hard to save all that money and then it was gone?

38-S1: I would be really mad.

39-S2: I would be really sad.

40-T: You'd be really sad. Caleb (S3)?

41-S3: I would be angry.

42-T: You would be angry. Or disappointed. Joe (S4), what did you say?

43-S4: I would be sad.

44-T: You would be sad?

45-S5: I'd be really mad.

46-T: You'd be mad.

47-S4: I'd probably be... I don't know...[pause] I'd be getting it back.

48-T: You would?

49-S4: Yeah, I'd be trying random...[pause] just grab it out of somebody's hands.

This transcript demonstrates attempts by students to agree in a discussion, but without an expressed evaluation of each other's comments with the critical process necessary to evoke new ideas or learning. While the students may appear to engage with each other, they simply wait for their turn to offer their own opinions, rather than pausing first to reflect on the input of their peers. Students do not offer justifications or evidence from the text in support of their responses.

Sequence 3: Third Grade- Class 6, Observation 2—March 2010

While we rarely found *exploratory talk* in classroom discussions, an example of *exploratory talk* is illustrated below. We observed this exchange in the continuation of the conversation based upon *Uncle Jed's Barbershop* (Mitchell, 1995). In this part of the discussion, the teacher prompted her students to consider ethical dilemmas associated with segregated barbershops.

Example of Exploratory Talk

91-S6: I think white people should cut white people's and black people should cut black people's hair.

92-T: You think so? Do you think they were right to have the separate barbers?

93-S4: No.

94-S6: Yes.

95-T: So why do you think they should have?

96-S6: Because the whites were being really mean to the black people. And I think they should be treated fairly, the same way.

97-T: Okay. So, Megan (S6) thinks that it's a good thing—because the white people were being mean to the black people—that way the black people didn't have to be around people who were being mean to them. Is that what you're saying? So you

think it's (segregation) is a good thing? Does anyone agree with Megan (S6), that that was the way to solve the problem?

98-S7: No.

99-T: Do you think there was a different way to solve the problem? With the people being mean? How could they have solved the problem?

100-S4: I disagree with Megan (S6).

101-T: You do? Tell us why, Joe (S4).

102-S4: I think it would be better if there weren't separate barbers. Because there's one black barber and the rest are all white barbers. It's not fair; the colored can't get as many haircuts, but the white can.

This excerpt demonstrates students who are actively involved in the discussion. The teacher created a safe environment in which her students felt comfortable offering differing opinions, providing reasons for those opinions, and politely building upon the responses of their classmates in a nonjudgmental way.

In line with past researchers' findings that very high quality classroom dialogue rarely occurs (Nystrand & Gamoran, 1991; Nystrand et al., 2003; Applebee et al., 2003), we found no instances of *Accountable Talk* in our data set. The majority of student discussions predominantly featured students politely responding to teacher-directed questions without considering or acknowledging the thoughts, comments, or ideas of their peers. O'Connor and Michaels (2007) suggest that this type of dialogue lacks *accountability to knowledge* and *reasoning*, "If accountability to the community is in place without the other two, discussions will be polite but empty of content" (p. 292). Teachers commonly asked students to consider meaningful topics, yet the succeeding exchanges most often occurred between the teacher and her students; teachers and students rarely created learning environments where students engaged in direct dialogue with each other.

The macro-analysis of our observations allowed us to categorize and quantify types of talk, yet these categories did not reveal any new information beyond what we had informally observed. This method of analysis identified the preponderance across all observed sessions of *cumulative talk*, but did not seem to capture the teachers' impression that students were becoming more capable of sustained and focused conversation. This suggested to us that we needed to consider other forms of discourse analysis that would focus on understanding how teachers interacted directly with students.

We recognized that the types of talk introduced by Mercer et al. (1999) provide researchers with a tool to monitor the varying quality of talk that takes place within a classroom. The model hints to the notion that elements of academic discourse fall upon a continuum (disputational → exploratory), yet the model is not structured in a format that can be practically adopted by classroom teachers. Moreover, while the framework does pay attention to how students interact with each other (i.e. displays of collaboration and interactive reasoning), it is less focused on how students interact with the underlying facets of the subject matter (*accuracy of knowledge, comprehension of the content, and empathy for varying perspectives*). Nonetheless, our team was inspired by the Mercer et al. (1999) types-of-talk framework, and viewed it as a nascent discourse model that parallels other existing frameworks.

B. Classroom Observation Analysis: Assessing our Data Using Microanalytic Frameworks

Many different microanalytic coding frameworks for evaluating classroom discourse operate under a similar premise with both parallel and independent analytical factors. Most frameworks agree that typical classroom dialogue follows a teacher-directed Initiation-Response-Follow up/ Evaluate (IRF/E) pattern, where the teacher makes strategic moves to elicit student input, the student offers a reply, then the teacher concludes the exchange by acknowledging the

student's contribution (Cazden, 2001; Mercer et al., 1999; Nystrand and Gamoran, 1991; Nystrand et al, 2003; Rueda, Goldenberg, and Gallimore, 1992; Sinclair and Coulthard, 1975, 1992; Wells and Arauz, 2006; Wells, 2007; Westgate & Hughes, 1997). In their review of classroom dialogue, O'Connor and Michaels (2007) noted "it is easy to find examples of 'dialogue,' where a teacher asks a question, a student responds, and the teacher follows up, that are nevertheless inherently monologic in terms of the teacher's stance" (p. 277).

In our classroom discourse transcripts, an IRF/E conversational pattern appeared to be most common. We used several microanalytic methods to see how prevalent 'monologic discourse' was in our partner teachers' classrooms. The distinction between 'monologic' and 'dialogic' (Bakhtin, 1981) furthers the social notion of discourse by suggesting that those who communicate in a monologic stance through authoritative discourse are typically *closed* to counter positions, while those engaged a dialogic stance through internally persuasive discourse are *open* to counter positions. Extended by Gordon Wells (2007), 'monologic' dialogue typifies a conversation in which the primary speaker "assumes no expectation of a rejoinder; all that is required is comprehension and acceptance" (p. 256). Although, Wells (2007) describes a 'dialogic' stance as one that assumes its participants are equal contributors of ideas and that "different positions are taken into account in the attempt to determine what is the case or what course of action should be followed" (p. 256).

To learn more about the teachers' facilitation strategies, the quality of their classroom discussions, as well as to become more familiar with intrinsic dynamics that comprise current academic coding schemes, we elected to independently code select passages from our transcripts. In choosing passages to code, we selected conversations in which we perceived higher quality discussion, in the form of more dialogic or exploratory discourse, had occurred. Each passage

was coded using three existing frameworks intended to analyze classroom discourse in varying capacities. This process allowed us to evaluate our discussion data, while comparing various coding schemes used in previous research. To illustrate, we have coded the following transcript excerpt based upon three coding frameworks in the field of instructional dialogue: Mercer, Wegerif, and Dawes' (1999) *Key Linguistic Features of Exploratory Talk*, Sinclair and Coulthard's (1975) *Discourse Analysis Model*, and Wells' (2006) *Coding Scheme for the Analysis of Classroom Discourse*.

Sequence 4: Fourth Grade- Class 3, Observation 3—April 2010

Example to be Coded Using Multiple Coding Schemes

This excerpt was taken from a fourth grade conversation following the chapter book read-aloud *Moon Runner* (Marsden, 2005). After discussing conflict between characters in the book and having the class brainstorm resolutions to that conflict, the teacher asked her students to gather in a circle on the classroom's reading rug to share strategies for responding to personal conflict in their own lives. She told them she wanted them to feel comfortable sharing their feelings and experiences with each other in a group.

48-T: Good job, guys. What happens when you yell?

49-S1: It gets worse.

50-T: Why Peter (S1)?

51-S1: If you yell at them, they might not want to be friends anymore after that.

52-T: Right. If you're yelling at someone, they might think, "Why should I be friends with them if they are going to yell at me like that?"

53-S2: Plus, screaming is not good for your health.

54-T: Right, your blood pressure goes up, your face gets red.

55-S3: And you can't think clearly.

56-T: Right, there have been many times in my life when I've made the mistake and shouted at friends or family members. And after, when you finally calm down, you say, "Sheesh." All I had to do was take a breath and talk after. Anybody else want to share? We have about five minutes.

57-S4: When somebody makes you mad, try not to lose your friend.

58-T: What do you mean by try not to lose your friend?

59-S4: Try to put a joke into it.

60-T: Great. Is losing a friend a big part of what you guys are scared about?

Analysis 1: Investigating Quantity of Key Linguistic Features in Discourse

The first framework is based upon the observation of key linguistic features. In describing their framework, Mercer and colleagues (1999), explain that exploratory talk is commonly associated with "specific forms of language: the hypothetical nature of claims is often indicated by a preceding 'I think,' reasons are linked to claims by the use of 'because' and agreement is sought through the question 'do you agree'" (Mercer et al., 1999, p. 104). For our own research, we extended the framework to include similar phrases such as 'I thought,' 'I was thinking,' 'disagree,' etc. Additionally, according to Mercer and colleagues, longer utterances seemed a particularly effective indicator of exploratory talk. 'Long' is defined by being at least 100 characters in length when transcribed.

When coding using this framework, we found no evidence of linguistic features exemplifying long turns at talk present in our transcript excerpt. Our results were the same when we looked for instances of words that suggest evidence-based logic in discussions, like 'because,' 'agree,' and 'I think.' As indicated by these coding results, despite the seemingly interactive dialogue exchanged among multiple students and the teacher in Sequence 4, our

excerpt exhibits none of these key linguistic features cited by Mercer et al. (1999) as signs of successful academic discussions.

We also considered the specific characteristics of quality talk that Mercer and colleagues' (1999) framework aimed to capture, and found that this model focuses predominantly on student demonstrations of *reason* and *attitude*. While the framework does seek to identify these components of student talk, it does not capture the varying depth with which reasoning and collaboration occur. Further, a "long" utterance may be characteristic of exploratory talk, yet this code does not explicitly illustrate which, if any, facet of quality talk the student has presented. Mercer and colleagues' (1999) analysis does not include assessments of student presentations of prior or newly acquired knowledge, respect for their peers or the activity, and deep comprehension of the subject matter—all of which are valued discourse skills highlighted in the literature.

Analysis 2: Investigating Teacher-Student Interaction Initiation and Responses

Next, we analyzed Sequence 4 using Sinclair and Coulthard's (1975) Discourse Analysis model for analyzing spoken language. This model, since its original creation in 1975, has been adapted and modified for evaluating classroom discourse in both traditional and ESL classrooms (Atkins, 2001 & White, 2003). Following an IRF/E pattern, it is based upon the identification of four specific interactions initiated by the teacher that serve the purpose of either eliciting responses from students, providing the students with information, or directing the student toward a concept or focus. When combined, the moves are seen as interactions that constitute instructional discourse.

Insert Table 1 Here

Sinclair and Coulthard's model, as elucidated in the table above, presents the teacher's IRF/E pattern and highlights her position as the primary source of information. The teacher is the clear authority; her role is to invite student contributions, place value upon her pupils' input, and then confirm facts. The IRF/E exchanges above are actually quite monologic in format and do not necessarily represent ideal student engagement. While the teacher's opening moves indicate the intent to engage students in meaningful discourse, her follow up moves stifle the development of an actual discussion. Instructional discourse analysts agree that teacher facilitation strategies play a critical role in the productive unfolding of student-oriented classroom dialogue (Barton, 1995; Gamoran & Nystrand, 1991; Goldenberg, 1991; Michaels et al., 2008; Nystrand & Gamoran, 1991; O'Connor, 2001; O'Connor & Michaels, 2007; Sinclair & Coulthard, 1975; Wells & Arauz, 2006). In our transcripts, the teacher established herself as the director, rather than the facilitator of talk—this dynamic may cause students to refrain from building upon and interacting with each other's comments.

Our team took into consideration that Sinclair and Coulthard's Discourse Analysis model evaluates conversation based on a consecutive string of utterances, and does not necessarily take into account how those utterances contribute to the entire conversation. The framework is designed to analyze the nuances of dialogic exchanges, and its focus is placed mainly on interactions between the teacher and the student. This focus allows the analyst to examine teacher-student communicative patterns, but does not explore in depth displays of student perspective taking, acquired knowledge, respect for peers or the activity, deep comprehension of the content, or pathways of reasoning and logic.

Analysis 3: Investigating How Teacher Response Patterns Effect Discourse

The third framework we used to analyze student discourse was developed by Wells (2007) with the intent to consider how teachers' follow-up moves affect the conversation's instructional depth. Similar to Sinclair and Coulthard (1975), Wells (2006, 2007) takes a nuanced approach to discussion analysis; rather than analyze student behavior or competencies as reflected in the Accountable Talk model, he focuses on the chain of dialogic interaction between students and the teacher. Nonetheless, Wells joins Michaels et al. in their position that students' development of knowledge is optimized and effectively co-constructed through engagement in discourse with peers. Considering the frequency with which we observed IRF/E patterns in our partner teachers' classrooms, our team examined whether Wells' coding scheme would reveal a covert layer of depth in our observed classroom conversations. Once again, Sequence 4:

Insert Table 2 Here

Despite the teacher's use of follow-up questions and examples of personal experience, and while the conversation remains on topic and the teacher's specific structuring of questions was intended to encourage students to build upon previous comments, this third framework further revealed that our transcript follows a constant IRF/E pattern. The teacher makes several attempts to engage her students in reflective dialogue, yet she is still the conversation's dominant engineer. In our transcript, student utterances assigned to Wells' *Student Link—Adding* code indicate moments in the conversation where students are introducing the possibility of an alternate point of view. Wells views these student moves as moments when the student "adds to a previous contribution with an example, anecdote, etc" (Wells, personal communication, July 28, 2010, p. 15). In our transcripts, these attempts to build upon multiple perspectives are consistently intercepted by the teacher, rather than fielded by other students. Meaningful

academic discussion, according to each of the theoretical frameworks, places students in dialogue with one another—in Sequence 4, the students add to the teacher’s ideas, but do not interact with each other. Rather than directly respond to their peers’ input, the students take turns contributing information that is first evaluated by the teacher.

We found Wells’ framework (2006) to be highly focused on the relationship between teacher and student moves, as opposed to the actual quality of participants’ contributions to the discussion. Specifically, this framework aims to identify teacher follow-up moves that may contribute to the promotion of student knowledge (Wells, personal communication, July 28, 2010, p. 8). This framework does not serve to explore students’ development of perspective taking, respect for others, deep comprehension, or reasoning, which further led our team to ponder how a theoretically-comprehensive, student-move oriented framework would assist practitioners and researchers in analyzing the quality of classroom conversations.

Consideration and Comparison of the Three Microanalytic Frameworks

All three of the microanalytic discourse analysis frameworks indicated that our excerpt lacked the student participation indicative of quality academic discussion. Our coding revealed a consistent pattern of teacher initiation, student response, and evaluative follow up. According to the frameworks utilized, this monologic scheme diminishes the opportunity for self-appointed student participation necessary for conversational depth among learners. While the Sinclair and Coulthard (1975) and Wells (2006) models helped us to better appreciate the importance of teachers’ initiation and follow-up moves, the Mercer, Wegerif, and Dawes (1999) model introduced the noteworthy component of key student linguistic features.

Our team found it particularly interesting that the microanalytic discourse analysis models did not take into account students’ social behavior or ability to integrate multiple points

of view. We hypothesized that an analytic framework structured to evaluate linguistic, cognitive, and social patterns present in an academic discussion would be useful for researchers and practitioners. Our team also noted the dichotomous tendency of existing frameworks and considered that a continuum-based model, with reliable and specific markers between absent or present student competencies, might be useful to both researchers and practitioners as they seek to promote academic discussions.

PART 2—Theoretical and Methodological Implications of a Discourse Matrix

Influenced by the process of applying preexisting models to our data in combination with the commonalities of effective talk identified by our literature review, we formulated an alternate framework intended to serve as a foundation of future practical tools that guide practitioners and researchers to a consensus of what constitutes quality discussion, as well as increases capacity to evaluate academic discourse. We also viewed the results of our analyses as a backbone for the development of an instrument that could serve as a basis for the identification of the oscillating quality within classroom talk. Upon synthesis of our findings, our team concluded that discussion components essential to quality must not only be included in meaningful academic discussion, but must also be used effectively. In other words, it is not enough for key components merely to be present; what matters is the extent to which these components are present and how participants utilize them.

We also considered that limitations in evidence of improved discussions lay not only in the classroom conversations, but also in the methods of the discourse frameworks themselves. As noted, the models we reviewed tended to be dichotomous (classroom discussion elements are either there or not there) rather than continuous or progressive (discussion elements are emerging, consolidating, overlapping, etc.). This suggests the need for both micro- and macro-

developmental progression or trajectory frameworks in analyzing both the dialogue between teacher and students and among students themselves. For instance, how might *cumulative talk* emerge from *disputational talk*, or how dependent are progressive levels of conversational quality upon each individual student's age, maturity, etc?

A PROPOSAL FOR AN ACADEMIC DISCUSSION ASSESSMENT MATRIX

One possible way to construct a developmentally progressive framework that aims to capture a trajectory toward optimal facets of academic discussion is to create a matrix exemplifying overlapping characteristics of quality discourse as presented by current frameworks and theorists (Anderson & Pearson, 1984; Applebee et al., 2003; Common Core State Standards Initiative, Kuhn & Crowell, 2010; 2010; Fisher, 1996; Mercer et al., 1999; Michaels et al., 2008; O'Connor, 2011; Soter et al., 2008; Snow et al., 2009; Wells, 2007), with the addition of a *perspective taking* component (Selman, 2003) that identifies students' ability to articulate, acknowledge, and interpret conflicting cultural, social, and individual viewpoints. This model could serve to denote how the variances of discourse fit into each cell in a rubric comprising four proposed advancing progression-levels of talk across four characteristics of academic discourse. As presented in Table 3 below, our proposed *Academic Discussion Matrix* forms a developmental continuum with the goal of capturing indicators of high-level thinking (e.g. "Reason & Logic" and "Information & Evidence") and sociocultural responsiveness (e.g. "Cooperation & Collaboration" and "Perspectives & Voice") within a single discourse analysis framework. Furthermore, having been infused with language from the *Common Core State Standards Initiative* (2010), our matrix speaks to and expands on national, current discussion standards.

Insert Table 3 Here

In tune with the sociocultural and cognitive theories of language presented by Vygotsky (1981), Bakhtin (1984), and Halliday (1993), our work is based upon the assumption that language, specifically academic discussion within classrooms, has the power to build and solidify knowledge among students. As described by Breen (1985) “the subjective experience of teacher and learners in a classroom is woven with personal purposes, attitudes, and preferred ways of doing things. The intersubjective experience derives from and maintains teacher- and learner-shared definitions, conventions, and procedure which enable a working together in a crowd” (p. 140). Our matrix evaluates the overall interactions of the classroom, or *crowd* as described by Breen, compartmentalized into four components essential to quality dialogue: *Cooperation & Collaboration*, *Reason & Logic*, *Information & Evidence*, and *Perspectives & Voice*. Similar in description to the Mercer et al. framework (1999), our instrument adopts an “eclectic methodology in which qualitative discourse analysis is combined with quantitative measurement and controlled experimentation” (Mercer et al., 1999, p. 97). It is our perspective that *Cooperation & Collaboration* and *Perspectives & Voice* represent social competencies of the actual discussion, while *Reason & Logic* and *Information & Evidence* represent cognitive competencies—all of which combine to create conditions under which shared meaning and knowledge can be created among students and the teacher.

Cognitive Competencies and the Academic Discussion Matrix

The *Reason & Logic* domain of our matrix is rooted in part in the philosophy of Habermas (1985), who maintained that ideal dialogic exchanges are driven by rational arguments that are first introduced and then countered with alternate logic, until eventually a reasonable consensus is achieved among participants. Reasoning skills are emphasized as a critical competency of students engaged in academic discussion, as researchers explain that students

make meaning of their environments by constructing their own arguments and analyzing the counter-reasoning of their peers (Michaels et al., 2008; O'Connor & Michaels, 2007; Fisher, 1996; Mercer et al., 1999). The ability to both construct and critique reason-based claims during an academic discussion is closely related to the development and evaluation of *Information & Evidence*, which represents another domain of cognitive competency in our matrix. The act of questioning or interrogating a source (an informational text, an author's purpose, a peer's claim, etc) is an important critical-analytic stance conducive to effective academic discussions (Chinn & Anderson, 1998; Fisher, 1996; Larsen, 2000; Wells, 2007). Additionally, claims introduced during an academic discussion are ideally accompanied by verifiable knowledge or information (Larsen, 2000; Michaels, O'Connor, Resnick, 2008; Fisher, 1996; Mercer et al., 1999; Rueda, Goldenberg, & Gallimore, 1992).

Social Competencies and the Academic Discussion Matrix

The *Cooperation & Collaboration* domain of our matrix derives from the communicative teachings of Bakhtin (1984), who viewed social collaboration as an opportunity for learners to co-create meaning and knowledge. Students engaged in a quality academic discussion encourage their peers to voice thoughts and opinions (Mercer et al., 1999; Goldenberg, 1991), they actively listen to the contributions of others (Mercer et al. 1999, Michaels et al., 2008; Barton, 1995; Fisher, 1996), they share information in a polite manner (Fisher, 1996; Larson, 2000), and students build upon each others' ideas (Fisher, 1996; Larson, 2000; Rueda et al., 1992; Nystrand et al., 2003; Mercer et al., 1999; Michaels et al., 2008; Westgate & Hughes, 1997; Goldenberg, 1991). *Perspectives & Voice* is an additional domain of social competency that focuses on perspectival coordination (Selman, 2003). As explained by Wells and Arauz (2006), students' claims are "based on his or her perspective on the topic under discussion...for dialogue to

proceed satisfactorily, participants have to make a persistent attempt to understand each other's perspectives—to achieve a state of intersubjectivity” (p. 382). The *Perspectives & Voice* domain identifies "perspectival acts" that are present in the classroom discussion. This domain is drawn from Selman's (2003) integration of work on both levels of social cognitive development and on language based communicative actions (acts of social perspective taking) that are then applied to the analysis of the observed degree of coordination of social perspectives in vivo. The levels are theorized to be both unfolding with age and yet sensitive to contextual factors. The "perspectival acts" are social communications that either simply *acknowledge* social perspectives other than one's own; or that *articulate* the interpersonal thoughts and feelings of others in social situations; or that *interpret* underlying motives ("because he is ambitious") or the contextual causes ("because he comes from another country") for human conduct and social interaction (Diazgranados, Selman, Weinstein, & Dionne, 2012).

Developmental Structure of the Academic Discussion Matrix

Our matrix is also informed by a developmental theory of increasing communicative abilities. This focus is derived from the hermeneutic work of Habermas (1985, 1992), who drew the cognitive developmental work of Kohlberg (1969, 1983) into his own capacious theorizing. Both Habermas and Kohlberg were philosophically oriented, so each of their respective theories postulated a progression toward an “ideal” telos— for Habermas, it is a communicative process of ideal speech acts; for Kohlberg (1963), it is a developmental point of equilibration (stage six morality, akin to Rawls' (1971) “veil of ignorance”). Our stance that academic discussions can be analyzed based on a qualitative continuum, rather than advancing stages or levels, is nevertheless “developmental” in approach. Most significantly, our matrix focuses on the functional communications among individuals rather than optimal or ideal competencies within

individuals. In other words, what you see is what you code. Rather than capture an individual student's competence or ability, our matrix applies a developmental analysis to the evaluation of small group and whole-class dialogue. For instance, in the *Perspectives & Voice* category of our matrix, we focus on four types of social perspectival acts that can be ordered as increasingly advanced. This approach marks a significant move for a cognitive developmentalist, as it transitions emphasis from a monologic basis in cognition toward a dialogic basis in language, and the assessment goal from a focus on optimal individual abilities toward the performance of the communication of knowledge.

DISCUSSION:

This research, begun as a descriptive study of academic discussion, identified an interesting tension between the teachers' perceptions of classroom discussion quality and current frameworks' analyses of those discussions; teachers in our study observed and reported improvements in the quality of classroom discussions that were not evident while using existing discourse analysis tools. While we cannot identify with certainty the reasons for this discrepancy, our participating teachers did not hold the same conceptualization of quality classroom talk as presented by current discourse theorists. We regard this interesting tension between teacher perceptions and researcher analysis as deserving of a more detailed and refined study than we provide here. This tension also highlights the need for a shared understanding of what constitutes high quality classroom discourse and supports our argument for the utility of a research-integrated assessment tool.

Discourse analysis frameworks tend to require time- and labor-intensive coding processes. When used alone, the analytic models presented in this paper were often dichotomous (present or absent) in analysis. In response, our *Academic Discussion Matrix* represents an effort

to merge the overlapping qualities of analytic models in the literature with researchers' descriptions of quality classroom talk into a single practical tool for teachers and researchers. Existing discourse-analysis models are numerous and while we chose a handful to highlight in this paper, our matrix is *not* an effort to simply combine those particular models. Rather, our matrix is influenced by what we learned through the process of applying preexisting models to our data in combination with the commonalities of effective talk identified by the research and theory in our literature review.

We anticipate that our *Academic Discussion Matrix* will allow administrators, teachers, and students to strive towards an increase in discussion skill proficiency. We hypothesize that the matrix will allow practitioners and researchers to identify not only components of ideal classroom discussions across a broad spectrum of learning objectives, but also to monitor the progression of classroom discourse throughout time. By identifying elements of stronger and weaker cognitive and social aspects of academic discourse, the matrix will help educators pinpoint where observed discussion falls in place on a continuum and assist them in achieving discussions of stronger quality across multiple dimensions. Furthermore, the framework can serve as the basis for teacher professional development, reshaped as tools and strategies to help educators identify and promote effective elements of quality academic discussions.

While crafted based upon the research and theory of quality discourse, the *Academic Discussions Matrix* has limitations that need to be addressed. To start, the instrument analyzes communicative intent based on student verbal behaviors. An ideal model would capture student voice not only through oral language, but also through body language including facial expressions, gestures, and other significant physical behaviors. It would also benefit the framework to incorporate a unit of analysis that accounts for length of utterance and key

linguistic utterances indicative of student engagement. Furthermore, we know that the role of the teacher is critical to the development of a quality academic discussion. In its current format, our matrix does not examine language or strategies enacted by the teacher. In future work, we plan to develop a parallel assessment that captures teacher participation during a discussion.

In its current state, the matrix is dense with content—the document is intended as a pilot to serve as the root manual for the development of practical and efficient analysis tools: a researcher-useful tool for the measure of classroom discussion quality at the setting level; a practitioner-useful tool for teachers to allot a score or grade their classroom conversations both as a class and at the individual or diagnostic level; a student-useful tool for students to reflect upon the conversational skills of themselves and their classmates; and a teacher facilitation guide that assists teachers in the promotion of high-quality classroom conversations. Our team intends to continue this research to develop and test our proposed *Academic Discussion Matrix* to ensure that our examples and limitations are concrete, that our model is easy to use and self-explanatory, and that the instrument is truly helpful in assessing and improving the quality of academic discussions. In future research, we will collaborate with teachers to clearly define our research-based concepts of effective academic discussions, share literature on effective academic discourse with partnering practitioners, and use assessment frameworks to help teachers reflect on both their discourse facilitation skills and the quality of academic discussions within classrooms. In doing so, we may witness the emergence of stronger, more academically and socially fruitful conversations.

References

- Anderson, R.C. & Pearson, P.D. (1984). A schema-theoretic view of basic processes in reading comprehension. (Technical Report Number 306). *University of Illinois at Urbana-Champaign, Center for the Study of Reading Bolt, Beranek, and Newman, Inc., Cambridge, M.A.*
- Applebee, A.N., Langer, J.A., Nystrand, M., & Gamoran, A. (2003). Discussion-based approaches to developing understanding: Classroom instruction and student performance in middle and high school english. *American Educational Research Journal, 40*(3), 685-730.
- Atkins, A. (2001). Sinclair and Coulthard's "IRF" model in a one-to-one classroom: an analysis. Retrieved June 29, 2010 from http://www.cels.bham.ac.uk/resources/essays/Atkins_4.pdf
- Bakhtin, M.M. (1981). *The dialogic imagination*. Austin, TX: University of Texas Press.
- Bakhtin, M.M. (1984). *Problems of Dostoevsky's poetics*. (C. Emerson & M. Holquist, Trans.) Minneapolis: University of Michigan Press.
- Bakhtin, M.M. (1986). *Speech genres and other essays*. Austin, TX: University of Texas Press.
- Barton, J. (1995). Conducting classroom discussions. *Journal of Reading, 38*(5), 346- 350.
- Cazden, C.B. (2001). *Classroom discourse: The language of teaching and learning* (pp. 60- 80). Portsmouth, N.H: Heinemann.
- Chinn, C., & Anderson, R. (1998). The structure of discussions that promote reasoning. *Teachers College Record, 100*, 315-368.
- Common Core Standards Initiative. (2010). *Common core state standards for English language arts and literacy in history/ social studies, science, and technical subjects*. http://www.corestandards.org/assets/CCSSI_ELA%20Standards.pdf

- Diazgranados, S., Selman, R.L., Weinstein, E.C., Dionne, M. (2012). *A measure of perceptival acts*. Unpublished manuscript, Harvard Graduate School of Education.
- Fisher, E. (1996). Identifying effective educational talk. *Language and Education*, 10(4), 237-253.
- Gamoran, A. & Nystrand, M. (1991). Background on instructional effects on achievement in eighth-grade English and social studies. *Journal of Research on Adolescence*, 1(3), 277-300.
- Goldenberg, C. (1991). Instructional conversations and their classroom application (Instructional Practice Rep. No. 2). Santa Cruz, CA: National Center for Research on Cultural Diversity and Second Language Learning.
- Green, M. (2002). *A strong right arm: The story of Mamie "Peanut" Johnson*. New York, NY: Dial Books for Young Readers.
- Habermas, J. (1985). 'Remarks on the Concept of Communicative Action'. In B. Seebass and R. Tuomela (Eds.), *Social Action (151-178)*. Dordrecht: Reidel Publishing Co.
- Habermas, J (1992). *Postmetaphysical Thinking*. Cambridge, MA: Polity Press.
- Johannessen, L.R. (2003). Strategies for initiating authentic discussion. *English Journal*, 93(1), 73- 78.
- Kohlberg, L. (1963). *Moral development and identification*. In H. Stevenson (Ed.), *Child psychology: The sixty-second yearbook of the National Society for the Study of Education (pp. 277-332)*. Chicago, IL: The University of Chicago Press.
- Kuhn, D. & Crowell, A. (2010). Argumentation as a path to the thinking development of young adolescents. *Unpublished manuscript, Teachers College Columbia University, New York, NY*.

Larson, B.E. (2000). Classroom discussion: A method of instruction and a curriculum outcome.

Teaching and Teacher Education, 16, 661- 677.

Marsden, C. (2005). *Moon runner*. Cambridge, MA: Candlewick Press.

Mercer, N., Wegerif, R., & Dawes, L. (1999). Children's talk and the development of reasoning in the classroom. *British Educational Research Journal, 25*(1), 95- 111.

Michaels, S., O'Connor, C., & Resnick, L.B. (2008). Deliberative discourse idealized and realized: Accountable talk in the classroom and in civic life. *Studies in Philosophy and Education, 27*, 283- 297.

Mitchell, M.K. (1995). *Uncle Jed's Barbershop*. New York, NY: Aladdin Paperbacks.

Murphy, P.K., Wilkinson, I., Soter, A.O., Hennessey, N.M., & Alexander, J.F. (2009).

Examining the effects of classroom discussion on students' comprehension of text: a meta-analysis. *Journal of Educational Psychology, 101*(3), 740-764.

Nystrand, M. & Gamoran, A. (1991). Instructional discourse, student engagement, and literature achievement. *Research in the Teaching of English, 25*(3), 261- 290.

Nystrand, M., Wu, L., Gamoran, A., Zeiser, S., & Long, D. (2003). Questions in time:

Investigating the structure and dynamics of unfolding classroom discourse. *Discourse Processes, 35*(2), 135- 198.

O'Connor, C. (2001). "Can any fraction be turned into a decimal?" A case study of a mathematical group discussion. *Educational Studies in Mathematics, 46*, 143- 185.

O'Connor, C. (2011, July). *Discussion and debate: what has to happen and how can we get it to happen? integrating curriculum and PD around forms of talk*. [PowerPoint slides].

Retrieved from Strategic Educational Research Partnership's Catalyzing Comprehension through Discussion and Debate General Workspace.

O'Connor, C. & Michaels, S. (2007). When is dialogue 'dialogic'? *Human Development*, 50, 275- 285.

Rawls, J. (1971). *A Theory of Justice*. Cambridge, MA: Harvard University Press.

Rueda, R., Goldenberg, C., & Gallimore, R. (1992). Rating instructional conversations: A guide. *Center for Research on Education, Diversity, and Excellence: Educational Practice Report*. University of California, Berkeley.

Rumelhart, D.E. (1980). Schemata: The building blocks of cognition. In Spiro, R.J., Bruce, B. & W.F. Brewer (Eds.). *Theoretical Issues in Reading and Comprehension*. Hillsdale, NJ: Erlbaum.

Selman, R.L. (2003). The promotion of social awareness: Powerful lessons from the partnership of developmental theory and classroom practice. New York, NY: Russell Sage Foundation.

Sinclair, J. & Coulthard, M. (1975). *Towards an analysis of discourse*. Oxford: Oxford University Press.

Snow, C., Lawrence, J., & White, C. (2009). Generating knowledge of academic language among urban middle school students. *Journal of Research on Educational Effectiveness*, 2(4), 325-344.

Snow, C. (2011, June). *How does social development promote language and literacy?* [PowerPoint slides]. Retrieved from Zaner-Bloser Professional Development Institute.

Snow, E., Ross, T., Taylor, T., Selman, R. (2010). *The voices read-aloud study: The evolution of an action research study for a school in need*. Unpublished manuscript, Harvard Graduate School of Education.

Soter, A.O., Wilkinson, I.A., Murphy, P.K., Rudge, L., Reninger, K., & Edwards, M. (2008).

What the discourse tells us: Talk and indicators of high-level comprehension.

International Journal of Educational Research, 47(6), 372-391.

Vygotsky, L.S. (1981). The genesis of higher mental functions. In J.V. Wertsch (Ed.), *The concept of activity in Soviet Psychology* (pp. 144-188). Armonk, NY: Sharpe.

Wells, G. (2007). Semiotic mediation, dialogue and the construction of knowledge. *Human Development*, 50, 244- 274.

Wells, G., & Arauz, R.M. (2006). Dialogue in the classroom. *The Journal of the Learning Sciences*, 15(3), 379- 428.

Wertsch, J.V. (1991). *Voices of the mind: A sociocultural approach to mediated action*. Cambridge: Harvard University Press.

Westgate, D. & Hughes, M. (1997). Identifying 'quality' in classroom talk: An enduring research task. *Language and Education*, 11(2), 125- 138.

White A. (2003). The application of Sinclair and Coulthard's IRF structure to a classroom lesson: analysis and discussion, a module four assignment classroom and spoken discourse/written discourse. *Centre for English Language Studies, University of Birmingham homepage*. Retrieved July 3, 2010 from <http://www.cels.bham.ac.uk/resources/essays/AWhite4.pdf>

Appendix A

Email Prompts Used to Generate Teacher Reflection

Prompt: As teachers we bring our personal histories into the classroom with us. Our practice is influenced by who we are as people. How would you describe YOUR classroom "voice?" What are some of the life experiences and personal beliefs that have tuned your voice in a certain way? How do your particular style, manner, belief system, and way of interacting help or hinder your practice as a teacher?

Prompt: Teachers can use pairing for a variety of purposes (help students feel connected to a classroom peer, reinforce social learning, give all students a chance to speak, teacher ABC conflict resolution skills, etc.) How might you use pairing in the classroom? Use pairing for one of your classroom discussions and write about it. What did you do? How did it go? How did the students respond? What do you think your students got out of the experience?

Prompt: Teachers find that this curriculum triggers classroom discussions on topics that have powerful emotional, social, and cultural content for students (and for them!). You have entered these classroom discussions all year and you have expressed concerns and worries about how to facilitate and manage discussions on sensitive topics. Please describe a recent experience facilitating a conversation about a topic that is hard to discuss in the classroom. What was the topic? What were students saying? What were your thoughts about what to say and not say? Finally, conversations like these are inevitable and can be incredibly useful. Now that you know what you know, what suggestions do you have for other teachers about how to create a safe space for an honest, careful conversation on charged topics? What suggestions do you have for other teachers as they enter, facilitate, and manage these conversations?

Appendix B: Synopsis of the Trade Books

Moon Runner (2005, Candlewick Press)

Written by Carolyn Marsden

This chapter book is about a shy fourth-grader, Mina, who moves to a new elementary school and is relieved to be accepted by the popular crowd. Mina considers herself to be a “girly-girl,” but during a tryout for the track team, she’s startled to discover that she can outrun most of her friends. To keep her new friend from becoming angry, Mina purposely loses a race. This book explores childhood relationships, portraying two friends who run for different reasons. The story concludes with the two girls helping each other win a relay race. Introduced is an ethical dilemma: Should Mina intentionally lose the race in order to save her friendship?

Moon Runner is recommended for students in grades 3- 5.

A Strong Right Arm: The Story of Mamie “Peanut” Johnson (2002, Dial Books for Young Readers)

Written by Michelle Y. Green; Illustrated by Kadir Nelson

This biography follows the experiences of Mamie “Peanut” Johnson, one of only three women in our history to play professional baseball. The story describes Mamie’s upbringing on her grandmother’s South Carolina farm in the 1930’s, where she faces extreme discrimination for being a black woman. The challenges of discrimination chase Mamie as she starts an amazing, yet trying journey as the pitcher for the Negro Leagues’ Indianapolis Clowns. This chapter book explores a black woman’s drive to succeed in an all white, male-dominated sport. This story encourages students to appreciate the challenges of minority populations and teaches the importance of perseverance in the face of adversary.

A Strong Right Arm: The Story of Mamie “Peanut” Johnson is recommended for grades 4- 7.

Uncle Jed’s Barbershop (1995, Aladdin Paperbacks)

Written by Margaree King Mitchell; Illustrated by James E. Ransome

Living in the segregated South of the 1920’s, Sarah Jean’s Uncle Jed was the only black barber in the county. Uncle Jed’s dream was to open his very own barbershop. After many financial setbacks—from five-year-old Sarah Jean’s emergency operation to the bank failures of the Great Depression—Uncle Jed was finally able to reach his goal. This picture book discusses the difficulties of segregation during the Great Depression era and touches on issues of social justice and poverty. The plot invites the reader to empathize with the dilemmas faced by Uncle Jed as he tries to save money for his barbershop.

Uncle Jed’s Barbershop is recommended for students in PreK- 3rd grade.

Table 1

Initiation	Response	Feedback
<p>Opening move (Elicit) 48-Good job, guys. What happens when you yell? (<i>elicitation</i>)</p>	<p>Answering 49-It gets worse. (<i>reply</i>)</p>	
<p>Opening move (Elicit) 50-Why Peter? (<i>nominate</i>)</p>	<p>Answering 51-If you yell at them, they might not want to be friends anymore after that. (<i>reply</i>)</p>	<p>Follow-up 52-Right. (<i>evaluate</i>) If you're yelling at someone, they might think, "Why should I be friends with them if they are going to yell at me like that?" (<i>accept</i>)</p>
	<p>Answering 53-Plus, screaming is not good for your health. (<i>pupil inform: reply</i>)</p>	<p>Follow-up 54-Right (evaluate), your blood pressure goes up, your face gets red. (<i>teacher inform: informative</i>)</p>
	<p>Answering 55-And you can't think clearly. (<i>pupil inform: reply</i>)</p>	<p>Follow-up 56-Right (<i>evaluative</i>), there have been many times in my life when I've made the mistake and shouted at friends or family members. (<i>teacher inform: accept</i>) And after, when you finally calm down, you say, "Sheesh." All I had to do was take a breath and talk after. (<i>comment</i>)</p>
<p>Opening move (Elicit) 56-Anybody else want to share? (<i>nominate</i>) We have about five minutes. (<i>aside</i>)</p>	<p>Answering 57-When somebody makes you mad, try not to lose your friend. (<i>reply</i>)</p>	
<p>Opening move (Elicit) 58-What do you mean by try not to lose your friend? (<i>elicitation</i>)</p>	<p>Answering 59-Try to put a joke into it. (<i>reply</i>)</p>	<p>Follow-up 60-Great. (<i>evaluate</i>)</p>
<p>Opening move (Elicit) 60-Is losing a friend a big part of what you guys are scared about? (<i>elicitation</i>)</p>		

Table 2

Exchange	Participant Structure—Whole Class Episode Task—Literature Discussion	Field—Category
1- Teacher:	48-a) Good job, guys. 48-b) What happens when you yell?	a) <i>Responder</i> —Teacher <i>Function</i> —Confirm <i>Evaluation</i> —Accept + Praise b) <i>Exchange Initiator</i> —Teacher <i>Episode Development</i> —Extends
2- Student 1:	49-a) It gets worse.	<i>Responder</i> —New Student <i>Student Link</i> —Adding <i>Cognitive Demand</i> —Explanation
3- Teacher:	50-a) Why Peter?	<i>Responder</i> —Teacher, Clarification Request
4- Student 1:	51-a) If you yell at them, they might not want to be friends anymore after that.	<i>Responder</i> —Same Student <i>Student Link</i> —Extending <i>Cognitive Demand</i> —Speculation
5- Teacher:	52-a) Right. 52-b) If you're yelling at someone, they might think, "Why should I be friends with them if they are going to yell at me like that?"	a) <i>Responder</i> —Teacher <i>Function</i> —Confirm <i>Evaluation</i> —Accept b) <i>Function</i> —Prediction
6- Student 2:	53-a) Plus, screaming is not good for your health.	<i>Responder</i> —New Student <i>Student Link</i> —Adding <i>Cognitive Demand</i> —Speculation
7- Teacher:	54-a) Right, your blood pressure goes up, your face gets red.	<i>Responder</i> —Teacher <i>Function</i> —Confirm <i>Evaluation</i> —Accept + Uptake
8- Student 3:	55-a) And you can't think clearly.	<i>Responder</i> —New Student <i>Student Link</i> —Adding <i>Cognitive Demand</i> —Memory
9- Teacher:	56-a) Right, there have been many times in my life when I've made the mistake and shouted at friends or family members. 56-b) And after, when you finally calm down, you say, "Sheesh." All I had to do was take a breath and talk after. 56-c) Anybody else want to share? 56-d) We have about five minutes.	a) <i>Responder</i> —Teacher <i>Function</i> —Personal Experience <i>Evaluation</i> —Accept + Uptake b) <i>Function</i> —Personal Experience c) <i>Exchange Initiator</i> —Teacher <i>Episode Development</i> —Extends

		d) N/A
10- Student 4:	57-a) When somebody makes you mad, try not to lose your friend.	<i>Responder</i> —New Student <i>Student Link</i> —Adding <i>Cognitive Demand</i> — Generalization
11- Teacher:	58-a) What do you mean by try not to lose your friend?	<i>Responder</i> —Teacher, Clarification Request
12- Student 4:	59-a) Try to put a joke into it.	<i>Responder</i> —Same Student <i>Student Link</i> — Extending <i>Cognitive Demand</i> — Explanation
13- Teacher:	60-a) Great. 60-b) Is losing a friend a big part of what you guys are scared about?	a) <i>Responder</i> —Teacher <i>Evaluation</i> —Accept + Praise b) <i>Exchange Initiator</i> —Teacher <i>Episode Development</i> —Extends

Table 3—ACADEMIC DISCUSSIONS MATRX

COOPERATION & COLLABORATION <i>The extent to which a majority of students...</i>	REASON & LOGIC <i>The extent to which a majority of students...</i>	INFORMATION & EVIDENCE <i>The extent to which a majority students...</i>	PERSPECTIVES & VOICE <i>The extent to which a majority of students...</i>
<p>4—Integrate ideas to formulate a well-rounded argument.</p> <p>a) Value the rules for conversation, and present an embracing, respectful attitude.</p> <p>b) Propel conversation by seeking out peer elaboration; respond to and pose clarifying questions.</p> <p>c) Respectfully provide detailed justification for disagreeing (or agreeing) with others, and carefully considered the critique of others.</p> <p>d) Embrace the possibility of no single, clear solution or conflict resolution.</p>	<p>4—Introduce and evaluate logical evidence and counterevidence.</p> <p>a) Evaluate conflicting peer claims; differentiate between faulty and sound reasoning.</p> <p>b) Avoid refuting conclusions by seeking to understand the premises of that conclusion; request well-supported explanations for all peer input.</p> <p>c) Consistently challenge peer input by presenting alternate reasoning.</p> <p>d) Recognize the logic of others as compelling reason to alter one’s own ideas or perspectives.</p>	<p>4—Present relevant, accurate information, and require contributions to be accompanied by verifiable evidence.</p> <p>a) Analyze and integrate multiple sources that are relevant to the topic.</p> <p>b) Evaluate the credibility of sources; acknowledge when information is inaccurate or irrelevant; notice discrepancies in data.</p> <p>c) Present information that is accompanied by verifiable evidence.</p> <p>d) Draw conclusions based upon integrated group input and subject matter.</p>	<p>4—Promote divergent points-of-view, and interpret multiple perspectives.</p> <p>a) Demonstrate respect and value for differing perspectives.</p> <p>b) Reflect upon the relationships of differing cultures and backgrounds, as well as their impact on conflict resolution.</p> <p>c) Empathize with conflicting peer perspectives, and resolve contradictions.</p> <p>d) Integrate differing emotions and perspectives to formulate a flexible solution and work towards conflict resolution.</p>
<p>3—Build upon the contributions of others to identify a collective group stance or resolution.</p> <p>a) Follow the rules of conversation, and present an accepting attitude.</p> <p>b) Actively listen to peers; pose clarifying questions.</p> <p>c) Politely disagree (or agree) with others and provide basic reasons for opinions, and accepted the critique of others.</p> <p>d) Review ideas with the group before coming to a conclusion or resolution.</p>	<p>3—Rely upon logical evidence and counterevidence.</p> <p>a) Delineate peer claims to identify information supported by reason.</p> <p>b) Critically consider peer counterpoints; ask peers to support claims with sound evidence.</p> <p>c) Provide explanations for challenging peer input; offer elaboration for reasoning and logic.</p> <p>d) Demonstrate a willingness to change one’s own mind based upon the introduction of new logic.</p>	<p>3—Present relevant information; expect peer contributions to be based on accurate knowledge.</p> <p>a) Interpret input that is relevant to the topic; analyze main ideas; explain clarifying elements.</p> <p>b) Expect peer contributions to be supported by accurate knowledge.</p> <p>c) Base claims upon verifiable evidence.</p> <p>d) Propose group resolutions based upon evidence that is relevant to the topic.</p>	<p>3—Articulate multiple perspectives and their importance.</p> <p>a) Recognize the existence <i>and</i> importance of multiple perspectives.</p> <p>b) Exhibit respect for differing beliefs among people and cultures.</p> <p>c) Seek to understand the source of conflicting peer emotions; summarize points of agreement and disagreement.</p> <p>d) Articulate the role of multiple perspectives in conflict resolution.</p>
<p>2—Acknowledge peer contributions, and settle upon a conclusion in an uncritical manner.</p> <p>a) Acknowledge the rules for conversation, and present an amicable, yet sometimes indifferent attitude.</p> <p>b) Listen to others, and request clarification from peers and teacher.</p> <p>c) Do not challenge or support peer contributions; ignored critiques.</p> <p>d) Formulate conclusions without thoughtfully contemplating the cumulative input presented.</p>	<p>2—Accept claims without critical analysis or reliance upon logic.</p> <p>a) Ask and answer questions to get clarification.</p> <p>b) Do not critically evaluate the conclusions of others; accept peer input without requesting logic or reason.</p> <p>c) Offer minimal reasoning for independent claims.</p> <p>d) Echo and layer upon the logical input of others without carefully critiquing or questioning that input.</p>	<p>2—Summarize or paraphrase information without questioning its validity or relevancy to the topic.</p> <p>a) Contribute and identify input that is loosely linked to the topic.</p> <p>b) Recount ideas without challenging the relevancy or validity of newly introduced facts.</p> <p>c) Contribute input without clearly linking it to verifiable information.</p> <p>d) Accept conclusions without questioning the validity or relevance of evidence.</p>	<p>2—Acknowledge new ideas and distinguish between multiple points of view.</p> <p>a) Attempt to identify varying perspectives and conflicting ideas.</p> <p>b) Indifferently acknowledge varying individual perspectives; paraphrase multiple perspectives.</p> <p>c) Accept conflicting beliefs without critically questioning why individual perspectives and cultures may differ.</p> <p>d) Acknowledge differing perspectives that influence peer decision-making.</p>
<p>1—Disregard or ignore the contributions of others, and favor individualized conclusions.</p> <p>a) Disregard the rules for conversation, and present argumentative or competitive attitudes.</p> <p>b) Does not listen to others, nor seek out peer elaboration.</p> <p>c) Ignore, interrupt, or belittle the input and critiques of others.</p> <p>d) Base conclusions solely on personal information and opinions.</p>	<p>1—Ignore or reject supporting logic.</p> <p>a) Ignore or reject opportunities to gain new information or clarification.</p> <p>b) Attack peer premises; focus on snippets of talk, rather than the greater topic.</p> <p>c) Do not support statements with logic.</p> <p>d) Refuse to consider or recognize alternate possibilities and logical deductions.</p>	<p>1—Ignore verifiable evidence; accept or introduce faulty, irrelevant information.</p> <p>a) Present information that is irrelevant to the topic.</p> <p>b) Accept incorrect or irrelevant information presented by others.</p> <p>c) Demonstrate a lack of understanding of the subject matter and don’t present evidence-based claims.</p> <p>d) Jump to unfounded conclusions without considering topic relevancy.</p>	<p>1—Devalue differing perspectives and/or fail to acknowledge their existence.</p> <p>a) Devalue or ignore conflicting perspectives.</p> <p>b) Do not recognize differing beliefs or cultures.</p> <p>c) Exhibit disinterest in the feelings and experiences of peers.</p> <p>d) Prioritize personal feelings or thoughts over perspective-taking and conflict resolution.</p>