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

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ABSTRACT

The purpose of this study was to validate and extend the findings of an exhaustive literature search in Year 1 and a meta-analysis in Year 2 of a 3-year project in which nine (9) small-group discussion approaches were identified. Having identified parameters of discussion that were, to a greater or lesser extent, present in these nine discussion approaches, our goal in the study being reported in this paper, was to evaluate the nine discussion approaches on a common set of discourse features known to characterize 'quality' discussions. Although there is overlap among some studies in the nature of the measures used, the extant literature does not afford a uniform basis on which to evaluate student talk as an indicator of student understanding and critical thinking. In the present study, we identified features of classroom discourse that might serve as proximal indices of students' learning and comprehension and we employed each of these proximal indices in analyzing and evaluating the discourse samples solicited from the proponents of the discussion approaches.

Two research questions guided this study:

- Which discourse features (established in existing research) can productively serve across all nine discussion approaches as proximal indices of high-level learning and comprehension of text?[1]
- To what extent does an analysis of the discourse of representative transcripts from each of the nine discussion approaches validate and extend our understanding of quality group discussions?

Our procedure entailed the solicitation of four typical, complete discussions from the proponents of nine identified discussion approaches, providing us with a total of 36 transcripts. Our goal was to identify indices for which there was good theoretical warrant and evidence drawn from empirical research that link these to high-level thinking and comprehension. Our coding scheme focuses on the quality of teacher and student

☆ The present paper is part of a multi-pronged study funded by the U.S. Department of Education (2002–2005) on the use of small group discussions to promote high-level comprehension, high-level thinking.

[1] Applying coding of discourse features to transcripts that were solicited from proponents of the nine discussion approaches created challenges that we know only too well: can such analysis accommodate contextual factors such as classroom cultures, teacher personalities, expertise and familiarity with the approaches, potential distracters such as student SES, grade level, ability groupings, heterogeneous or homogeneous groupings, variability in texts selected for discussions, student interest in texts selected, and so on.

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questions [Nystrand, M., Gamoran, A., Kachur, R., & Prendergast, C. (1997). *Opening dialogue: Understanding the dynamics of language and learning in the English classroom*. New York: Teachers College Press; Nystrand, M., Wu, A., Gamoran, A., Zeiser, S., & Long, D. A. (2003). Questions in time: Investigating the structure and dynamics of unfolding classroom discourse. *Discourse Processes*, *35*(3), 135–198], the presence of elaborated explanations [Webb, N. M. (1991). Task-related verbal interaction and mathematics learning in small groups. *Journal for Research in Mathematics Education*, *22*, 366–389], the presence of 'key' or reasoning words [Wegerif, R., & Mercer, N. (1997). Using computer-based text analysis to integrate qualitative and quantitative methods in research on collaborative learning. *Language and Education*, *11*(4), 271–286; Wegerif, R., Mercer, N., & Dawes, L. (1999). From social interaction to individual: An empirical investigation of a possible socio-cultural model of cognitive development. *Learning and Instruction*, *9*, 493–516] and the presence of exploratory talk [Mercer, N. (1995). *The guided construction of knowledge: Talk amongst teachers and learners*. Clevedon, England: Multilingual Matters; Mercer, N. (2000). *Words and minds: How we use language to think together*. London: Routledge].

The data indicate that the most productive discussions (whether peer or teacher-led) are structured, focused, occur when students hold the floor for extended periods of time, when students are prompted to discuss texts through open-ended or authentic questions, and when discussion incorporates a high degree of uptake. Results also indicate that authentic questions give rise to longer incidences of student talk, which in most cases result in opportunities for greater elaboration of utterances by students, and which in turn, generate reasoning and high-level thinking. Our results also support the view that affective connections between readers and text appear to play a role in generating discourse that elicits high-level comprehension and critical-analytic responses in text-based discussions. Indeed, the richest reasoning appears to occur in the critical-analytic rather than in the expressive discussion approaches. Our analysis of discourse, then, suggests that authentic question, uptake, the density of reasoning words, and elaborated explanations may indeed be useful measures of productive discussions despite the highly situated nature of small group discussions.

1. Overview of the study

The purpose of this study[2] was to evaluate the classroom talk in nine identified discussion approaches using a common set of discourse features known to characterize quality discussions. The goals of this evaluation of the classroom talk were twofold:

(a) first, to validate and extend the findings from an intensive narrative analysis of empirical research on nine group discussion approaches (Wilkinson, Murphy, & Soter, 2003). In that analysis, we identified the nature of those discussions according to parameters we developed from the published research on those approaches;

(b) second, to validate and extend the findings from a meta-analysis of research (Murphy & Edwards, 2005; Murphy, Wilkinson, Soter, Hennessey, & Alexander, in press) on these approaches. The meta-analysis focused on the effects of different approaches to conducting group discussions.

Researchers have used an assortment of qualitative and quantitative measures to evaluate the group processes and individual outcomes of specific discussion approaches. Although there is overlap in some studies in the nature of the measures used, the extant literature does not yield a common basis on which to evaluate the approaches. For the present study being reported in this paper, see footnote 1, we identified features of classroom discourse that have empirical warrant to serve as proximal indices of student learning with respect to high-level thinking and comprehension. We employed each of these features in analyzing and evaluating discourse samples from the discussion approaches. Briefly, the features include authentic questions, uptake, three broad indicators of high-level thinking (i.e., analysis, generalization, and hypothesizing), and questions that invite affective, intertextual, and shared knowledge responses.

The small group discussion approaches were identified according to the following criteria: (a) discussions were centered around and about literary text; (b) the approaches were characterized by a recognized and published track record of research and scholarship (Wilkinson et al., 2003). Given these criteria, we identified the following nine approaches: *Grand Conversations, Book Club, and Literature Circles* (Expressive Stance); *Instructional Conversations, Questioning the Author*, and

[2] The present study was our primary focus in Year 2 of a 3-year federally funded project on small group discussions as mechanisms for promoting high-level comprehension of text (see Wilkinson et al., 2003). In Year 1 of the project, an extensive narrative analysis was conducted on group discussions about and around literary text. As a result of that analysis, 13 parameters of group discussions emerged and formed the basis of the development of a conceptual framework that could describe and explain what we identified as productive (or 'quality') discussions in terms of the development of high-level thinking and comprehension.

Junior Great Books (Efferent Stance); *Collaborative Reasoning*, *Philosophy for Children, and Paedia Seminar* (Critical-Analytic Stance)[3]. Grouped according to stance toward the literary text, a brief description of the primary features of each of these discussion approaches follows.

1.1. Description of selected discussion approaches grouped according to stance toward text

Based on our work in Year 1 of our larger project, we grouped the approaches according to stance toward text (Chinn, Anderson, & Waggoner, 2001) according to whether they focused on an expressive, efferent or critical-analytic orientation toward literary text. An expressive stance (Jakobson, 1987) gives prominence to the reader's affective response to the text, that is to the reader's own spontaneous, emotive connection to all aspects of the textual experience. An efferent stance (Rosenblatt, 1978) gives prominence to acquiring information from the text. A critical-analytic stance (Chinn & Anderson, 1998; Wade, Thompson, & Watkins, 1994), gives prominence to querying or interrogating the text in search of the underlying arguments, assumptions, worldviews, or beliefs that can be inferred from the text. The identified approaches serve various purposes depending on goals teachers set for their students. Some of these goals include acquiring information, interrogating the text and/or its author, and responding affectively to the content of the literature. Each approach contains some type of instructional frame that describes the moves of the teacher, routines for discussion, the role of the text, who has interpretive authority, who controls the discussion, and the presence of pre- or post-discussion activities. All approaches, while not identical, purport to help students develop high-level thinking and comprehension about text.

1.1.1. Expressive stance toward text

Included in this group of discussion approaches are *Grand Conversations* (Eeds & Wells, 1989), *Book Club* (Raphael & McMahon, 1994), and *Literature Circles* (Short & Pierce, 1990).

Eeds and Wells (1989) are credited with the implementation of Fillion's (1981) notion of discussions of literary text being conducted, ideally, as "*Grand Conversations*". The goal of such conversations (Peterson & Eeds, 1990) was to create a context in which students could explore meaning in a co-constructive way through discussions of literary text. In brief, the main goal of the approach is to introduce a form of discussion about literature in schools that emulates the kinds of naturally occurring conversations adults have about literary text. The underlying assumption of the construct is that by participating in such conversations, children will naturally talk about books in rich and meaningful ways (Eeds & Wells, 1989). The approach is simple, not formulaic, but contains these essential elements: actual literary texts; reading aloud daily by the teacher; extensive reading alone by students; and dialogue sparked by what Peterson and Eeds (1990) term a "big question" (e.g., "What do you think?"). A more extended description of the approach is provided in Peterson & Eeds, 1990).

The pedagogical variation of community-based book clubs, *Book Club* (McMahon, 1991; Raphael & McMahon, 1994) is the contribution of a group of researchers based at Michigan State University. The concept was integrated into a literature-based program in which Book Club became a core activity. Essentially, the goals of the approach were to provide, through a literature-based program in reading, opportunities for children to (a) read and respond to high quality literature, and (b) to experience authentically engaged talk about what they read. According to Raphael et al. (1992), such opportunities develop "critical literacy skills as children share their interpretations with others" (p. 55). *The Book Club Program* contains four components (reading, writing, discussion and Community Share) and an instructional context in which all interact and support one another to "develop students' ability to comprehend and respond to text selections" (Raphael et al., 1992, p. 55).

A variation of *Book Club, Literature Circles* (Daniels, 1994; Short, 1986; Short & Kaufman, 1995; Smith, 1990), likewise allows students to read authentic literature, and to engage in talk about literature in ways that resemble the authentic behavior of all engaged readers. The primary goals of this approach are to develop habits of sustained and enthusiastic reading, which in turn, would provide the natural foundation for the development of skills such as interpretation, prediction, analysis, and comprehension of literary texts through constant negotiation of meaning with others. Essential to *Literature Circles* is the creation of a community in which members know one another; the planning of extensive experiences with literary texts; the establishment of broad thematic contexts for discussions about literature and literacy; the provision of multiple demonstrations of effective book talks; and, the development of classroom contexts that promote the healthy functioning of collaborative groups.

1.1.2. Efferent stance toward text

Representative of this stance toward text, are *Instructional Conversations* (Goldenberg, 1993), *Questioning the Author* (Beck, McKeowan, Hamilton, & Kucan, 1997), and the *Junior Great Books Discussions* (Great Books Foundation, 1987). They share in common, a view of reading that focuses on deriving information from texts.

Based on the directed reading work of Au (1979) and Tharp and Gallimore (1988) in the Kamehameha Early Education Program (KEEP), Goldenberg (1993) developed a variation of the directed reading approach, namely *Instructional*

[3] We initially drew on Chinn and Anderson (1998), Rosenblatt (1938/1995; 1978) and Wade, Thompson & Watkins (1994) for identifying stance toward reading literary text. However, we found that students' articulation of their personal connections to literary texts were not clearly identifiable as "aesthetic" responses in ways defined by Rosenblatt (1938/1995; 1978). We chose, instead, to use Jakobson's (1987) "expressive" function of language to describe personal, affective responses to text, subsequently substituting "expressive stance" for "aesthetic stance" toward reading literary text.

Conversations. Essentially constructivist in that students are expected to actively construct their own knowledge and understanding, *Instructional Conversations* are also influenced by socio-cultural views of language learning (Vygotsky, 1962; Vytgotsky, 1978), as well as of learning in general. The primary objectives of *Instructional Conversations* are to help students comprehend texts, to learn complex concepts, and to consider issues from various perspectives (Goldenberg, in Wilkinson et al., 2003, p. 125). Conversational elements include predominantly (but not exclusively) open-ended questions, connected discourse, a challenging but non-threatening atmosphere, encouraging participation through students volunteering to speak, or in other ways, influencing the selection of speaking turns (Wilkinson et al., 2003).

The Junior Great Books Reading and Discussion Program was established in 1962 by the Great Books Foundation of Chicago and is recognized by the American Federation of Teachers (1998) as one of seven promising reading and English language arts programs based on evidence of high standards, effectiveness, replicability, and the extent and quality of professional support provided (Wilkinson et al., 2003, p. 141). Conceptualized by Erskine and popularized by Adler (Great Books Foundation, 2002), the goal of the *Junior Great Books Program* is to improve K-12 students' comprehension, develop their critical thinking abilities, and promote the reading of literature for enjoyment. Unlike other approaches, the program also aims to expose Grades K-12 children to quality canonical literature including the works of novelists, essayists, philosophers, and poets among its collections. The approach is instantiated through integrated units of story-related activities that have an interpretive focus and can be used with students of different abilities. Through "shared inquiry" (the method of discussion), and in response to an open-ended interpretive question from a leader, students draw on their experience and reasoning abilities to understand and interpret the text. Significant weight is assigned to discerning potential authorial intention, and while students' emotional reactions are not discouraged, the discussion is very much text-based. Basically, students are to take a stance toward the text through an interpretive question and attempt to justify their response (Wilkinson et al., 2003, p. 146).

Questioning the Author developed from Beck and McKeown's earlier analyses of the potential difficulties of social studies texts which typically assume background knowledge that students do not have. Intent on helping students to engage with texts and to think deeply about the ideas in texts, Beck and McKeowan first implemented *Questioning the Author* in 1992–1993 in two 4th grade classrooms and again in 1993–1994 in several 4th grade classrooms in both private and public schools. Briefly, the goals of the approach are to deeply engage readers with texts and to construct meaningful representations of text through this engagement. Ultimately, *Questioning the Author* intends to have readers incorporate this active process into their reading and apply it themselves in their own reading (Wilkinson et al., 2003, p. 206). Unlike most of the other approaches described in this paper, the approach explicitly asserts the concept of the "authoritative text" (Bakhtin, 1981, 1986; McKeowan & Beck, 1998). In the classroom, students typically address the text as the product of an assumed fallible author whose work can be interrogated. Teachers ask initial general queries or probes to help students construct meaning. Follow-up probes extend student responses and help move discussion to deeper levels of engagement. Reading takes place during discussion with the teacher pausing and posing questions to keep students focused on seeking out and building a sense of the author's ideas. Collaboration is encouraged among students through the teacher weaving (Wilkinson et al., 2003, p. 210) together their responses as they collectively seek to make sense of the author's ideas. As with other approaches, the classroom environment established by the teacher is critical for the collaborative exchange of ideas.

1.1.3. Critical-analytic stance toward text

Included in the group of approaches we identified as favoring a critical-analytic stance toward text are *Collaborative Reasoning* (Anderson, Chinn, Chang, Waggoner, & Nguyen, 1998), *Philosophy for Children* (Sharp, 1985), and *Paideia Seminars* (Billings & Fitzgerald, 2002). *Collaborative Reasoning* (Waggoner, Chinn, Yi, & Anderson, 1995) grew from an interest in providing students with a variety of opportunities to formulate opinions and to consider multiple perspectives about literary text. The primary goals of this approach are to provide elementary and middle school students with opportunities to acquire the discourse of reasoned argumentation, and through transfer of reasoning ability, to improve students' reading comprehension. In organized reading groups, teachers and students discuss texts read just prior to discussion. A central question (e.g., perhaps predictive, or what students think characters should do) begins discussion. Students are also asked to indicate their initial positions on the question before discussion actually begins. *Collaborative Reasoning* employs open participant structure in which students speak without raising their hands or without being nominated by the teacher. They are also expected to speak one at a time and to avoid interrupting one another. Teachers adopt the role of coach through which they model, prompt, and encourage students. They also offer an initial central question to begin the discussion, and model the use of vocabulary characteristic of critical, reflective thinking including providing reasons, evidence, argument and counterargument.

Created by Lipman (1975), *Philosophy for Children* grew from Lipman's concern that his college students "failed to grasp simple rules of logic, and appeared to lack reasoning skills required for appropriate philosophical contemplation" (Wilkinson et al., 2003. p. 184). Lipman also realized, that such reasoning skills need to be developed many years before students appear in the college setting. Founded in 1974, the *Institute of Philosophy for Children* became the vehicle through which such instruction was to be carried out for elementary and middle school students. The primary, short-term goal of the approach is to foster strong reasoning skills in children, help them distinguish between good and poor reasoning, and "foster congruence between thought and action" (Wilkinson et al., 2003, p. 184). As with the other approaches described in this paper, at the heart of *Philosophy for Children* is the creation of a classroom community. In this case, however, the focus is on inquiry that "compels students to reflect, concentrate, listen closely to others, and assess and evaluate ways of examining an issue that previously had never occurred to them: (Wilkinson et al., 2003, p. 185). Children read age-specific books on ethical and

enduring human-issue topics, discuss them, and make their own interpretations. As also with other approaches, the teacher begins the discussion with a general, open-ended question.

Paideia Seminars (Billings & Fitzgerald, 2002), incorporate several instructional features: didactic instruction for increasing factual recall of information from texts; intellectual coaching for the development of literacy skills; and seminar dialoguing which has the goal of developing students' conceptual understanding of information. The focus is on developing interpretive skills, identifying errors of logic, and identifying errors of interpretation of texts. In *Paideia Seminars*, shared understandings and decisions about texts are intended to lead toward new meanings (Billings & Fitzgerald, 2002, p. 908). Decisions about what counts as important material or topics are determined by the group as a whole. Teachers give up some authority to control the content and form of discussion (Billings & Fitzgerald, 2002, p. 909). Teacher training in the Paideia approach emphasizes the teacher's role of facilitator and coach in the dialogically oriented discussions. The text is read in advance, and as in the other approaches, certain ground rules are established and maintained to facilitate collaborative and productive discussions. Since the teacher's goal is to "promote student thinking and critique," teachers typically avoid making statements that can be inferred as directives about how to think about the content of the discussion (Billings & Fitzgerald, 2002, p. 911).

2. The conceptual framework: review of related literature

The study of classroom discourse has come a long way since the earlier work of Barnes (1976), Edwards and Furlong (1978) in the UK, and Cazden (2001) in the US, all of which focused in one way or other on the impact that the use of students' own language has on their learning. Studies such as that by Schweigert (1991), examined the effects of verbalization on student writing, basing their premises on the belief (Marks, 1951; Barnes, 1976) that "the instrumentality of language involves changing knowledge by recording it (and) by verbalizing it in some other way (in Schweigert, 1991, p. 470). This view of student talk suggests that talk functions as a form of 'rehearsal' of the task at hand (Schweigert, 1991, p. 470). Others who have subjected talk to empirical testing of learning have argued that it enables students to "represent new and emerging knowledge to themselves and others" (Fall, Webb, & Chudowsky, 2000; King, 1994; Schweigert, 1991, p. 471; Wegerif, Mercer, & Dawes, 1999;). Gilles and Pierce (2003) however, remind us that we need to ask ourselves "what our students are learning" and "what they are working at understanding" (p. 74).

There are several pedagogical principles which include beliefs about language and pedagogy that we believe are essential to fostering a culture of dialogic inquiry in the classroom (Soter, Rudge, Wilkinson, & Murphy, 2007; Wilkinson, Sorter, & Murphy, 2007). Among the most important of these is the belief that language is a tool for thinking (Mercer, 1995, 2000). Another is that for talk to be productive, it needs to be structured and focused, but not so much as to prohibit generative learning. Productive, quality discussions, involve balancing conflicting demands of maintaining a clear structure and focus, and being responsive to students' contributions (cf. Cohen, 1994; King, 1999; Salomon & Globerson, 1989). As with any good teaching, there needs to be a gradual release of responsibility for control of the discussion from teacher to students (cf. Pearson & Gallagher, 1983). This may mean moving from teacher-generated questions to student-generated questions; moving from teacher sharing interpretive authority to students having full interpretive authority; and moving from teacher-led, whole-class discussions to student-led, small group discussions. Ultimately, in a classroom that values a culture of dialogic inquiry, we would want to achieve the goal of students taking responsibility for co-constructing their understandings together, a process Mercer (2000) termed "interthinking."

From our review of extent research and scholarship (Year 1 of our larger project), we identified 13 parameters of discussion that appear to characterize discussion approaches that have a proven track record for promoting high-level comprehension (though, not necessarily for critical-analytic thinking). Briefly, these parameters (Wilkinson et al., in press) and their ideal values are: pre-discussion activity to promote individual response; teacher choice of text; teacher control of topic; students have interpretive authority; students control turns; small group structure; either teacher-led or peer-led but begin with teacher-led; heterogeneous ability grouping; reading prior to rather than during discussion; genre (narrative fiction); medium to high expressive stance[4]; medium to high efferent stance; high critical-analytic stance; content/and or process post-discussion activity. These parameters constitute a set of conditions that we believe are important for promoting quality talk about text. We found (Wilkinson et al., in press) that the nine approaches we identified and in which these parameters were present to a greater or lesser extent, were generally highly effective at promoting students' comprehension. Some were effective at promoting students' critical thinking, reasoning, and argumentation, and meta-cognition about and around text.

[4] In our Year 1 study during which we identified the parameters that appear to prevail across the nine discussion approaches we analyzed, we used a three-point scale (low–medium–high) to rate stance in discussions in the nine discussion approaches. We validated our own coding through use of a sampling framework (i.e., matrix sampling), and administered three randomly selected excerpts representing the expressive, efferent, and critical-analytic stances, respectively to 364 undergraduate students in education at Penn State University and 157 masters and doctoral students at Ohio State University, most of whom were specializing in programs in language, literacy and culture. We also conducted a member check of the student ratings and our own, by asking proponents of each of the nine approaches to identify the main features of their approaches through a 16-item questionnaire that included items pertaining to stance. It should be noted, that our ratings and those of the students were based on excerpts selected from the published literature on each approach (i.e., we thus rated the "realized" features rather than idealized features as perceived by some of the proponents). While the students largely agreed with our ratings of stance with respect to the transcripts provided, the proponents of the expressive and more efferent approaches largely disagreed with both ours and those of the students in our validation study. In particular, proponents/developers of Instructional Conversations and Junior Great Books rated their approaches as giving more prominent to the critical-analytic rather than to the efferent stance (Wilkinson et al., 2007).

There are good theoretical reasons why group discussions should promote students' high-level comprehension of texts. According to Piagetian theory (De Lisi & Golbeck, 1999), social interaction is a primary means of promoting individual reasoning. In the context of the group discussion, students are encouraged to make public their perspectives on issues arising from the text, consider alternative perspectives proposed by peers, and attempt to reconcile conflicts among opposing points of view.

According to socio-cultural theory (Wertsch, 1991), when students interact with others in a group, something collective is produced that is more than the result of the abilities and dispositions of the individuals who comprise the group. Each student brings to the discussion social and cultural values, unique background experiences, prior knowledge and assumptions. In addition, propositional knowledge about the text's content, procedural knowledge regarding how one interacts with the text, and meta-cognitive skills regarding one's thoughts about the discussion process contribute to the development of literate thinking (Chang-Wells & Wells, 1993; Resnick, 1987). This dialogic process, created through the group, is negotiated and sustained through interpretations of text, high-level reasoning, and standards of interaction that govern group behavior. Similarly, Bakhtin's work (1981, 1986) suggests that reasoning is inherently dialogical. According to Anderson et al. (2001, p. 2), "thinkers must hear several voices within their own heads representing different perspectives on the issue. The ability and disposition to take more than one perspective arises from participating in discussions with others who hold different perspectives" (see also Reznitskaya et al., 2001).

Having identified these parameters of what we have termed 'productive discussions,' we believed that there must be features of talk that would arise from discussions that could be utilized as indices of high-level comprehension and thinking. We know from the work of various researchers who have examined the quality of classroom talk and how this is closely connected (or not) to the quality of student problem-solving, understanding and learning, that there is sufficient stability and reliability in language use to enable us to make valid inferences about the productiveness of talk for student learning (Anderson, Chinn, Chang, Waggoner, & Yi, 1997; Applebee, Langer, Nystrand, & Gamoran, 2003; Mercer, 1995, 2002; Nystrand, Gamoran, Kachur, & Prendergast, 1997; Wegerif et al., 1999). Our search of the literature on classroom discourse and student learning led us to identify features of talk for which there was good theoretical warrant for believing they were linked to high-level thinking and comprehension. These features were tested on samples of published transcripts from each of the nine discussion approaches prior to soliciting additional full transcripts from the proponents of these approaches. Briefly, we found that there were indeed discourse features that could serve as proximal indicators of student's high-level comprehension. These are: use of authentic questions, uptake and questions that elicit high-level thinking (Nystrand et al., 1997; Nystrand, Wu, Gamoran, Zeiser, & Long, 2003); questions that elicit extra-textual connections such as affective, intertextual, and shared knowledge connections (Allington & Johnston, 2002; Applebee et al., 2003; Bloome & Egan-Robertson, 1983; Edwards & Mercer, 1987; Taylor, Peterson, Pearson, & Roderiguez, 2003); students' elaborated explanations (Chinn, O'Donnell, & Jinks, 2000; Webb, 1991); and, students' exploratory talk (Mercer, 1995; Mercer, 2000). We also identified a number of 'reasoning words' that, when used in appropriate contexts, signal reasoning (Wegerif & Mercer, 1997; Wegerif et al., 1999).

Although the goals of the approaches that we identified as having sound empirical warrant to be included in our analysis of discourse are not identical, most purport to help students develop the skills and abilities to discuss text, consider different perspectives, and provide support for arguments. Yet, very little is known about the similarities and differences among the various approaches to conducting discussions in terms of discourse features identified as indicative of high-level thinking.

3. Background

Our review of the empirical and conceptual literature related to the nine identified small group discussion approaches, suggests that several factors might contribute to productive text-based discussions that promote high-level thinking and comprehension.[5] In the development of our conceptual framework during Year 1, we found that most variation across approaches is in the degree of control exerted by the teacher vs. the students (in terms of interpretive authority, turn-taking, topic, and choice of text). Moreover, there appears to be a relationship between locus or degree of control and realized stance. Discussions in which students have the greatest control (e.g., peer-led) tend to be those that give prominence to an expressive response to the text. Conversely, discussions in which teachers have the greatest control tend to be those that give prominence to an efferent stance. The remaining discussion approaches fall between these two ends of the continuum: the teacher has considerable control over choice of text, topic, and turns but the students appear to have considerable interpretive authority—these approaches tend to give prominence to a critical-analytic stance. We suggest that shared control between teacher and students helps give rise to the efferent and expressive responses that are necessary for a critical-analytic stance to achieve prominence (Wilkinson et al., 2003).

One of our primary goals in developing the conceptual framework for productive discussions was to understand the similarities and differences among the nine discussion approaches to conducting discussions in terms of key decisions

[5] We use the term 'high-level comprehension' to refer to critical, reflective thinking about and around text. High-level comprehension of literary text assumes that at the very least, students engage with text in an epistemic mode in order to acquire not only knowledge of the topic but also knowledge about how to think about the topic and the capability to reflect on one's own thinking (Chang-Wells and Wells, 1993). We regard it as very similar to what Resnick (1987) defined as higher-order thinking, a process that involves "elaborating, adding complexity, and going beyond the given" (p. 42). Related terms are literate thinking, critical thinking, and reasoning.

teachers make to define the instructional framework for discussion. We also sought to develop a framework that would ultimately help teachers make decisions about discussion strategies that would be suitable for a particular group of students, a specific setting, or a particular purpose. Among other insights from our Year 1 study, we concluded that discussions are most productive when students have both connected with the text and gathered information, which in turn, positions them to interrogate or query the text in search of underlying assumptions, worldviews, arguments, or beliefs (i.e., a critical analytic stance (Wilkinson et al., 2003).

In our evaluation of the measures used by the studies to assess the discourse, we found that the most commonly assessed constructs in the discourse resulting from a given approach are: the amount of teacher talk, student talk, student–student talk, incidence of shared predicates, incidence of uptake, and incidence of cohesive markers. Researchers related to the identified nine approaches who analyzed transcripts of discussions, typically interpreted changes in the patterns of discourse among group members as evidence of the success of the approach, and from this evidence, made inferences as to the quality of students' thinking. However, relatively few of these researchers (notable exceptions being Saunders, Patthey-Chavez, and Goldenberg (1997) and Echevarria (1995), validated their measures by showing how the discourse is linked to comprehension. From the variety of measures used (27 different measures used for assessing group discourse), we infer that researchers are unsure of which measures are appropriate for assessing students' high-level thinking and comprehension of text following discussion. The preponderance of discourse measures used reinforces this claim, although we believe that in the absence of knowledge as to appropriate measures to use, researchers may have used indicators that are least sensitive to changes in participation structure, or a teachers' instructional moves and so on. We also observe (Wilkinson et al., 2003), that many of the researchers engaged in discussion research, subscribe to a highly situated view of learning that suggests that abilities and dispositions are best demonstrated in the context of use (i.e., within the group in which the discussions occur).

3.1. Purpose of the present study

As noted earlier in this paper, the purpose of the discourse study was to validate and extend the findings of the work in Year 1 of the larger project by evaluating the nine discussion approaches on a common set of discourse features known to characterize quality discussions. Transcripts (36) were solicited from the proponents of the nine approaches and examined in terms of teacher–student and student–student interactions in the group discourse to gauge the incidence of these proximal features. As a result of this study, we hoped to be better able to characterize quality discussions and students' learning and comprehension. A major goal of this study was to then apply this fuller understanding of characteristic discourse in quality discussions to the subsequent development of a model of discussion that promotes high-level comprehension of texts and uses the discourse analysis in the development of a professional development program around this model to help teachers recognize and facilitate quality discussions.

3.2. Research questions

Two research questions drove the discourse study:

- *RQ1*. Which discourse features (established in existing research) can productively serve across all nine discussion approaches as proximal indices of high-level learning and comprehension of text?[6]
- *RQ2*. To what extent does an analysis of the discourse of representative transcripts from each of the nine discussion approaches validate and extend our understanding of quality group discussions?

Research Question 1 is addressed in the analysis of the representative transcripts (four from each of the nine approaches). For Research Question 2, we identified discourse features for which there is good theoretical warrant for believing they are linked to high-level thinking and comprehension and good empirical research for demonstrating that connection (King, 1994; Newman, 1990; Nystrand et al., 1997, 2003; Taylor, Pearson, Clark, & Walpole, 2000; Wegerif et al., 1999). Our coding scheme targeted the nature of teacher and student questions (Nystrand et al., 1997, 2003), the presence of elaborated explanations (Webb, 1991), the presence of reasoning words (Wegerif & Mercer, 1997; Wegerif et al., 1999), and the presence of exploratory talk (Mercer, 1995, 2000).

3.3. Data sources

We contacted the proponents of the nine discussion approaches and requested transcripts or videos of complete discussions that they regarded as 'typical' of their approach. We requested four transcripts/videos from each proponent for a total of 36 discussions. The transcripts/videos we received ranged from approximately 5–30 min in length and spanned

[6] Applying coding of discourse features to transcripts that were solicited from proponents of the nine discussion approaches created challenges that we know only too well: can such analysis accommodate contextual factors such as classroom cultures, teacher personalities, expertise and familiarity with the approaches, potential distracters such as student SES, grade level, ability groupings, heterogeneous or homogeneous groupings, variability in texts selected for discussions, student interest in texts selected, and so on.

grades 3 through 9. We did not specify particular grade level in order to give proponents the freedom to send transcripts that, in their judgments, best typified their respective approaches. It should also be noted that our decision to accept whatever proponents sent was made in the absence of a developmental theory of changes in classroom discourse that might have guided our selection. Depending on the approach, some of the transcripts were peer-led discussions; however, most were from teacher-led discussions.

We transcribed the videos where necessary. We then standardized the transcripts to a common format so that the transcriptions were as similar as possible across approaches and were easy to read. We also attempted to describe the classroom contexts in which each of the transcripts was collected. Procedures for standardizing the transcripts are reported in our discourse-coding manual (Soter, Wilkinson, Murphy, & Rudge, 2004). The standardized transcripts were formatted as *rtf* documents and imported into *NVivo* (QSR International, 2002).

3.4. Method

3.4.1. Procedures

We developed the coding scheme in August to December 2003 and trained the three coding teams (organized according to dominant stance—expressive, efferent, critical-analytic) in January to June 2004. We used 30 short (half to two-third page) published excerpts of the nine discussion approaches for training. After teach training session, coding categories and procedures were refined to improve agreement among coders. Training was conducted until coders reached a criterion of 80% agreement. The coding and analysis of discourse, especially that related to teacher and student questions, was conducted in consultation with Dr. Martin Nystrand, University of Wisconsin, MD.

Following training, the coding was conducted by the PI-research assistant teams who were most familiar with the identified approaches (i.e., expressive, efferent, critical-analytic). In assigning coders according to familiarity with approaches, we acknowledged the significant role that context plays in any classroom event. Our familiarity with the goals of the approaches, the manner in which the discussions occur, the roles of the teachers and students, kinds of text used, degree to which students have control of topic, turn-taking, interpretation, and other contextual factors assisted us in conducting the coding.

The bulk of the coding was completed by the three graduate research assistants with all queries directed to the principal investigators. Each principal investigator coded a randomly selected transcript from each of their respective approaches, representing a 25% sample, for purposes of estimating the reliability of coding. Members of each coding team examined the extent of agreement on these transcripts, resolved disagreements, and subsequently entered revised codes into *NVivo 2*. Table 1 shows the range and mean percent of agreement for each discourse-coding category.

3.5. Discourse features

As indicated earlier in this paper, our intent was to code the transcripts for discourse features for which there was good theoretical warrant for believing that they were linked to high-level thinking and comprehension and good empirical research demonstrating that connection. The discourse features coded were: teachers' and students' use of authentic questions, uptake, and questions that elicited high-level thinking (generalization, analysis and speculation) (Nystrand et al., 2003); teachers' and students' use of questions that elicited extra-textual connections (affective, intertextual, and shared knowledge) (Allington & Johnston, 2002; Applebee et al., 2003; Bloome, Carter, Christian, Otto, & Shuart-Faris, 2005;

Table 1
Range and mean percent of agreement between coders by discourse coding category.

Coding category	Range	Mean
Questions		
Authentic	70.10–93.94	82.67
Uptake	81.44–92.31	86.87
High-level thinking	81.77–93.18	87.47
Affective response	82.35–100	91.17
Intertextual response	97.04–100	98.52
Shared knowledge response	94.91–100	97.45
Elaborated explanations	90.00–94.50	92.25
Exploratory talk	41.67–100	91.95
Reasoning words	77.17–90.16	83.66
Because/Cos/Cause/Cuz/Becuz/	86.47–94.82	90.64
If	84.58–85.64	85.11
So	79.21–92.91	86.06
I{*} think/thinks/thinking/thought	86.01–92.00	89.05
Agree/disagree	76.92–93.75	85.33
Would/'d/wouldn't/would've	88.42–91.75	90.08
Could/couldn't/could've	86.15–92.39	89.27
May be/maybe/might	88.10–93.94	91.02
How/why	83.03–100	91.51

Table 2
Summary of discourse features coded.

Teacher turns
Authentic question
Test question
Other question
Uptake
High-level thinking question
Affective response question
Intertextual reference question
Shared knowledge question
Student turns
Authentic question
Test question
Other question
Uptake
High-level thinking question
Affective response question
Intertextual reference question
Shared knowledge question
Elaborated explanations
Exploratory talk
Reasoning words
Because/Cos/Cause/Cuz/Becuz/
If
So
I{*} think/thinks/thinking/thought
Agree/disagree
Would/'d/wouldn't/would've
Could/couldn't/could've
May be/maybe/might
How/why

Edwards & Mercer, 1987; Taylor et al., 2003); students' elaborated explanations (Chinn et al., 2000; Webb, 1980, 1991); and students' exploratory talk (Mercer, 1995, 2000). We also coded what we called 'reasoning words,' word that, when used in appropriate contexts, signal reasoning (Wegerif & Mercer, 1997; Wegerif et al., 1999). Table 2 summarizes the discourse features coded. Definitions and examples are provided in Fig. 1.

3.5.1. Questions

According to Nystrand et al. (1997), productive classroom discourse exhibits a high degree of reciprocity in interaction and is marked by open-ended questions that create contexts for students to generate extended responses which, in turn, reflect reasoning processes that are typically regarded as indicative of high-level thinking. In Nystrand's et al. (1997) landmark study of literature discussions in 42 8th and 9th grade classrooms, authentic questions generated the kind of reciprocity that enabled students to take on roles as "fully fledged conversants" (p. 73). Nystrand et al. (1997) termed such instructional contexts in which students and teachers engage in authentic conversations and where knowledge is actively and interactively co-constructed as "dialogic events" (p. 73).

Our coding scheme categorized questions as authentic or inauthentic (called 'test' questions). As in Nystrand's et al. (1997) study, we coded questions generated by teachers. However, because of the greater involvement of students in our discussion approaches, we also coded questions generated by students. We also coded, under the general category of 'other,' procedural, discourse management, or rhetorical questions. For questions that we coded as authentic or test questions, we further coded them as to whether they demonstrated uptake, and elicited from students responses that indicated high-level thinking, affective connections, intertextual connections, or connections to previously shared knowledge. Questions coded as 'other' were not further coded in our analysis.

Following procedures outlined by Nystrand et al. (2003), questions were coded based on what they elicited from students rather than on their form—in other words, we coded 'question events.' According to Nystrand, et al., questions should be thought of as "sites of interaction" (p. 144) in that participants' responses to questions reflect their understandings of the nature of the interactions as manifest in their discourse moves.

3.5.2. Elaborated explanations

We assumed also that authentic questions might generate extended responses, including those which Webb (1980, 1991) defined as elaborated explanations. This assumption was confirmed in our preliminary trials using published excerpts of discourse-generated in-group discussions across the nine discussion approaches. Based on Webb's (1991) work, we defined elaborated explanations as elaborated descriptions of how things work, why some things are the way they are, or how they should be thought about. According to Webb, Farivar, and Mastergeorge (2002), elaborated explanations foster "cognitive restructuring and cognitive rehearsal on the part of the student doing the explaining" (p. 13). Giving explanations

Code	Feature	Definition	Example
AQ	Authentic Question	Open-ended question; speaker is genuinely interested in knowing how others will respond. Answer is not pre-specified.	No set form but a "How" question may function as an authentic question.
TQ	Test Question	Question which has seeks a specific answer.	*Who is the main character in Bridge to Terabithia?*
OQ	Other Question	Rhetorical question, discourse management question, classroom management question.	*How do we listen when another person is talking?*
UT	Uptake	A question in which there is follow-up about something someone has said before. Often marked by personal pronouns.	*How did that work?* *What causes this?*
HLT	High-level Question	High-level thinking marked by analysis, generalization, and/or speculation.	*How or why?* (Analysis) *What's the point?* (Generalization) *What if?* (Speculation)
AR	Affective Response Question	Making a connection between text and feelings or events in responder's own life.	*I felt….* *When I was little…….* *Like Mike in the book, I cried.*
IR	Inter-textual Response Question	Making a connection between the text and other texts or works of art, media, tv, newspapers, etc.	*In that other book we read….* *Like in Maniac McGee…*
SK	Shared Knowledge Response Question	Making a connection between the current discussion and previous discussions or knowledge that has been previously shared.	*Last week, we talked about….* *Remember when we …….*
EE	Elaborated Explanation	Thinking is explained in some detail through extension, building of an idea step-by-step, giving reasons for a statement, or expanding on a statement	*I agree with Joseph because he keeps annoying them by saying 'shut up' and I think he is trying to just get them to let him play because they wouldn't let him play because he didn't have his glove.*
ET	Exploratory Talk	Co-reasoning where students build and share knowledge over several turns, evaluate evidence, and consider options. Using language to 'chew' on ideas, think collectively. Typically contains concentration of reasoning words.	S1:*Why do you think she wants to be a kid?* S2:*Because she likes to swim and be around lots of kids.* S3:*And she likes playing a lot, with kids and stuff.* S1:*Yes.* S4:*And, I agree, because if she wasn't swimming, she'd probably be sitting back in a rocking chair. She's having a lot of fun, just like the children.*
RW	Reasoning Words	Conjunctions and phrases which indicate a reasoning process at work.	Examples: *because/'cause/'cuz/ 'cos; if, so; I think/I thought; agree/disagree; would; could/ couldn't; might/maybe/ may be.*

Fig. 1. Definitions and examples of discourse features.

"encourages the explainer to clarify and reorganize the material in new ways to make it understandable to others and, in the process, helps them develop new perspectives and recognize and fill in the gaps in their understanding" (Webb et al., 2002, p. 13). We also anticipated, like Webb, that hearing elaborated explanations that are timely and responsive to individual student needs might also benefit other students and help them correct misconceptions as well as foster greater engagement and constructive problem-solving activity.

3.5.3. Exploratory talk

Barnes (1976) first identified exploratory talk as an important construct for promoting learning in that it appears to promote the use of language for reasoning. Barnes (1976), Barnes and Todd (1995), and Mercer (2002) contend that a general tenet of exploratory talk is the sharing and co-construction of knowledge in classroom discourse. For this sharing and co-construction of knowledge to occur, teachers create classroom environments that encourage question and answer sequences that resemble those generated in the dialogic interactions identified by Nystrand et al. (1997) and Nystrand et al. (2003).

3.5.4. Reasoning words

Another useful index of student reasoning is the occurrence of what Wegerif and Mercer (1997) identify as 'key words in context.' Wegerif and Mercer (1997) have shown these words to be associated with episodes of exploratory talk. For our purposes, we renamed these 'reasoning words.' Key or reasoning words are commonly used conjunctions, modals and adverbials that when used in appropriate contexts, signal reasoning (see Table 2). Our procedure involved initial identification of these key words, followed by coding them as reasoning words if students used them in appropriate contexts.

3.5.5. Features coded for teachers and students

Table 2 illustrates the discourse features we coded for teachers and which applied for students. With teachers, we focused on questions. It may be recalled that our goal in this study was to characterize features of talk that indicated high-level comprehension and to examine the extent to which these features were present in student talk. For this reason, we coded only students' talk with respect to elaborated explanations, exploratory talk, and reasoning words. However, questions were coded for both teachers and students since the nature of the question generates the nature of the response, either opens up discussion or restricts it. In the context of group discussions that purport to provide a context for extended and authentic student talk, questions that generate or inhibit extended discussions are obviously of interest with respect to all participants who might generate them.

4. Results and discussion

The number and length of turns serve as metrics to establish the relative contribution of teachers and students to discussion. Table 3 shows the mean number of words, turns, and words per turn contributed by teachers and students across the four transcripts for each of the discussion approaches.

These results indicate that in those approaches in which an expressive stance toward the text is dominant (*Book Club, Literature Circles*, and *Grand Conversations*), students contributed most to the discussions. By contrast, in those approaches in which an efferent stance is dominant (*Instructional Conversations, Junior Great Books*, and *Questioning the Author*), teachers tend to contribute most to the discussions. They contributed fewer or a similar number of turns to those of the students, but the teacher turn tended to be longer. In *Instructional Conversations*, shorter student turns were to be expected because the students were non-native speakers of English. *Junior Great Books* is an exception to this trend in the more efferent approaches. In these discussions, students and teachers seemed to share the floor almost equally. In the approaches in which a critical-analytic stance is dominant (*Collaborative Reasoning, Paedia Seminar*, and *Philosophy for Children*), teachers contributed fewer turns than did students, but their turns were much longer than those of the students. Indeed, in the transcripts provided, teacher turns in *Paedia Seminar* and in *Philosophy for Children* were, overall, longer than in all the other approaches. It should be noted, however, that two *Philosophy for Children* transcripts showed very long teacher turns, while the remaining two of the four transcripts solicited from the proponents, showed moderate length teacher turns.

Overall, these findings with respect to length of turns are broadly consistent with how we characterized the approaches in our conceptual framework (Sorter et al., 2007). Students seem to have the greatest control over discussions that give prominence to an expressive stance; teachers seem to have the greatest control over discussions that give prominence to an efferent stance; teachers and students seem to share control over discussions that give prominence to the critical-analytic stance. It is likely that the longer teacher turns in the critical-analytic approaches reflect teachers' attempts to model and scaffold more elaborated forms of reasoning so as to elicit this kind of talk from students (see the findings for elaborated explanations below).

Table 3
Mean words, turns, and words per turn contributed by teachers and students by discussion approach.

	Approach								
	BC	LC	GC	IC	JGB	QtA	CR	PS	P4C
Mean words									
Teacher	0.00	1106.75	174.25	1820.75	1406.25	2386.00	696.50	2122.75	936.00
Students	1449.25	3948.25	2162.75	1330.50	1541.50	1286.50	3633.25	3651.75	2987.00
Total	1449.25	5055.00	2337.00	3151.25	2947.75	3677.75	4329.75	5776.25	3923.00
Mean turns									
Teacher	0.00	81.25	29.25	152.50	74.00	103.50	35.00	54.00	67.75
Students	166.25	291.50	118.25	254.50	84.50	100.75	296.00	104.25	191.25
Total	166.25	372.75	147.50	407.00	158.50	204.25	331.00	259.00	158.25
Mean words per turn									
Teacher	0.00	13.39	6.00	12.73	19.52	24.63	22.65	39.70	38.40
Students	10.17	14.65	18.52	6.10	18.95	14.28	14.12	32.60	19.89
Total	10.17	14.89	16.21	8.72	19.52	19.61	18.45	32.90	29.04

Table 4
Mean percentages of questions from teachers and students by discussion approaches.

	Approach								
	BC	LC	GC	IC	JG	QtA	CR	PS	P4C
Teachers	0.00	35.43[a]	72.83	94.45	88.63	95.95	32.02	56.14	52.75
Students	100.00	64.55	27.18	5.55	11.38	4.05	67.98	43.85	47.27

[a] *Note*: One of the Literature Circle discussions was peer-led so the percentage of teacher questions was zero for this discussion. With this discussion excluded, the mean percentage of teacher questions was 47.23%.

These findings have parallels in the distribution of questions asked by teachers vs. students. Table 4 shows the mean percentages of questions asked by teachers and students across the four transcripts for each of the discussion approaches. To the extent that the source of questions reflects the degree of control exercised by teachers and students, the means are in accord with our earlier characterization of the approaches. Student questions dominated two of the more expressive approaches (*Book Club* and *Literature Circles*); teacher questions dominated the more efferent approaches (*Instructional Conversations, Junior Great Books*, and *Questioning the Author*); and teachers and students shared questions in the more critical-analytic approaches (*Collaborative Reasoning, Paedia Seminar*, and *Philosophy for Children*). The high percentage of the teacher questions in *Grand Conversations* were authentic, a result that supports our view of this approach as one that invites student participation through open-ended questioning.

Table 5 shows a breakdown of the mean percentages of teacher and student questions that were coded as authentic, test, or other (procedural, discourse management, and rhetorical) questions. The most striking findings are the relatively high percentages of test questions asked by teachers in the approaches that foreground an efferent stance toward the text, that is, *Instructional Conversations, Junior Great Books*, and *Questioning the Author*. In the more efferent approaches, the text is regarded as the primary source of information. In *Junior Great Books* discussions, we found a larger percentage of authentic questions than test questions. We believe that this result is to be expected since authentic questions (termed 'interpretive questions' by *Junior Great Books* proponents) are an explicit feature of "Shared Inquiry," the instructional frame for discussions in this approach. Student questions in *Junior Great Books* were largely authentic, a finding that is not surprising according to Nystrand et al. (1997) in that students rarely ask substantive questions that presume a single correct answer.

We found higher percentages of "Other" questions in the *Instructional Conversations*, *Questioning the Author* and *Philosophy for Children* transcripts. In the case of the *Instructional Conversations* and *Philosophy for Children*, this finding probably reflects the younger ages of some of the students in these discussions and, for *Instructional Conversations*, their status as English language learners. In the case of *Questioning the Author*, students read from text during rather than before the discussion and many student questions were procedural.

In Figs. 2–10, we present the percentages of authentic and test questions asked by teachers and students that demonstrated uptake, elicited high-level thinking, and elicited affective, intertextual, or shared knowledge connections for each discussion approach. We did not include "other questions" in these figures, given that once we initially coded their presence, they did not contribute substantively to the discussions. Several observations can be made about these results. First, as might be expected in dialogically intensive pedagogies, all approaches showed high incidences of uptake and high-level thinking. *Questioning the Author* showed somewhat lower incidence of both indicators, and *Instructional Conversations* showed a low incidence of high-level thinking. Second, it seems evident in the more efferent approaches (*Instructional Conversations, Junior Great Books* and *Questioning the Author*) that teachers performed most of the 'rhetorical work' in terms of building on students' prior utterances and prompting their high-level thinking. Again, this presumably reflects the dominance of the teacher in these discussions. In *Questioning the Author*, students asked very few questions and their questions appear not to have contributed to the flow or quality of discussion. Third, extra-textual connections were barely apparent in any of the discussions. *Literature Circles* and *Philosophy for Children* discussions were the most likely to elicit

Table 5
Mean percentages of teacher and student questions coded as authentic, test, or other by discussion approach.

	Approach								
	BC	LC	GC	IC	JGB	QtA	CR	PS	P4C
Teacher questions									
Authentic	0.00	82.88	89.85	40.46	66.60	13.57	66.50	65.05	46.33
Test	0.00	0.90	7.00	47.63	21.27	61.29	6.95	8.64	8.24
Other	0.00	16.19	3.13	12.31	12.16	25.16	25.56	26.32	45.42
Student questions									
Authentic	77.98	84.95	94.43	43.74	62.50	58.75	60.50	55.46	34.64
Test	0.00	0.00	0.00	0.00	0.00	0.00	2.00	6.18	4.55
Other	21.98	15.03	5.58	56.25	37.50	41.25	37.49	38.35	60.81

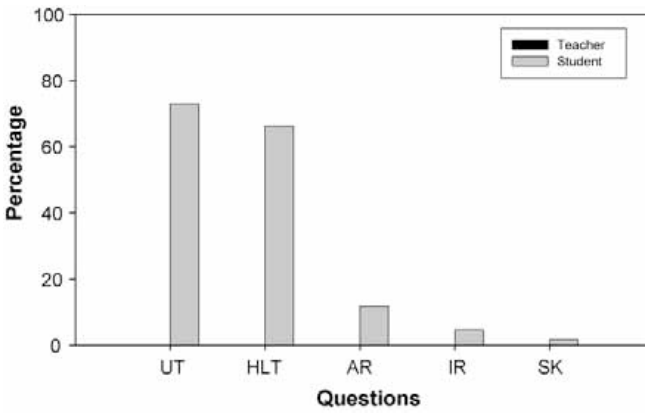

Fig. 2. Book Club.

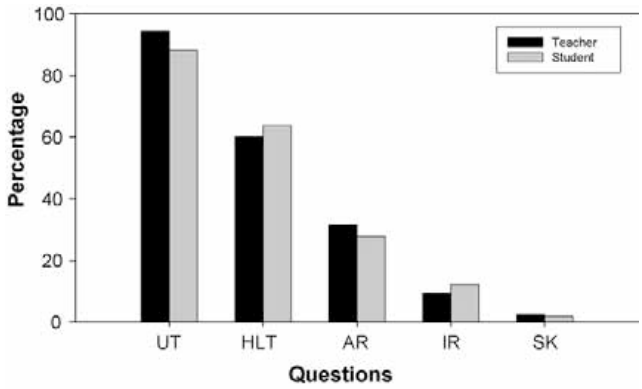

Fig. 3. Literature Circles.

affective responses. *Literature Circles* also showed a relatively high incidence of intertextual connections. In *Literature Circles*, students select novels and stories from a range provided by the teacher and they are often encouraged to make connections between texts.

4.2. Elaborated explanations

We now turn attention to the coding of elaborated explanations as evident in student talk in the transcripts of the nine approaches. Table 6 shows the mean length and incidence of elaborated explanations across the four transcripts for each of the discussion approaches. Students in *Philosophy for Children* and *Paedia Seminar* discussions offered the longest elaborated

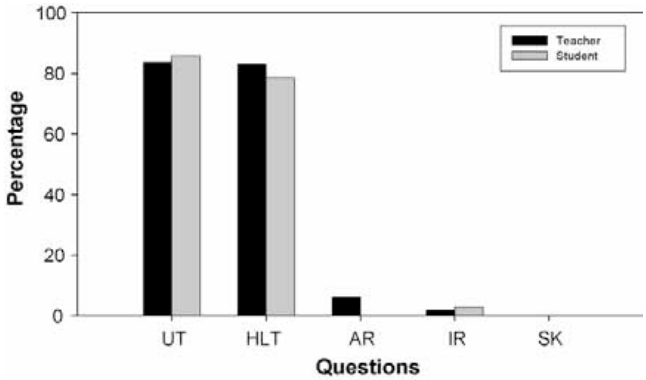

Fig. 4. Grand Conversations.

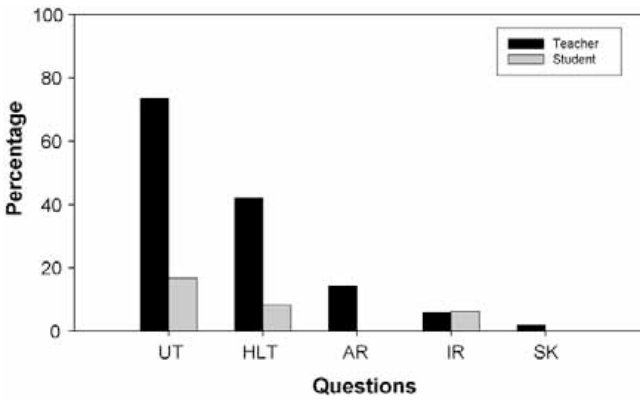

Fig. 5. Instructional Conversations.

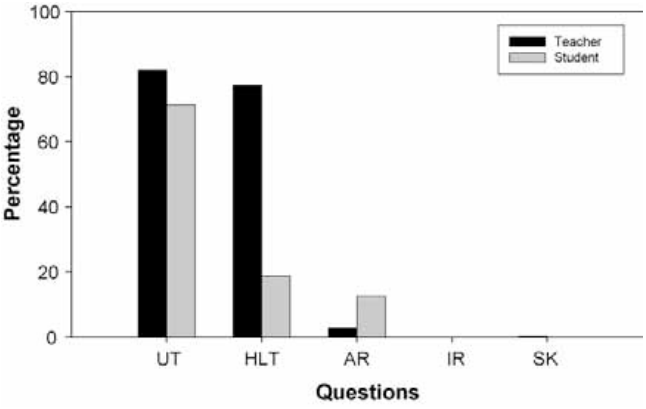

Fig. 6. Junior Great Books shared inquiry.

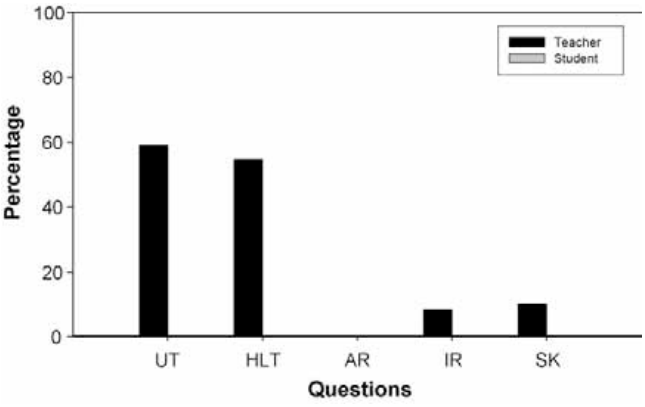

Fig. 7. Questioning the Author.

Table 6
Mean length and frequency of elaborated explanations by discussion approach.

	Approach								
	BC	LC	GC	IC	JGB	QtA	CR	PS	P4C
Mean words per EE	29.75	43.78	54.88	40.58	48.65	47.08	53.45	63.70	66.78
EEs per 100 turns	1.54	5.29	4.47	0.45	7.97	3.71	7.10	6.82	16.78

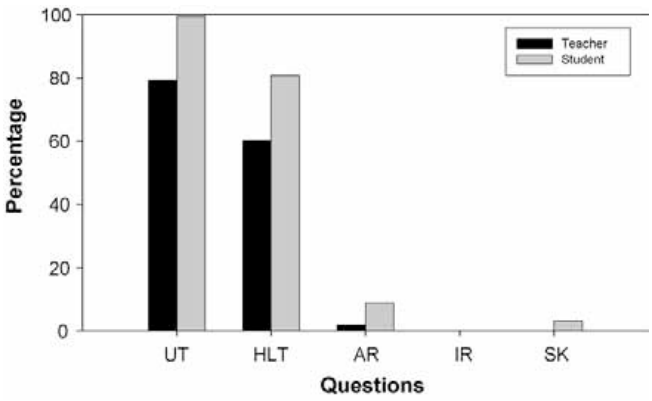

Fig. 8. Collaborative Reasoning.

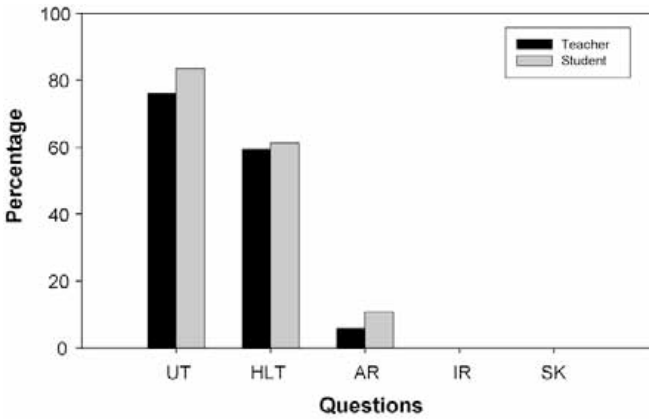

Fig. 9. Paideia Seminar.

explanations whereas students in *Book Club* discussions offered the shortest. Students in *Philosophy for Children* discussions offered the most elaborated explanations whereas students in *Book Club* and *Instructional Conversations* offered the fewest. Readers may recall that the discussions in the *Book Club* transcripts were peer-led by 4th graders, and that *Instructional Conversations* discussions included non-native speakers of English. In both cases, we believe it is reasonable to assume that limited experience in eliciting responses that would yield elaborated explanations may be inhibited by limited knowledge and experience in knowing how to elicit more elaborated responses, and limited knowledge of the language of instruction.

Fig. 11 compares the approaches in terms of the mean percentage of total teacher and student words which occurred in elaborated explanations. This metric combines both the length and incidence of elaborated explanations. These results show

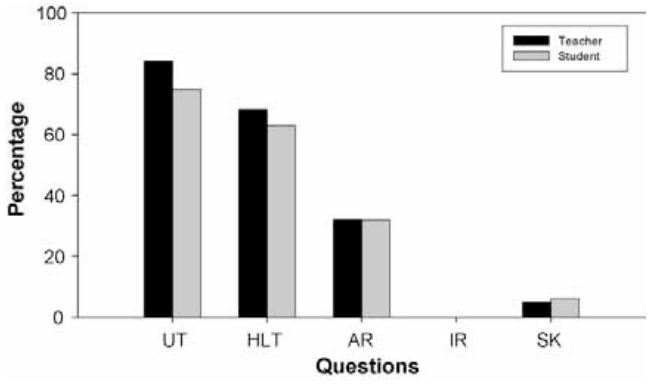

Fig. 10. Philosophy for Children.

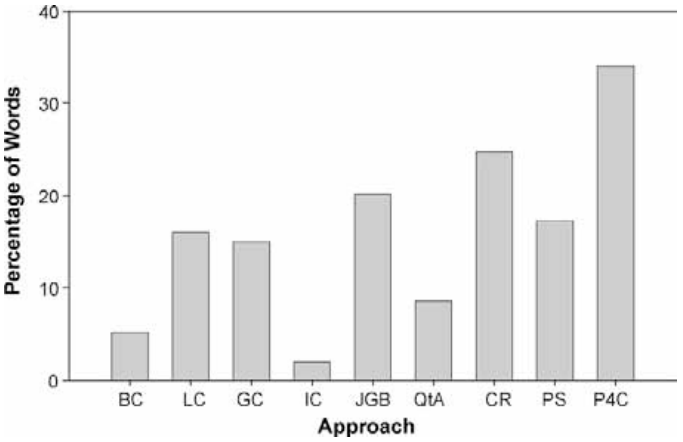

Fig. 11. Mean percentage of total words in elaborated explanations by discussion approach.

Table 7
Mean length and frequency of exploratory talk by discussion approach.

	Approach								
	BC	LC	GC	IC	JGB	QtA	CR	PS	P4C
Mean turns per ET	19.71	18.46	9.46	0.00	3.88	0.00	27.79	10.70	9.28
ET per 100 turns	1.99	1.24	1.81	0.00	1.38	0.00	1.48	2.40	2.54

that, overall, the more critical-analytic approaches (especially *Philosophy for Children* and *Collaborative Reasoning*) provided contexts for discussions where the majority of the talk was characterized by students' giving elaborated explanations. *Junior Great Books* discussions also generated longer and a higher incidence of elaborated explanations. *Literature Circles* and *Grand Conversations* also showed relatively large amounts of talk where students offered lengthy elaborated explanations.

4.3. Exploratory talk

Table 7 shows the mean length and incidence of exploratory talk across the four transcripts for each of the discussion approaches. Students in *Collaborative Reasoning, Book Club* and *Literature Circle* discussions engaged in longer episodes of exploratory talk than did students in the other approaches. Episodes of exploratory talk were most frequent in *Philosophy for Children*, *Paedia Seminar*, and *Book Club*. Students in discussions in the more efferent approaches (*Instructional Conversations*, *Junior Great Books*, and *Questioning the Author*) were much less likely to engage in exploratory talk as measured by both length and incidence; indeed, exploratory talk was nonexistent in *Instructional Conversations* and *Questioning the Author*.

Fig. 12 compares approaches in terms of the mean percentage of total teacher and student turns in the transcripts that occurred in episodes of student exploratory talk. Again, this metric combines both length and incidence of episodes of exploratory talk by students. These results show that, overall, discussions in which much of the talk was given to students'

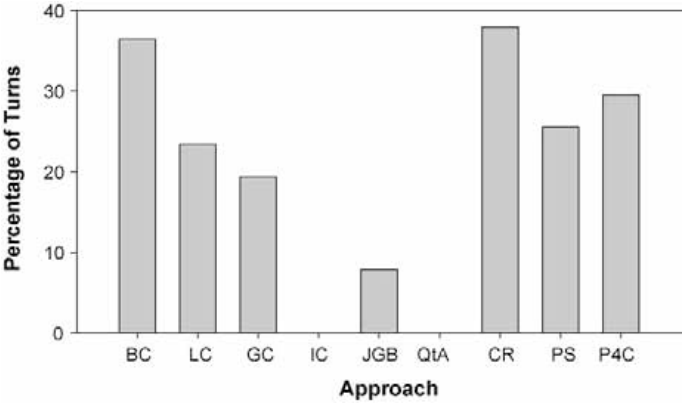

Fig. 12. Mean percentage of total turns in exploratory talk by discussion approach.

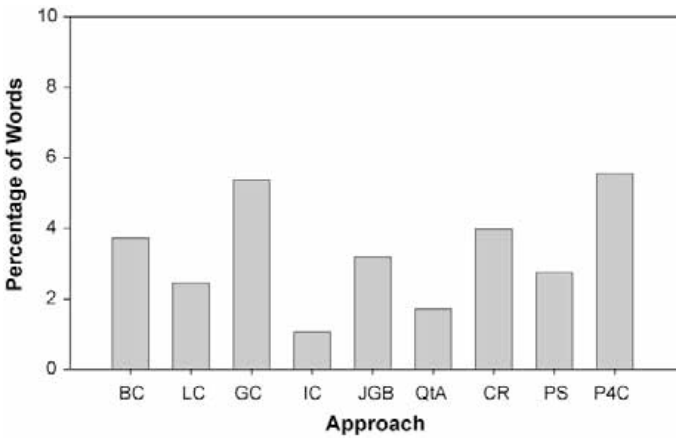

Fig. 13. Mean percentage of total words used as reasoning words by discussion approach.

exploratory talk were the more critical-analytic approaches (*Collaborative Reasoning, Paedia Seminar*, and *Philosophy for Children*) and the more expressive approaches (*Book Club, Literature Circles*, and *Grand Conversations*). We found very few or no episodes of exploratory talk in the efferent approaches.

4.4. Reasoning words

Fig. 13 shows the mean percentage of total teacher and student words that were coded as reasoning words across the four transcripts for each of the discussion approaches. These results show that the highest percentages of words used as reasoning words occurred in the *Philosophy for Children* and *Grand Conversations* discussions. Relatively high incidences of reasoning words also occurred in *Collaborative Reasoning, Book Club*, and *Junior Great Books* discussions. Although students' use of reasoning words provides another index of exploratory talk, it is clear from these results that the *relative* (Author emphasis added) use of reasoning words also indexes students' elaborated explanations.

Table 8 shows a breakdown of mean percentages of total words coded as particular reasoning words, organized according to presumed function of the reasoning words: speculating/proposing, positioning/claiming, and analyzing/generalizing. These results largely mirror the overall percentages shown in Fig. 13. Reasoning words that indicate speculation or making a proposal were more prevalent in the more critical-analytic approaches (*Collaborative Reasoning, Paedia Seminar*, and *Philosophy for Children*) and in two of the more expressive approaches (*Book Club* and *Grand Conversations*). Reasoning words were relatively infrequent in the more efferent approaches, even in Junior Great Books (with the possible exception of the reasoning word "if"), an approach that showed a relatively high incidence of the other reasoning words. Reasoning words that indicate taking a position (most notably "I think" and its variants) was also prevalent in the more critical-analytic and the more expressive approaches, as well as in *Junior Great Books*. Similarly, reasoning words that indicate analysis and generalization (especially "because") were prevalent in two of the more critical-analytic approaches (*Collaborative Reasoning* and *Philosophy for Children*) and in the more expressive approaches. Reasoning words indicating analysis and generalization were also more prevalent in *Junior Great Books*.

Table 8
Mean percentage of total words used as reasoning words according to function by discussion approach.

	Approach								
	BC	LC	GC	IC	JGB	QtA	CR	PS	P4C
Speculating/proposing									
Would	0.97	0.36	1.38	0.05	0.35	0.31	0.52	0.37	1.22
Could	0.24	0.10	0.82	0.06	0.20	0.15	0.32	0.12	0.40
Maybe/might	0.08	0.19	0.38	0.14	0.17	0.20	0.31	0.18	0.23
If	0.35	0.19	0.85	0.23	0.49	0.20	0.74	0.75	1.30
Positioning/claiming									
I think	0.56	0.44	0.60	0.05	0.54	0.17	0.59	0.41	0.43
I agree/disagree	0.00	0.01	0.00	0.00	0.21	0.02	0.08	0.15	0.33
Analyzing/generalizing									
Because	1.00	0.81	0.90	0.38	0.82	0.47	0.98	0.48	1.26
So	0.21	0.17	0.13	0.13	0.33	0.18	0.31	0.15	0.27
How/why?	0.34	0.18	0.32	0.02	0.10	0.01	0.13	0.13	0.12

5. Conclusions

Our analyses confirm our characterizations of the approaches in our conceptual framework (Wilkinson et al., in press) in terms of the relative degrees of control exercised by teachers and students. Based on our analyses of the teachers' and students' relative contributions to the discussions, student showed the greatest control over discussions that give prominence to the expressive stance; teachers showed the greatest control over discussions that give prominence to the efferent stance; and teachers and students showed shared control over discussions that give prominence to the critical-analytic stance.

The more critical-analytic and the more expressive approaches seem to offer the greatest opportunities for students to engage in high-level thinking and reasoning. These approaches showed high incidence of authentic questions and uptake—discourse moves that Nystrand et al. (1997) views as providing epistemological space for students to construct knowledge. Commensurate with this pattern of findings, these approaches show high incidences of questions that elicited high-level thinking (analysis, generalization, and speculation), and high incidences of elaborated explanations and/or exploratory talk.

What distinguishes the critical-analytic and expressive approaches are differences in the opportunities for individual and collective reasoning. The more critical-analytic approaches, especially *Collaborative Reasoning* and *Philosophy for Children*, showed high incidences of both elaborated explanations and exploratory talk, presumably because control of the discussions was shared between teachers and students. In contrast, the more expressive approaches showed high incidences of exploratory talk but lower incidences of elaborated explanations. This presumably reflects the higher degree of control over the discussions exercised by students in these approaches, and correspondingly, fewer opportunities for teachers to model and scaffold students' talk. This explanation is supported by the pattern of findings within the expressive approaches. In *Book Club*, the absence of the teacher seems to have provided more opportunities for exploratory talk than in *Literature Circles* and *Grand Conversations*. Conversely, in *Literature Circles* and *Grand Conversations*, the presence of the teacher seems to have provided more opportunities for students to offer elaborated explanations (although still not to the degree we saw in the critical-analytic approaches).

Among the more efferent approaches, the findings for *Junior Great Books* are somewhat anomalous. Although teachers asked most of the questions, teachers and students seemed to share the floor in terms of their respective contributions to the discussions. In this respect, *Junior Great Books* is similar to the more critical-analytic approaches. There were higher incidences of authentic questions and uptake in *Junior Great Books* than in the other efferent approaches and, commensurate with this, the discussions in this approach showed a higher incidence of questions that elicited high-level thinking. *Junior Great Books* discussions also provided many opportunities for elaborated explanations. Indeed, the incidence of elaborated explanations in *Junior Great Books* was higher than that of *Paedia Seminar*, a critical-analytic approach. However, *Junior Great Books* discussions showed fewer opportunities for exploratory talk than did the more critical-analytic and expressive approaches, presumably because of the greater degree of teacher control over the discussions.

Overall, findings from the analysis of discourse support the view that productive discussions are structured and focused yet not dominated by the teacher. They suggest that productive discussions occur where students hold the floor for extended periods of time, where students are prompted to discuss texts through open-ended or authentic questions, and where discussion incorporates a high degree of uptake. They also suggest that a certain amount of modeling and scaffolding on the part of the teacher is necessary to prompt elaborated forms of individual reasoning from students. In this regard, the richest reasoning seems to occur in the more critical-analytic rather than in the more expressive approaches. Our coding and analysis also suggest that extra-textual connections – that is, affective, intertextual, and shared knowledge connections – do not play as important a role in dialogically intensive pedagogies as others have suggested.

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