Dialogue in the Classroom

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There is increasing agreement among those who study classrooms that learning is likely to be most effective when students are actively involved in the dialogic coconstruction of meaning about topics that are of significance to them. This article reports the results of an extended collaborative action research project in which teachers attempted to create the conditions for such dialogue by adopting an inquiry approach to the curriculum. A quantitative comparison between observations made early and late in the teachers’ involvement in the project showed a number of significant changes in the characteristics of teacher–whole-class discourse, with a shift toward a more dialogic mode of interaction. Nevertheless, the initiation-response-follow-up (IRF) genre continued to be pervasive. Despite this, when the same observations were examined qualitatively, there was clear evidence of an increase over time in the teachers’ adoption of a “dialogic stance.” The article concludes with a consideration of the relationship between the choice of discourse formats and the enactment of a dialogic stance.

Throughout history, schools have been characterized by a transmissionary mode of instruction, with teachers showing and telling students what they should know and then testing them to ensure that they have learned it (Cole, 1996) and, as surveys have shown, this mode of instruction is still the norm in most classrooms (Galton, Simon, & Croll, 1980; Goodlad, 1984; Nystrand & Gamoran, 1991). Outside school, however, this is not how people learn (Resnick, 1987). As research in a variety of disciplines has shown, coming to know involves a much more active participation by learners in which they construct and progressively improve their understanding through exploratory transactions with the cultural world around them (Bransford, Brown, & Cocking, 2000). An overriding question for educators, therefore, is how to provide such learning opportunities in classrooms.

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Because most transactions in school take place through linguistic interaction, it
seems clear that it is with the quality of classroom discourse that we need to start.
Typically, and particularly when the whole class is involved, classroom discourse
takes the form of a three-part exchange, in which the teacher asks a question, a stu-
dent is selected to answer, and the teacher evaluates the student’s response. Known
as *initiation-response-evaluation* (IRE; Mehan, 1979),¹ this pattern can continue
over many exchanges with little connection between them. This “recitation script”
has been criticized from several points of view: It disadvantages children from cul-
tures in which this form of interaction is uncommon (Heath, 1983; Tharp &
Gallimore, 1988); it provides no bridge from everyday registers to those in which
disciplinary knowledge is constructed (Lemke, 1990); and it provides little or no op-
opportunity for students to voice their own ideas or comment on those of others
(Wood, 1992). However, following Barnes’s (1976) suggestion of treating talk as a
site for exploration rather than simply for evaluation, a number of recent studies
have begun to investigate the possibilities of making classroom interaction more
dialogic (e.g., Gibbons, 2002; Nystrand, 1997; Wells, 1999).

Starting in 1991, a group of educators in Toronto came together to explore ways
of creating classroom communities in which inquiry would provide the stimulus
for dialogue. Consisting of classroom teachers and university researchers, the
group engaged in collaborative action research over almost a decade. In brief, what
we found was that, even when the prevailing discourse structure has the form of
triadic dialogue, classrooms can indeed be places in which knowledge is
dialogically constructed. The purpose of this article, then, is to report some of
the findings from this study and then to consider three further questions: What
does productive dialogue look like? Under what conditions is it most likely to oc-
cur? What role(s) does the teacher need to play to promote and sustain it? First,
however, we need to explain why we believe dialogue to be so important.

**THE ROLE OF DIALOGUE IN ACTIVITY**

In making the case for dialogic inquiry, my colleagues and I² have drawn upon our
understanding of cultural historical activity theory (CHAT) and, in particular, on
Vygotsky’s (1981) premise that it is semiotically mediated joint activity that has

¹As explained later in the article, we adopted the term *follow-up* for the third move and refer to the
three-part structure as *IRE*.

²This article is based on work carried out between 1991 and 2004 with members of the Developing
Inquiring Communities in Education Project (DICEP) in Toronto, with support from the Spencer Foun-
dation, and with colleagues and students at the University of California, Santa Cruz. We are grateful to
them for the many discussions we have had about the nature and importance of dialogue in the class-
room. In particular, we wish to acknowledge the contribution of Erica Camalich in helping to analyze
the data on which the results presented in this article are based.
impelled what is specifically human about the development both of our species and of the different cultural groups that have emerged over the course of human history. Motivated by the drive to sustain and improve the human condition, joint activity has been and continues to be the arena in which knowledge is constructed and reconstructed, as both outcome of, and the mediating means for, the solving of the problems that inevitably arise in the course of object-oriented activity (Leont’ev, 1981). In this process, Vygotsky (1981) argued, language plays a key role, providing the means both for coordinating action and for thinking together. Not surprisingly, therefore, he also saw language as central in the development of humans’ “higher mental functions,” both at the level of individual development and in the cumulative creation and improvement of the technologies, arts, and institutions that characterize human cultures.

But how exactly does language come to play this central role? It was certainly not available from the beginning. Both phylogenetically and ontogenetically, intentional collaborative action emerges prior to the initial stages of specifically linguistic development. As Tomasello, Carpenter, Call, Behne, and Moll (in press) argued

Language is not basic, it is derived. It rests on the same underlying cognitive and social skills that lead infants to point to things and show things to other people declaratively and informatively, in a way that other primates do not do, and that lead them to engage in collaborative and joint attentional activities with others of a kind that are also unique among primates. The general question is: what is language if not a set of coordination devices for directing the attention of others? What could it mean to say that language is responsible for understanding and sharing intentions, when in fact the idea of linguistic communication without these underlying skills is incoherent.

In the last 30 years, a substantial body of research has shown that, before the child’s first attempts at communicating through speech early in the 2nd year, there is ample evidence that infants (like other higher primates) are able to read the intentions of others and that they are also able to engage in dyadic interactions with others in which they first share emotions (“primary intersubjectivity”; Trevarthen, 1979) and then attention to, and interest in, objects and events external to the dyad (“secondary intersubjectivity”; Trevarthen & Hubley, 1978). Then, early in the 2nd year, these lines of development come together in collaborative action, which involves both shared intentional behavior and reciprocal role taking in “protoconversation” about their joint actions. And from these arise what Tomasello et al. (in press) called “dialogic cognitive representations”:

Dialogic cognitive representations are necessary not only for supporting certain forms of collaborative interactions on-line, but they are also necessary for the cre-
ation and use of certain kinds of cultural artifacts, most importantly linguistic and other kinds of symbols, which are socially constituted and bidirectional.

It is these dialogic cognitive representations, then, that are communicated in children’s first semiotically based communicative acts. They are also the way into language. For example, as Halliday (1975) noted, the first functions to emerge in Nigel’s protolanguage were “instrumental” (to obtain goods and services), “regulatory” (to influence the behavior of others), and “interactional” (to maintain emotional ties with those closest to him).

Thus, the main point that emerges from this consideration of early language and its precursors is that, phylogenetically, language emerged as a tool—a functionally based system of communication—that enabled its users to achieve more effectively, and to diversify, the sorts of joint actions that they were already able to perform in a rudimentary way without it. And from an ontogenetic perspective, because every child is born into a community in which language use is already highly developed, in appropriating the language encountered in interaction with others, he or she takes over and transforms for his or her own uses the purposes and mediational means of the wide variety of joint activities in which contemporary humans participate. It is in this sense, then, that language is the “tool of tools” both in the development of individuals’ abilities to participate effectively as members of their communities and simultaneously in the development of those communities through their members’ participation (Lave & Wenger, 1991).

**DIALOGUE: INTERSUBJECTIVITY AND THE NEGOTIATION OF PERSPECTIVES**

One of the characteristics of linguistic communication is that it is almost always potentially ambiguous. The major reason for this is that, in use, words do not convey a fixed meaning but, rather, are imbued with the speaker’s meaning, which is based on his or her perspective on the topic under discussion. Thus, even when attending to the same object, individual participants interpret and speak of it from different perspectives as a result of their previous experience and current concerns. This means that, for dialogue to proceed satisfactorily, participants have to make a persistent attempt to understand each other’s perspectives—to achieve a state of intersubjectivity.

In fact, paradoxically, as Rommetveit (1985) pointed out, “intersubjectivity must in some sense be taken for granted to be attained” (p. 189). For when two or more people engage in dialogue, they both assume that the other(s) will enter into and honor a kind of contract to alternate between two roles, which Rommetveit explained as follows:

States of intersubjectivity are, in fact, contingent upon the fundamental dyadic constellation of speaker’s privilege and listener’s commitment: The speaker has the priv-
ilege to determine what is being referred to and/or meant, whereas the listener is committed to make sense of what is said by temporarily adopting the speaker’s perspective. (p. 190)

This reciprocity is essential for what he called symmetric dialogue. But, of course, such perfect symmetry of intersubjectivity is rarely attained in practice, because speakers do not always take their listeners’ expectations sufficiently into account and listeners are not always able and/or willing to adopt the speaker’s perspective. When these failures of intersubjectivity happen, misunderstanding is likely to occur, and if this is not clarified in the subsequent discourse, there is likely to be a breakdown in the dialogue. This is rather clearly brought out by the following extract from a conversation between a 2-year-old and his mother.

While his mother was attending to household chores, Mark was looking out of the window and noticed a man at work in his garden below:

Mark: A man- a man er- dig- down there.
Mother: A man walked down there?
Mark: Yeh.
Mother: Oh, yes.
Mark: Oh, yes.
    [6-sec pause]
    A man’s fire, Mummy.
Mother: Mm?
Mark: A man’s fire.
Mother: Mummy’s flower?
Mark: No.
Mother: What?
Mark: [emphasizing each word] Mummy, the man. fire.
Mother: Man’s fire?
Mark: Yeh.
Mother: Oh, yes, the bonfire.
Mark: Bonfire. Oh, bonfire. bonfire. bon-a fire bo-bonfire.
    Oh, hot, Mummy. Oh, hot. It hot. It hot.
Mother: Mm. It will burn, won’t it?
Mark: Yeh . burn . it burn.

In the first sequence, Mark attempted to draw attention to the man’s activity of digging, but his mother misheard what he said. Because he was willing to accept his mother’s interpretation of his meaning intention as referring to the man walking, when she, not looking out of the window herself, simply acknowledged his observation, the exchange ground to a halt. On the other hand, a few seconds later, when she again misinterpreted his intention, Mark persisted until she understood.
Then, by naming their joint focus of attention more precisely, she offered a different but related perspective of her own, which prompted Mark, in turn, to add a further perspective, which led to a satisfying outcome for both (Wells, 1986).

However, what this brief conversational excerpt makes clear is that there is also a second paradoxical characteristic of dialogue. Although intersubjectivity is continuously aimed for, turn by turn, it is the differences between interactants’ perspectives on the topic, expressed in successive turns, that make a dialogue interesting and likely to continue. Nevertheless, for it to proceed in this way, the interactants must be willing and able to switch roles in a reciprocal manner, each proposing a topic that the other treats as the current focus of joint attention and as the basis for a relevantly related contribution of his or her own.

On this point, Bakhtin (1986) provided an important additional perspective. Noting that every utterance is a link in an unending chain of communication, he pointed out that, in contributing an utterance, a speaker both responds or reacts to previous utterances—“expresses [his] the speaker’s attitude toward others’ utterances and not just his attitude toward the object of his utterance” (p. 92)—and addresses it to a particular audience from whom he expects a further response. And, viewed from the other side, listening (or reading) another’s utterance is equally active: “All real and integral understanding is actively responsive, and constitutes nothing other than the initial preparatory phase of a response (in whatever form it may be actualized)” (p. X). To this he adds

And the speaker himself is oriented precisely toward such an actively responsive understanding. He does not expect passive understanding that, so to speak, only duplicates his own idea in someone else’s mind. Rather he expects response, agreement, sympathy, objection, execution, and so forth.” (p. 69)

It might seem, then, that in Bakhtin’s (1986) conception of dialogue, intersubjectivity was ignored—though we do not think this to be the case. For it is very clear that of equal or greater significance for him was responsivity and the “interanimation of voices.” Disagreement was as much to be expected as agreement, but for either to be the stance taken in response, the listener had to be actively understanding as well as preparing his or her reply.

Writing in the same tradition, although somewhat later, Lotman (1988) proposed that there are two functions of a text (utterance, in Bakhtin’s, 1986, usage). The first, which might be called “monologic” (Wertsch, 1991), assumes a coincidence of speaker’s meaning and listener’s interpretation (and hence, perfect intersubjectivity). However, useful though this may sometimes be for some pur-

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3Like Halliday (1975), Lotman used text to refer not only to written texts but also to any instance of language being used on a particular occasion.
poses, it does not call for, or welcome, a responding utterance that offers an alternative perspective.

In its second function, on the other hand, a text serves to generate new meanings. In this respect a text ceases to be a passive link in conveying some constant information between input (sender) and output (receiver). Whereas in the first case a difference between the message at the input and that at the output of an information circuit can occur only as a result of a defect in the communication channel, and is to be attributed to the technical imperfections of this system, in the second case such a difference is the very essence of the text’s function as “a thinking device.” (Lotman, 1988, pp. 36–37)

Similarly, in Bakhtin’s (1986) view, it is only the second function of a text that can be considered to be truly dialogic, for it is only when the transmissionary function is subordinated that there is the possibility for active responsiveness and the interanimation of voices (Wertsch, 1991).

MONOLOGIC AND DIALOGIC INTERACTION IN THE CLASSROOM

Lotman’s (1988) distinction between the two functions of text is clearly very relevant to the talk that goes on in classrooms. Although he clearly placed greater value on the second, “dialogic” function, he did not discount the monologic function, with its aim “to convey meanings adequately” (p. 34). As he explained, the monologic function is important for passing on cultural meanings, “providing a common memory for the group” (p. 35), thus preserving continuity and stability of beliefs and values within a culture. By the same token, however, a text treated in this way is by nature authoritative, not open to question or alternative perspectives. A further drawback is that, in this transmissionary model of communication, although intersubjectivity is assumed, it cannot be guaranteed, because there is no opportunity for misunderstandings or misinterpretations by the receiver(s)—which inevitably arise—to be corrected.

It is for this reason that Lotman (1988), like Bakhtin (1986), saw the dialogic function of text as being more important. As Bakhtin emphasized, to understand a text/utterance is to begin to respond to it from the receiver’s perspective. And, as these alternative perspectives are brought into dialogue with each other, the text does indeed function as “a thinking device”, as Lotman (1988) put it, and as “a generator of new meanings” (p. 35). Emphasizing this function thus encourages innovation and originality. However, for this very reason, there is no guarantee that the new meanings generated will be entirely compatible with those assumed by the authoritative, monologic function. On some occasions the new meanings may
seem unwarranted, though this can be argued out in the ensuing dialogue. On other occasions, however, the new meanings may open up new possibilities that warrant further exploration. In either case, however, the value of adopting the dialogic function is that it is inclusive of alternative perspectives and the interanimation of voices and leads to a deeper understanding of the topic by all concerned, whether or not the result is concensus and perfect intersubjectivity.

Recognition of the reciprocity of these two functions can also be seen in Tomasello’s (1999) phylogenetic hypothesis concerning the cultural development of human cognition, in which he proposed what he called “the ratchet effect” to account for the cumulative nature of cultural evolution. As he pointed out, although “progress” depends on the creativeness of particular individuals or groups in inventing and improving cultural tools the process of cumulative cultural evolution requires not only creative invention but also, and just as importantly, faithful social transmission that can work as a ratchet to prevent slippage backward—so that the newly invented artifact or practice preserves its new and improved form at least somewhat faithfully until a further modification or improvement comes along. (p. 5)

Although Tomasello (1999) was considering the early stages of cultural evolution in the passage just cited, the same argument clearly applies throughout history, as one generation succeeds another. Both continuity and innovation are necessary for a healthy society, and for this purpose the texts of cultural knowledge need to be engaged both monologically and dialogically.

What this suggests from the ontogenetic point of view of individual development is that each of us needs both to be enculturated into the knowledge and practices that are valued in our culture (the ratchet effect) and also to be encouraged to explore and propose alternative possibilities to “improve” the received knowledge and practices to make them more appropriate and effective for the present and the foreseeable future. Viewed from this point of view, then, the task of education, both in the family and community and in schools and colleges, is to provide opportunity and support for both these aspects of development. Or to put it differently, education requires both monologic and dialogic interaction between and among the members of successive generations.

For the vast majority of children there is no lack of monologic interaction, either at home or at school. This is not surprising, for it is clearly important for children’s present and future participation in their families and in the larger community that adults, with their greater expertise, provide the necessary opportunities for children to appropriate their community’s ways of acting, thinking, and valuing, and the accepted ways of communicating their thoughts and feelings about their experiences. Together, these form the cultural resources that they need to master to become full members of their community. At school, too, there is much
that students need to take over from previous generations, and monologic, direct instruction is sometimes the best way of providing the necessary opportunity for such learning (Wells, 1998). But, in the light of the preceding argument, monologic instruction alone is not sufficient. Not only do children not always understand what they are told and so need to engage in clarifying dialogue to reach the desired intersubjectivity, but frequently they also have alternative perspectives on a topic that need to be brought into the arena of communication and explored in more symmetric dialogue in which there is reciprocity in the roles of speaker and listener, and equally, an attempt by each to understand the perspective of the other.

This certainly happens in the homes of almost all children—at least in Western societies—as we found in the Bristol Study of Language at Home and at School (Wells, 1986). On the other hand, as we also found in the same study, it is singularly lacking in schools. Not only do children almost cease to ask real questions at school, but also teachers rarely ask them to express and explain their beliefs and opinions—at least with respect to the official curriculum. What makes this contrast so striking is that many of those who teach all day from the recitation script are themselves parents who dialogue with their children at home.

Is the almost complete absence of dialogue in the classroom inevitable then—as many teachers seem to assume? Or is it possible to create conditions that make its emergence more likely to occur? These were the questions that the Developing Inquiring Communities in Education Project (DICEP) attempted to answer through collaborative action research.

ADOPTING AN INQUIRY ORIENTATION TO CURRICULUM AND ITS IMPACT ON CLASSROOM DISCOURSE

As the title of the project, “Developing Inquiring Communities in Education,” suggests, the focus was not directly on dialogue per se, but rather on the activities that would be likely to generate dialogue. In other words, in planning the project, we followed Vygotsky in treating discourse as a mediational means to the achievement of the goals of other activities rather than as an activity in its own right.4 On this basis, we decided that little success would be achieved by encouraging teachers to engage in dialogue for its own sake, because, to be effective, the genre of discourse selected on any occasion must be appropriate for the purpose of the curricular activity it is designed to achieve. Instead, therefore, our question was: In the service of what sort of approach to the curriculum would dialogue most naturally

4Similarly, Lave and Wenger (1991) argued that learning is not a separate activity but an intrinsic aspect of participation in a community of practice.
arise? Or, putting it rather differently, under what conditions would students’ perspectives be considered relevant and important to take into account?

In choosing to focus on inquiry, we took our lead from Dewey (1938), who argued that education should be based on inquiry into issues of social as well as personal significance. This had proved to be effective in classrooms we had previously observed, in which an increased level of student engagement occurred when they had some choice concerning which aspect of the class’s curricular topic they would investigate and how they would conduct their inquiries (Wells & Chang-Wells, 1992). Accordingly, in setting up the project, we invited teachers who were interested in adopting an inquiry orientation to curriculum and in collaboratively documenting and investigating their attempts to create communities of inquiry in their classrooms. Most of the teachers who joined the project had already taken courses at the university, in which they had gained some familiarity with sociocultural theory; they had also had some experience of carrying out research in their own classrooms.

The project started in 1991 with a focus on science, because science lends itself very readily to an inquiry orientation. But very soon the teachers found that inquiry was spilling over into other areas of the curriculum. So, when we applied for a further grant in 1994, we broadened the scope of our project to include all aspects of classroom life. In fact, one of the teachers who joined the project at that stage chose to establish the practice of holding regular class meetings and then investigated how the experience of considering alternative points of view on social issues affected her students’ ability to engage in productive discussion about the stories she was reading to them (Davis, 2001).

The members of the group each chose their own way of approaching our central question and collected data relevant to their individual inquiry. However, they agreed that, when video-recorded observations were made of the curricular units on which they focused their inquiries, these recordings would be included in the project database. Extracts from these recordings that involved whole-class or small-group interaction were then transcribed and copies of the transcripts were handed back to the teachers for them to use in pursuing their inquiries.

As stated earlier, our major focus was on how the participating teachers would attempt to create communities of inquiry in their classrooms and how engagement in inquiry would affect students’ learning. For 6 years (1992–1998) we met regularly once a month and occasionally for a full day. At the majority of these meetings one member updated the group on the progress of her or his inquiry and the remaining members offered comments and suggestions. As the project progressed, more and more of these individual investigations were presented at teacher conferences, and several were written up and published in a variety of educational journals and books (e.g., Wells, 2001). However, although almost all of their presentations drew on transcribed excerpts from the observations, the focus was rarely on language per se; rather, the discourse data were used to illustrate ways in which students were becoming more engaged in learning and more adept at carrying out group inquiries in the process.
QUANTITATIVE ANALYSIS OF DISCOURSE

In the final year of the project, the university members of the group began to carry out linguistic analyses of the corpus of transcripts that had been prepared, using a coding scheme based on the same theory of linguistic interaction as used in the Bristol study, but substantially revised to place more emphasis on the sequential organization of the discourse and of the functions that teachers’ and students’ utterances performed in the coconstruction of meaning. In particular, we enlarged the definition of the third move in triadic dialogue to take account of the various different ways in which a teacher might follow up on a student’s answer to a teacher’s initiating question (Wells, 1993a).

The Coding Scheme

Space does not allow a detailed presentation of the coding scheme here, but Figure 1 gives a summary overview of the hierarchy of levels at which coding was carried out, together with the major categories at each level.5 (A summary of the coding scheme is included as the Appendix.)

As can be seen from Figure 1, the most inclusive unit was an episode of discourse, which was defined as a stretch of talk in which the topic and the participant structure continued essentially unchanged. Important descriptive categories at this level were the curricular activity involved, the participant structure, and the role that the discourse played in relation to the curricular unit in question.6 At the next two levels, those of sequence and its constituent exchanges, we coded, first, who initiated the sequence and the function of the discourse move the initiator made in that role. For this purpose, we distinguished whether an initiation by the teacher was a question or an informing move and, if the former, whether it asked for information supposed to be known or posed a problem and invited suggestions, conjectures, or explanations for open-ended discussion. Second, we focused on the occurrence of teacher follow-up moves and the functions that they performed. We also coded the length and complexity of student moves.

The first analysis to be carried out focused on episodes of teacher–whole-class interaction (43 in total),7 comparing the ways in which the style of discourse varied according to the curricular topic (science vs. arts) and according to the role of the discourse in relation to the curricular activity in progress (management of activities vs.

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5A much fuller account can be found in Nassaji & Wells (2000).
6These three categories are rather similar to Halliday’s (1975) three dimensions of register: field, tenor, and mode, respectively.
7The teachers involved in the project taught classes ranging from Grade 1 to Grade 8. Some taught in inner city schools and some in suburban schools, but, although the proportion of recent arrivals in Canada was greater in the inner city schools, all the classes included students for whom English was a second language.
exploration of ideas). In a nutshell, what we found was that the interaction became more dialogic when the class was engaged in the latter (e.g., planning, interpreting, or reviewing student inquiries). By contrast, episodes of teacher-led instruction, classroom management, and checking on what had been learned tended to be characterized by shorter sequences of talk on a particular issue and a higher proportion of evaluative responses to student contributions. In general, however, there was little systematic difference between science and arts topics (Nassaji & Wells, 2000).

Shortly after the Nassaji and Wells (2000) article was accepted, we read the report by Nystrand, Wu, Gamoran, Zeiser, and Long (2002) in which they described the coding scheme that they had used in a large-scale study of classroom interaction in English and social studies in secondary schools across a number of states (Nystrand & Gamoran, 1991). We were particularly interested in two categories that they considered to be implicated in the occurrence of what they called “dialogic spells,” that is to say, moments when the interaction shifted from implementation of a “recitation script” to what Tharp and Gallimore (1988) called an “instructional conversation.” The two categories were Level of Cognitive Demand and Level of Evaluation, each of which they coded as “high” or “low.” What distinguished high from low evaluation was the occurrence of teacher “uptake” of the student’s response, either through its incorporation in the teacher’s follow-up comment or through a request for the student to give further elaboration or explanation. We were also interested in their construct of “true” discussion, which they defined operationally as

the free exchange of information among at least three students and the teacher that lasted at least a half minute during a classroom instructional episode. [It] tends to be marked by the absence of questions, either by the teacher or student, except for purposes of clarification. (Nystrand et al., 2002, p. 16).
However, we modified this definition slightly to read “the free exchange of information among at least three participants, with or without the inclusion of the teacher.”

As a result, we decided to extend the coding scheme to include these categories to enable us to carry out a more detailed investigation of the relationship between the type of move that initiated a sequence of interaction and the way in which the teacher followed up on student contributions. At the same time, we divided the coded observations into two sets: those that were made early in each teacher’s participation in the project and those that were made later. The purpose of this analysis was to find out whether a commitment to adopting an inquiry orientation to the curriculum would lead to a change in discourse style over time, with a greater proportion of sequences involving dialogic interaction as the teachers became more adept at engaging students in inquiry.

The Sample

Over the 7-year duration of the project, 12 teachers were involved in the DICEP group, but unfortunately, they did not all participate for an equal length of time; in fact, their involvement varied in duration from 1 year to 8 years. Of these 12, only 9 teachers contributed episodes of teacher–whole-class interaction to the database. Three of these (GD, JB, and NS) withdrew at the end of the 1st year, and because the episodes they contributed were not widely separated in time, these episodes were all classified as “early.” By contrast, 3 of the teachers who were involved for 4 or more years (WG, HK, and KM) did not contribute any episodes of whole-class interaction to the database until near the end of their participation; this was mainly because their early inquiries focused on small-group work. Those episodes that they did contribute were treated as “late.” There were thus only 3 teachers (VM, DZ, and AJ) whose recorded episodes of whole-class interaction could be divided between “early” and “late”; however, between them, they accounted for 20 of the episodes in the database (47%; see Table 1).

When considering the far from optimal nature of this database of whole-class interaction, remember that the project was not originally designed with the current investigation in mind, as the teachers voluntarily joined the project with the principal aim of collaboratively investigating whether and how it was possible to approach learning and teaching through an inquiry orientation to curriculum. Clearly, however, the teachers’ unequal participation imposed serious constraints on the statistical analyses that could be performed on the data and limited the conclusions that could be drawn from the quantitative results.

Analytic Procedure

The procedure followed was first to carry out the additional coding required. This was done by the authors with the assistance of a graduate student using a custom
made program in FileMaker Pro 4. In the small number of cases where there was disagreement, the senior author made the final decision to ensure consistency of coding. The next step was to compute proportional frequencies of alternative subcategories within each major category for each episode. For example, for the category Sequence Initiation, the proportional frequencies of the three subcategories Teacher Initiating Question, Teacher Initiating Inform, and Student Initiation were computed; similarly, where the sequence was initiated by a teacher question, the proportional frequencies of the two subcategories Known Information Question and Negotiatory Question were computed. Then, with the proportional scores for each category in each episode grouped according to whether the episode was early or late, the significance of the observed differences between the two groups’ scores was computed using the Wilcoxon–Mann–Whitney U test.

RESULTS OF QUANTITATIVE ANALYSIS

The comparison between early and late observations focused on three groups of categories: the first concerned sequence initiation; the second, teacher follow-up; and the third included measures of the length and complexity of student contributions, the mean length of sequences of interaction, and the frequency of sequences meeting the criteria for “true” discussion. The results are displayed in Tables 2 and 3 and in Figure 2.

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8Coding of linguistic data cannot be an entirely objective process, because a high proportion of moves are open to more than one interpretation. Rather than carry out and report a test of intercoder reliability, therefore, we chose to have one coder make the final decision in the case of disagreement. The number of such disagreements occurred on less than 5% of the total number of coding judgments made.
In interpreting these results, it is important to understand that the variables within each of the first two groups are not independent. Starting with initiation, the data show that the proportion of sequences that was initiated by a teacher question decreased significantly from an average of about 70% in the early observations to an average of approximately 50% in the later, $p < .05$. The main reason for this was the considerable increase in the proportion of sequences that were initiated by students (instead of by the teacher), $p < .01$. At the same time, there was a substantial increase in the proportion of teacher initiating questions that asked for information that was open to negotiation. In fact, it was such negotiatory questions that most often led to students initiating subsequent sequences.

In the second group of comparisons, those concerning teacher moves providing follow-up to student contributions, there were three significant changes. First, a greater proportion of all teacher follow-ups showed uptake of the student contribution (high evaluation), $p < .05$, and of these, a greater proportion took the form of a follow-up question requesting further explanation, exemplification, or justification, $p < .001$. A further interesting finding was that, in the case of teacher questions that posed a high cognitive demand, there was a significant increase in the proportion of student responses that did not receive any evaluation, $p < .01$. On inspection, this was seen to occur most frequently when, instead of providing follow-up, the teacher invited some other student who was
bidding to respond, which frequently led to the invited student initiating a new sequence.

The final set of comparisons is also interesting but, in two cases, somewhat puzzling. The increase in student mean response length (MRL) was not at all unexpected in the light of the preceding results: When students had the opportunity to initiate, they tended to speak at much greater length and with greater linguistic complexity, \( p < .05 \). On the other hand, the almost complete lack of difference in the average length of sequences (MSL), that is to say, the number of exchanges required to complete the sequence, was initially rather surprising. Certainly, in the later episodes there were many instances of much longer sequences in which the topic was developed over many exchanges. On the other hand, when the teacher provided no follow-up and another student took the floor, the first sequence frequently consisted simply of the nuclear exchange and

![FIGURE 2 Early versus late episodes: Comparison of selected variables. Note. TIQ = teacher initiation question; S Init = student initiation; NQ = negotiatory question; HEval = high-level evaluation; Dep Fup = high evaluation including negotiatory question; HCD–NE = high cognitive demand–no evaluation; MSL = mean sequence length; MRL = mean (student) response length; Disc Seq = sequence including “true” discussion. *\( p < .05 \). **\( p < .01 \). ***\( p < .001 \).]
the next student’s contribution constituted a new sequence in its own right. Taken together, these two significant changes in the patterns of interaction in the later episodes seem to have cancelled each other out, as it were, giving rise to an overall average sequence length that was not significantly different from the average length of the earlier episodes.

However, it is the last comparison that is the most puzzling. The finding that there was a significant increase in the proportion of sequences including “true” discussion (as defined by Nystrand et al., 2002) in the later episodes, \( p < .05 \), was not at all unexpected. What was unexpected, however, given the other significant differences found, was the overall very low average frequency of such sequences. We were therefore interested to discover what other features were associated with such discussion sequences. To ascertain the strength of the relationship among the selected variables, we constructed a correlation matrix (see Table 4).

As this table shows, the occurrence of a sequence involving discussion was highly likely to be found in an episode in which a higher than average proportion of sequences was initiated by students, \( r = .543, p < .001 \), where teacher initiation questions tended to involve information for negotiation rather than for known information, \( r = .260, p < .05 \), and where a greater proportion of student responses to questions involving a high level of cognitive demand received a “null” evaluation, \( r = .575, p < .001 \). However, this still did not explain the overall low frequency of “true” discussion. From our observations, we had expected to find a much higher proportion of such sequences, as our impression was that the later episodes were considerably more dialogic than the earlier ones. This led us to reexamine the data.

<table>
<thead>
<tr>
<th>TABLE 4</th>
<th>Correlation Matrix: Indexes of Teacher–Whole-Class Interaction</th>
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<tbody>
<tr>
<td>% TIQ</td>
<td>% S Init</td>
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<tr>
<td>---------</td>
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<td>% TIQ</td>
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<td>% S Init</td>
<td>-.892***</td>
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<td>% NQ</td>
<td>.073</td>
</tr>
<tr>
<td>% HEval</td>
<td>-.112</td>
</tr>
<tr>
<td>% Dep Fup</td>
<td>.063</td>
</tr>
<tr>
<td>% NE</td>
<td>-.223</td>
</tr>
<tr>
<td>MSL</td>
<td>.113</td>
</tr>
<tr>
<td>MRL</td>
<td>-.660***</td>
</tr>
<tr>
<td>% Disc Seq</td>
<td>-.437**</td>
</tr>
</tbody>
</table>

*Note. TIQ = teacher initiation question; S Init = student initiations; NQ = negotiatory question; HEval = high-level evaluation; Dep Fup = high evaluation including negotiatory question; HCD–NE = high cognitive demand–no evaluation; MSL = mean sequence length; MRL = mean (student) response length; Disc Seq = sequence including “true” discussion. *\( p < .05 \). **\( p < .01 \). ***\( p < .001 \).
to find out what had created the impression of increased dialogicality and also to question whether the definition proposed by Nystrand and colleagues (2002) was really appropriate as a way of identifying occurrences of dialogic, as opposed to monologic, interaction.

However, before we turn to a qualitative analysis of the data, it is worth asking how far the overall trends illustrated in Figure 2 were matched by changes in individual teachers’ styles of interaction over their participation in the project. Recall that only 3 teachers supplied data that allowed a comparison to be made between early and late episodes: VM, who taught Grades 1 and 2; DZ, who taught Grade 4; and AJ, who taught Grade 6. In the cases of VM and DZ, these episodes were recorded in different curricular areas; furthermore, the total number of episodes contributed by each teacher varied between 4 and 12. It was therefore not appropriate to compare mean values for the selected variables for early and late episodes for each teacher. Nevertheless, as can be seen in Figure 3, what these individual charts reveal is to a considerable degree in accord with the results for the sample as a whole. At the same time, it is interesting to note that the nature of the changes in each case seem to be related to the grade levels that the three teachers taught.

Two of the teachers (DZ and AJ) showed a decrease in the frequency with which they initiated sequences with a question, whereas VM, who started lower than the other 2, maintained approximately the same frequency. However, all 3 teachers increased the proportion of questions that asked for information for negotiation. All 3 also showed a tendency to allow more student initiation, this trend being strongest in the cases of DZ and AJ. Thus, in this connection, it is not surprising that in these latter teachers’ classes, there was a trend for “later” students to make longer and more complex contributions.

On the other hand, there was much greater variability among the teachers with respect to their use of the follow-up move. VM and AJ increased the frequency with which they gave high evaluation and also the frequency with which this took the form of a follow-up question; DZ, on the other hand, was the only one who increased the frequency of null evaluation.

Most interesting among the 3 teachers is DZ, who was the teacher with the longest participation in the project. As can be seen, there was a very substantial change in the distribution of sequence initiation over time, with students in later episodes initiating the same high proportion of sequences as the teacher did in the early ones. Although remarkable in its own right, this change in sequence initiation also goes a long way toward permitting an interpretation of the changes in the use of the follow-up move. Because, in the later episodes, this teacher made so few sequence initiations with a question, there were proportionally far fewer occasions on which a follow-up move could be expected. However, on those occasions that did occur, it can be seen that this teacher increased the proportion of follow-up questions and much more frequently gave no follow-up at all.
FIGURE 3  Individual teachers’ change over time. Note. TIQ = teacher initiation question; S Init = student initiation; NQ = negotiatory question; HEval = high-level evaluation; Dep Fup = high evaluation including negotiatory question; NE = no evaluation; MSL = mean sequence length; MRL = mean (student) response length; Disc = “true” discussion.
Qualitative Analysis

Although useful in giving a synoptic view of the relative distribution of different kinds of moves, quantitative results of the kind just presented can tell us little about the way in which particular episodes developed and nothing about the larger pedagogical context in which they occurred. As such, they can throw little light on the ways in which the teachers modified their style of interaction over time, both as a result of their increasing skill in encouraging inquiry and in relation to their pedagogical intentions on particular occasions. To reach a better understanding of these matters, we must examine particular episodes in a qualitative manner or, as the French would say, to engage in an explication de texte.

In the space of an article such as this, it is not possible to approach all the episodes in this way. In this section, therefore, we shall briefly present extracts from five episodes in an attempt to give a flavor of the range of settings and discursive contexts in which we considered dialogue to be taking place. Then, on the basis of these examples, we return to a consideration of the conditions that make dialogue more likely to occur.

Extract 1: Planning to Study Weather (DZ 2, Grade 4)

As Matusov (1996) pointed out, it is not necessary for participants to agree substantively for them to achieve intersubjectivity about at least some fundamental...
aspects of the topic under discussion, such as what is being referred to. In fact, as he argued, there is little to talk about if there is already agreement about all aspects of the topic. It is not surprising, therefore, that dialogue most frequently arises out of a difference of opinion or of intention. This was certainly the case in the extract that follows.

This extract comes from one of the earliest episodes in the database, in which the teacher and students were planning how to organize the unit on which they were embarking. Drawing on the students’ written questions, the teacher (T) invited suggestions for aspects of weather that they might investigate. She then asked for suggestions as to how they might organize their work together. It was in this context that the following sequences occurred, as students Colin (Co), (Pa), Tom (To), (Ma), and (Ka) took up positions on whether working with a friend would be a good idea.9

T: Any other ideas?
    [Several students raise their hands.]
T: Colin?
Co: You could pick one person who could pick- like we skip people and you pick one person and they get their own group
T: So I would pick somebody and then they would pick who they wanted to work with?
Co: And then- . yeah- see how much group xx xx with another person
Pa: I don’t think that’s the best because some people might- if they pick all their friends they- they might get um- .. they might get too crazy and then they won’t get any work done
To: Yeah, but with people that you don’t like or anything then you don’t x x or-then you won’t get any work done either
Ma: But see there’s a limit! . and then um you got all your friends you want and then you’ve got one friend and you ask them-
T: OK . that can be a problem
Pa: But like sometimes if they’re really comfortable <then> they get a lot done
T: Yes . and I know that when I take courses at night and I get to work with people- I like to work with my friends in the course . I wouldn’t like it if the professor told me I had to work with someone that I didn’t get along with- I prefer to work with my friends . But I agree completely with you Tom . and that is that sometimes when you’re working with friends it’s harder to focus and concentrate so there are two sides to that

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9 In this and all subsequent example, uppercase letters are used to indicate emphasis; underlining to indicate overlapping speech; < > to indicate uncertainty about transcription; * to indicate an unintelligible wordlike segment; - to indicate an interruption; and . to indicate a noticeable pause, with the number of periods corresponding to the duration of the pause in seconds.
Ka: But then you usually get along with people in the class. OK like you’re solving the problems- you’re only working with them you’re not discussing your personal life.

T: That’s right. and you do have a focus that’s the work. so it shouldn’t be a big problem to work with other people. you’re right.

Here, the spur to discussion was the very important issue of which other students they would get to work with in carrying out their inquiries. At issue were two criteria: interpersonal relations and academic productivity. The students were clearly aware of their frequent incompatibility but also wise enough to know that there is not a single best solution. As the teacher made clear, she also recognized this to be an important issue, and in her contributions she showed strong uptake and supported their alternative points of view by describing her own contemporary experience as a student in a university class.

When this class was later engaged in making and interpreting observations, however, there were few such spontaneous expressions of conflicting points of view. In fact, in our recordings from this unit, there was only one sequence, in which a student (Sa) was justifying his claim that volcanoes should count as weather:

Sa: ‘cause it [the volcano] affects the weather- the sun.
Sb: What?
Sa: Remember- I think it was in the Phillipines- um the volcano erupted-
Sb: Yeah
Sa: - and the cloud ****
[Several other students speak at once, drowning Sa.]
T: They say that volcanoes affect the weather

For the majority of the time, when talking about the substantive content of the unit, sequences were in strict initiation-response-follow-up (IRF) format, though often including one or more dependent exchanges; they also typically involved a single student in the interchange. Possible reasons for this are considered later.

Extract 2: The Ethics of Scientific Investigations
(AJ 6, Grade 6)

The following extract occurred at the end of the school year during a biology unit in a Grade 6 class, in which the students had been observing the development of painted lady caterpillars. Most of the caterpillars had reached the stage at which they had attached themselves to the gauze covering of the plastic cups in which they were kept and had spun the cocoons within which they would metamorphose into butterflies. Earlier in the lesson the teacher (T) had asked students to propose investigatory ques-
tions for this phase in the cycle, and Nir (Ni), a second language speaker of English who had joined the class while his parents were visiting from Israel for 1 year, had proposed to carry out a series of dissections to establish the nature of the changes taking place inside the cocoon. As Nir’s plan would involve several students donating their chrysalises to the experiment, the teacher called a class meeting to discuss his proposal. At the point at which this extract begins, Nir was trying to persuade the teacher and his classmates that his plan is truly scientific:

T: Any other ideas? [if] you have a feeling either for or against this. Nir [calling on him to speak]

Ni: I don’t agree with Jennifer because what I said at the beginning is that we want to go like from the beginning and to see how they change .. like let’s wait [meaning if we wait] until the end and then we’ll not know in which part of their life they- they died. like ‘cause if they died from the beginning, so we’ll - we wouldn’t know. like we wouldn’t know when they died if we will do it in the end

T: OK, so you want to see day one what they were at. then day four what stage it was at inside. then what’s developed- if it developed ears or legs on day eight_ and so on?

Ni: Yeah that’s- and I don’t think that people. even if it will be a majority. like that the class will want to open them . and so I think that just the people who would like to give theirs to science will like give theirs

T: I’m not going to stop you from doing this if you want to do that

Up to this point, although sequences had been quite extended, in most of them the teacher had interacted with individual students, one at a time. However, not all the students (SS) were as apparently open-minded as the teacher about the acceptability of Nir’s proposed investigation. A little later the strength of the disagreement became clear when Eve (Ev) was called on to give her opinion. For her, there were important ethical grounds for rejecting his proposal and she addressed him directly:

T: Eve. do you have any ideas?

Ev: Yeah . OK, Nir, how would you feel if you were a newborn baby. another baby. and someone wanted to cut you up and see what’s happened with you. how would you feel?

Ni: OK. like- [temporarily nonplussed]

Ev: That’s how the caterpillar feels

Ni: - if you’ll suffer for one minute, it’s no big deal . like we can open them and- what I think is that the- the-. I think that they live just inside the chrysalis and the chrysalis isn’t part of their body. it’s just a part that protects them. I think that they will still die if we open it but they will not like suffer. in the end like we can kill them. we can like smash them
SS: Ohh! [Many students express horror.]
Ni: Yeah but why should we leave them to be like cold. we have to finish with them fast. without hurting them. like the guillotine. it sounds ugly but it’s-it’s killing it fast
Ev: I’m not against him or anything. I would give mine up
T: So it’s just regarding the feelings of the caterpillar that you think it might have <greater>- the value to science would be greater?
Ev: No [apparently agreeing] . I’m not giving it to him though
T: But you would?
Ev: Yeah.

The to-and-fro of opposing points of view continued for several more minutes with the teacher making few substantive contributions. Finally, it became clear that the majority was opposed to the proposed dissections, mainly on ethical grounds, and Nir gracefully accepted the majority opinion—at least for the moment.10

Clearly, as with the first, this discussion was not preplanned, because it was provoked by Nir’s unexpected, controversial proposal. However, in allowing the students to discuss its merits and demerits without imposing her own point of view, the teacher allowed dialogue to emerge and gave all students who wished an opportunity to state their positions and to argue for or against those of others.

Extending the Contexts and Forms of Discussion

The two preceding extracts came from early in the project and showed the 2 teachers concerned beginning to allow discussion to continue when it emerged spontaneously. At this stage in the project, however, as these extracts illustrate, when stretches of dialogic interaction occurred, they tended to arise almost by chance, because the students felt strongly about the issue under immediate consideration, rather than because the topic itself was approached dialogically. As we reflected on this and similar episodes, the challenge became one of finding ways of organizing activities so that they would be likely to generate more occasions of this kind but on issues more directly related to the “big ideas” that it was intended students should address during the unit.

The following three extracts illustrate some of the ways in which the discourse did change as the teachers and students became more involved in inquiry. In particular, they show how the teachers became more adept at deliberately creating activities that invited the students to engage in dialogue. The first occurs in the context of responding to a literary text.

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10 A little later, however, Nir persuaded the class that, because one of the chrysalises had fallen from its hanging position, it could be assumed to be dead. On these grounds, the class agreed that he could carry out an autopsy. (For further details of this teacher’s move toward inquiry, see Wells, 1993.)
Extract 3: Making Sense of a Complex Narrative  
(DZ 12, Grade 4)

The teacher in this extract (the same teacher as in Extract 1, but 3 years later) made a practice of reading aloud every day to her Grade 4 class and of encouraging the students to discuss the story after each daily read-aloud. In the December of the 4th year of her participation in the project, she decided to read Mrs. Frisby and the Rats of Nimh by Robert C. O’Brien. She also decided to videotape the follow-up discussions. Following the first two recordings, she spent some time viewing the videotapes and was dismayed at what she discovered: The video recordings showed that a version of the IRF structure still dominated the classroom interaction. Far from encouraging free-flowing discussion, as she had hoped, she called sequentially on children who had their hands up, they expressed their thoughts about the story, and she provided some form of positive follow-up. She then moved on to the next volunteer. Given this discourse structure, children’s remarks were always addressed to her, and so, not surprisingly, there was little or no interchange among the students themselves.

The next day, the teacher talked to the children about what she had seen and proposed a new discourse format. On completion of her read-aloud, as manager of the discussion, she would nominate a child from among those who wanted to speak, and following his or her turn, any other child who wished to speak to the same topic could do so without waiting to be nominated. She also emphasized that, in a good discussion, people link what they say to previous contributions and make clear how their own contribution relates to what went before. Although unfamiliar as a way of conversing in the formal context of a lesson, the children had little difficulty in adjusting to the new format, and in the discussions that followed the read-alouds of the remaining chapters, the frequency of “true” discussion (Nystrand et al., 2002) among students increased dramatically, averaging almost 30% of all sequences as opposed to less than 2% on the first two occasions.

In the following extract, however, unlike the discussions that had followed the previous days’ read-alouds, when the children had largely been making and debating predictions about how the story would continue, this final discussion was intended to engage the class in reflecting together on the story as a whole. This they did initially by saying what they liked about it, mentioning particular events that intrigued them, and also by suggesting alternative ways in which a sequel might continue the saga of the rats’ attempts to foil the humans’ efforts to recapture them to continue their experiment or, failing that, to exterminate them altogether.

It was in this context that another teacher who was visiting the class posed a question, as rearranged with the class teacher, asking the children which of the two leader rats, Justin or Jenner, they would choose to follow if they were given the choice. Like the children, the visitor knew that, at the conclusion of the novel, those rats that survived the gassing of the comfortable home they had constructed
under a rosebush close to a farm had to choose between two alternatives. Justin considered they would be better off if they started a new settlement further away from humans; Jenner, on the other hand, was keen to continue the technically advanced way of life that was made possible by tapping into the water and electricity services to be found near human habitations. By asking the children to explain which leader they would follow, the visiting teacher invited them to explore one of the main themes of the story by relating it to their own experiences and values.

The extract recounts the discussion that took place between students (Ka), (S?), Frank (Fr), (Ss), Jenny (Je), (Me), (An), David (Da), and Adam (Ad), and the teacher (T) after one or two children offered their points of view:

Ka: I’d go with Justin . uhm . ’cos .. uhm . like human beings- we don’t like it when <people do things to> us and so . I think they have a right to . uh- do what they wanna do . . . <just like> other people . like humans-

S?: Not ALL HUMANS
Ka: - ***and I think *** I think that they’re doing the right thing by not dealing with it ******* [inaudible]
Fr: But how would*****
Ss: No . no-o-o
Je: <They> could be either ** living here . and when they got there they could just **-
Me: <live on> the fruits that they had
T: Uh-huh
Me: They already had a fruit supply there
T: Yes they had a fruit supply there
An: Well if I could split myself in half and stay alive I would go both ways because . if I went to Jenner’s side it would be easier and you’d have electricity and stuff . and if I went to Justin’s side . uhm- it’d sort of be safer because you’re with a whole bunch of other rats
T: [nominates David]
Da: I would go with Justin because . I know that my life is boring because I have running water and electricity that I can use whenever I want . so I want- I’d like uh- life to be a bit more of a challenge
T: That reminds me of one of the reasons why my family- . why we enjoy going up to our cottage- because we don’t have any luxury at the cottage . we only have running COLD water- . so to do dishes you have to heat the water up-

S?: ** [interruption]
T: - and we don’t have any <toilet> we just have an outhouse . and . we- we’re on top of a big hill . so you have to haul everything up and down the hill and you have to take a * . so we do that . and we LOVE it and then we get back to the city and we really appreciate . being able to turn on the hot water and
walk to our house from our car in two seconds- you know . so . it’s kind of- I know what you’re saying- it’s nice . and I feel lucky to have that chance to live out a harder life sometimes . that makes me appreciate my easy life that I have every day . <what you said> that really reminds me of my cottage ..

T: [nominating] Frank and Adam and then we’ll stop

Fr: If I were Jenner . I would’ve waited a bit and like . and maybe a while be-
fore . that . uh . a week . or so before . uhm . a week after . what’s his name?
gave me that * I would have waited . and then I’d have got . Jenner- or I de-
cided like- I didn’t wanna stay *** like . I think Jenner should’ve stayed a
bit longer . to find out all- uh more in more detail

Ad: Uhm- I think a better idea- I’d go with Justin- ’cos uhm- if you go with Jen-
er . you rea- you could easily get caught because they like- realize that
you’re trying to steal stuff . and uhm . and <then also> maybe doctor Schulz
would come after you and finally catch you so it would be- a smarter idea to
go with Justin ..

T: Everybody, that was again a great discussion . for over fifty- not fifteen but
fifty- five- oh- minutes- listening to me read for about half an hour and then
talking for about twenty-five minutes or so- that’s amazing! I don’t think
you could have done that in September

Although those unfamiliar with the story may have some difficulty in following
the finer points of this animated discussion, it is clear that the arguments the children
put forward for their choices were intelligible to the other members of the class, be-
cause the latter extended them or offered alternative points of view. It is also clear that
they understood the implications of the two alternatives. Particularly interesting in
this respect are Andrew’s explanation of the quandary that he found himself in and
David’s willingness to take on the challenge that Justin’s alternative presents.

The teacher’s reply to David and Andrew, which was more a conversational re-
sponse than a follow-up move, both took up their contributions and related the al-
ternatives the boys had presented to her own family’s arrangements, saying that
these alternatives enabled her family to have the advantages of both worlds. Then,
in the second part of her contribution, she restated the contrasting values to which
the two rat leaders are committed. Finally, Adam, the last student to have a chance
to speak, took a more pragmatic position in choosing the greater security that
Justin’s plan offers.

This extract shows how far this class had come since the teacher adopted a more
dialogic format for their discussions. Not only were they listening to, and respond-
ing to, each other, but they were also, together, deepening their understanding of
the conflicting values that the novel embodies.

In this sort of discussion, which is entirely appropriate as a response to a work
of literature (Donohahue, 1998), there is no expectation that the class will reach a
consensual conclusion. However, there are many other curricular contexts in
which the absence of progress toward an agreed conclusion—or at least toward a set of acceptable alternative conclusions—would be seen by most educators as a serious limitation to dialogue. Thus, in the following extracts, selected from other curricular areas, we see teachers using alternative strategies to help the students move toward an agreed-upon conclusion.

**Extract 4: Estimating, Predicting, and Guessing (WG 2, Grades 3 and 4)**

This extract comes from a lesson in a unit on mass in a split Grades 3 and 4 class in a multi-ethnic, inner city neighborhood. In the previous lesson, a number of groups had forgotten or failed to predict the outcome of their experiment, prior to manipulating various provided materials to find out whether mass changes when matter changes state. Apparently, in some cases, they had not been clear about the difference between estimating and predicting. In responding to their admissions, the teacher had, once again, emphasized the importance of making a prediction, as she believed it to be critical for the scientific nature of the activity. To predict the outcome, she explained, one needs to consider what one already knows about the situation and how the experimental intervention is likely to change it. Predicting thus calls for a theoretical stance to the actions to be performed, which is crucial for a “scientific” as opposed to a purely “hands-on” approach to practical work in the classroom (Driver, 1983). At one point in the same lesson, the teacher had also drawn attention to the need for the current speaker to take account of the contributions of previous speakers in framing his or her own contribution.

In the following extract, which occurred at the end of the unit, the teacher (T) revisited the issue of predicting by asking the class to consider the relationship between predicting, estimating, and guessing: “Are they essentially the same activity or are there important differences between them?” This question may appear to be somewhat tangential to the curricular unit on mass in which it occurred. However, the teacher was quite clear that the distinction she was asking the students to consider was central to the practice of doing science in general.

The extract starts a few turns into the discussion, which continued for some 30 minutes, as students Emma (Em), (Ar), Jenny (Je), Brian (Br), William (Wi), Ca, and Ss considered various scenarios in their attempt to clarify the differences and similarities between the three “mental activities.” By the end, as the teacher commented later, there was really nothing further for her to add; between them, the students had made all the distinctions that were found when they subsequently consulted the *Concise Oxford Dictionary*:

I T: You heard somebody who says they’re not the same. now there’s a whole bunch of <you> who say they’re [predicting and estimating] two different mental activities. What do YOU think, Emma?
2 Em: I think that- well I don’t agree with Peter because I think that they are two different things .. ‘predict’ is sort of like guess what will happen . and then ‘estimate’ is like you estimate the mass using a form of weight, centimeters . and it’s not just with mass, you estimate other things .

3 T: OK [nominating Arthur]

4 Ar: I don’t agree with Peter either because ‘predict’ sort of means like what WILL happen and ‘estimate’ is the er- do it- estimating something that’s already there, but taking it further

5 T: Now, listen to both answers . none of the answers are right or wrong . Will someone make a distinction? Arthur has made a little- even a more-greater distinction . OK?

6 Je: I don’t agree with Peter [laughs] because he said that ‘estimate’ is guessing .and ‘predicting’ is ALSO guessing but . um- actually guessing is also different from those two because when you guess you don’t have very much information about the object or the thing

7 T: uh-huh

8 Je: - and so you’re just making a- like a wild guess . but when you predict you’re- you’re actually you’re maybe doing an experiment . and you are trying- using the information, you are trying to find out what would happen-

9 T: mm

10 Je: - and estimating is um different from guess because . you have um cer-
tain information, for instance if you estimate the mass, you get the ob-
ject in your hand and you . you have the weights in the other hand and you can sort of . like estimate the . mass, so it’s not guessing

11 T: OK . Brian?

12 Br: Um- I-I don’t agree with Peter . um as well and I think that ‘predicting’. is . if you predict then you’re saying that . um . I’m predicting what’s go-
ing to happen to me tomorrow - what I’m going to do tomorrow and with ‘estimating’ you would- it would just be something like um . if . um . you would- you would est- you would estimate um . um .. estimate how heavy er something is

13 T: OK, that’s a good attempt again

Emma?

14 Em: I’d really like to revise it a little . but I started by <changing a little>and so we get a little information and then you go further, see what will hap-

15 T: OK .William?
16 Wi: I don’t agree with um. Peter because um in our math book it says estimate to the nearest tenth but it didn’t - it doesn’t say PREDICT to the nearest tenth
17 T: That’s right. so what’s the distinction? Good, you’re using your experience in math to help you make a distinction

[Several more sequences of the same kind follow, in the last of which Brian makes a lengthy contribution in which he uses a tennis ball as an example. In what follows, others work with his example.]

25 T: Yes. so what happens is- Brian was saying if I say ‘estimate’. ‘estimate The mass of a tennis ball’. you’re talking about a feature of the object. but if I say ‘predict what will happen to the tennis ball if I threw it at a speed of ten kilometers’ I’m asking you to tell about what HAPPENS to the tennis ball. not something ABOUT the tennis ball . and that ties back to right at the beginning Arthur says. ‘predict’ is what WILL happen.
26 Em: I think Brian was right and so in a sort of way his answer was right. but then like I’m going to say. like I’m going to estimate it and predict - well ‘estimate’ is usually asking . something where you like already learned or have some information about the- like, say we use the tennis ball again, but then ‘predict’ is what will happen AFTER you do something to a tennis ball or like maybe you might . bounce it and say how- what will happen
27 T: OK. [points to Brian]
28 Br: Um. if- . ‘estimated’ would be . that um- if- if you estimate the ball- the ball’s . um . mass . and then you would predict whether it would be the same weight . after you- (trails away)
29 T: OK, you can say- . OK . he- er Brian is trying to bring in a closer distinction . he was saying estimating the mass of a tennis ball . now predict what would the mass of the tennis ball be if I put- if I attach, say,. two feathers to the tennis ball-
30 Br: uh-huh
31 T: -would you say ‘predict’ or ‘estimate’?
32 Ca: And also I agree with Brian because um ‘predict’ can be used like in two ways, like um- Brian said also . like you can- you can predict a weight or something . but it won’t be so accurate, or you can ADD something to a weight and predict . what it will be . **
33 T: OK
34 Em: You know when. Brian said like. it will be ‘predict’. what the weight is if you added feathers, I sort of agree and sort of don’t . because . it’s also um. estimating the weight or the mass because. you’re <just adding> something but you still have to estimate the mass, you’re not really predicting what will happen
35 T: Yes, she picked- **your example** is not a very good example- [to Brian]
36 Br: Um . I- I-
37 T: - because she says it’s still ABOUT the tennis ball it’s not about what will HAPPEN to the tennis ball.
38 Br: Yes, but I’m saying that ‘predicting’ is not predicting the MASS that it will be, I’m saying that- PREDICT whether it will be the same . mass or will it change
39 T: OK . right . any more comments on this issue? Yes [to Emma]
40 Em: Well, yes, he is right if you say predict if it will be same or different or, for example, will the mass increase, decrease or be the same .. but then if- yeah that’s right - but then if you add- like estimate the weight after you add those things you’re still using ‘estimate’.
41 T: OK
42 Je: And my answer is sort of like Emma’s but um . if she-she- Brian said that it was um asking a question um er he said he’d add two feathers. on to a tennis ball and predict what the mass will be . um well it would the- um- if you were to predict if the mass would be the same, increase or <decrease>**, you would ask it in a different way though, you’d ask . ‘What . d’you think will happen . or . to the mass
43 T: What d’you think would happen-
44 Je: - to the mass if I add two feathers?’
45 T: Is that a prediction? ‘What d’you think will happen?’
46: [Several children say yes.]
47 Je: You wouldn’t ask- like-
48 T: If you ask what would be the new mass then . what would that be?
49 Ss: Estimation

Perhaps the most striking feature of this extract is the extent to which these 9-year-old students were able to contribute extended statements of their understanding of the relationship between the three abstract terms. They were also able to anchor their positions in relation to Peter’s—unacceptable—claim that the three terms are essentially synonymous. Then, as the discussion developed, other students’ contributions also provided building blocks for the collaborative attempt to refine the distinction. There was certainly a considerable amount of repetition, but this occurred because each student was using the speaking turn to try to formulate his or her own current understanding and, in so doing, was drawing on what others had already said. Having listened to Frances, for example, Emma saw the issue they were considering in a new light and, without waiting to be nominated, she initiated a new sequence:

I sort of agree with Frances that before I would have estimated, it would have been ABOUT the object, like, for example, the ball - about the ball - but then
‘predict’ is like what will HAPPEN if you do something to the ball, so I will now use ‘predict’

Particularly interesting was the distinction made by Brian in turn 29. Initially, the teacher did not seem to have taken his point for, in turn 35, she gave support to Emma’s argument that Brian’s example of considering the change in mass that would result from adding feathers to the tennis ball would not be a case where predicting would be appropriate. However, he rejoined that there is a difference between predicting if something about the mass will change as opposed to estimating the mass that will result from the action of adding feathers (38). Taking up Brian’s distinction, Emma and Jenny discussed it further and, having got the point, the teacher intervened by asking two known-answer questions (45 and 48) to bring the whole class back into the discussion.

In sum, this was a productive discussion that really engaged the class in distinguishing the significance of the terms estimate and predict as they are used in the context of inquiry activities in science. Bereiter (1994) called this kind of collaborative talk “progressive discourse,” which he defined as discourse that attempts to reach “a new understanding that everyone involved agrees is superior to their own previous understanding” (p. 6). In our view, there is little doubt that this is what was achieved in this episode, and as we know from the previous lesson, this was exactly what the teacher was trying to encourage.

However, although clearly dialogic in the interanimation of different voices and perspectives, this extract still shows the key features of triadic dialogue: The teacher initiated many of the sequences and frequently contributed a follow-up move. On the other hand, there is a clear difference between this extract and the traditional recitation script in that, here, the role of “primary knower” (Berry, 1981) did not reside in a single individual but was distributed among all participants, as successive speakers each offered their contributions. In this context, the role the teacher adopted was essentially that of manager or facilitator, selecting the next speaker when several were bidding, and trying to bring additional students into the discussion. In this role, her follow-up moves often merely acknowledged or summarized what had just been said, and when she did evaluate, it was to recognize the significance of the contribution to the joint enterprise rather than to evaluate its “correctness.”

Finally, we consider an extract from an episode in which students were asked to consider the arguments that likely preceded a key historical decision.

Extract 5: Strategic Planning in World War II
(HK 2, Grade 8)

As taught in schools, history is often presented as a succession of indisputable facts: Key events occurred on particular dates and that is what is important to know.
Where an explanation is provided, it is usually couched in synoptic terms; rarely are students invited to consider the multiple perspectives of the participants actually involved or to wonder how events might have turned out otherwise if some of the prevailing conditions had been different or particular individuals had made different decisions in the moment. In an attempt to engage students in imagining such alternative possibilities, some teachers of history suggest the use of role-played reenactments of such critical moments, in which students, having already studied some of the factual information, are asked to imagine themselves in the roles of the major protagonists and to act and speak according to their understanding of their “characters’” perspectives.

In this example, a Grade 8 class in a school serving a multicultural dormitory suburb was studying the Second World War, and in the episode from which this extract is taken, the teacher (T) was making an attempt to use this sort of role-playing approach by asking her students to consider the factors that would have had to be taken into account by the allied commanders in deciding when and how to launch what came to be known as the Normandy landing. The class had already read some relevant material and discussed it in small groups. Now, in a whole-class forum, they were drawing up the pros and cons for alternative ways of proceeding. At this point, the teacher was recording arguments on the blackboard as a formulation of each was agreed upon. She subsequently handed this task over to a student.

1 T: OK. Can anyone respond to Neil’s point of not enough troops?..people who think that we should raid- how do we get past the problem of not enough troops? Omar?

2 Om: Uhm- it’s because they’re fighting for their country so it doesn’t really matter how many people die in the opposition. so- I guess that they are taking a chance when they are going to the air force base

3 T: OK- so so Neil has said that there are not enough troops- and your response....can you consolidate that? What are you saying in response to that?

4 Om: People come to war to fight. and ** for their country. because it means **

5 T: So- is it fair to say that you said that people come to fight- so you have to expect to lose men? [Several seconds of silence. David is holding up his hand.]

6 T: OK? David?

7 Da: Uhm- I agree with him more although in a war you have to like think- go into a battle- like smartly. like you can’t just go out and like commit suicide- like because it basically what you would do if you didn’t have any troops. and like- although you wouldn’t have enough troops- as well- uhm- we have the advantage- because they don’t know that we are plan-
ning this surprise attack. so- it would be all of a sudden by surprise and 
y they would be in some manner taken by surprise
8 T: OK- do you want that listed as an original reason to attack?
9: [Several indicate ‘yes’ and T writes.]
10 T: OK- see our connections? Neil is saying that we don’t have enough 
troops, so we shouldn’t be attacking. Omar just thought that people 
come to fight, we’re going to lose men anyway, so you know, the num-
ber of troops really doesn’t matter to us because we need to attack. Da-
id is supporting and saying well it’s a surprise attack anyway, so even if 
we don’t have enough troops, we may be OK because we are catching 
them off guard. [T continues to write.] See if you can link, OK?
11 Ra: Uhm- the one reason for a surprise attack is because like half the people 
is going to attack and half the men will leave or maybe talking around 
because they didn’t know that they were supposed to keep that a secret. 
[T writes on board.]
12 T: OK- can you explain for anyone who is unclear on this. and why all these 
persons were on leave and why they were or might have been talking?
13 Ra: Yeah- because they were beginning to like during the attack or some-
thing *** by attack. And they said that uhm leave because they needed 
rest like before they attack. Like they didn’t know that they were sup-
posed to keep a secret- so they told everyone.
14 T: Uhm Winnie
15 Wi: If we wait to attack- then the Germans will take over more places and 
then they’ll just become undefeatable- and we’ll have no choice against 
them
16 T: [writes]. Sareeka.
17 Sa: Uhm- going back to the beginning. er- they said that you’re endanger-
ing lives of troops. but like- what you have to think about is billions of 
people in the world that are like going to die from this. so. it’s like you 
can’t just like think of the troops who are going to die. you like have to 
think of the outcome of this. like our decision .. and you have to think of 
all those billions of innocent people that are going to die. so ..then you 
should- ..

Clearly, this episode did not involve full-blown role play; the students were 
acting more as backroom advisors than as the main protagonists. However, they 
were making a serious attempt to imagine the sort of arguments that might have 
been made. The teacher, too, was taking their contributions seriously, acting as 
“chair” and entering them as points for and against going ahead with the inva-
sion in the matrix she had constructed on the blackboard. At the same time, 
however, she was playing a second, more instructional role as manager of the 
discourse. In this role, her purpose was to help her students to express their
points of view clearly and in a manner that directly addressed the arguments involved in the decision-making process.

It is apparent that the students did not find the activity easy; the format was not a familiar one and the dual task of imagining the arguments that might have been made and formulating them as effective contributions to the debate was a challenging one. For this reason, the teacher judged it necessary to take a dominant role in the structuring of the discourse. However, as chair, she did not assume the role of primary knower with respect to the arguments for and against the attack. These arguments were contributed by the students in their roles as strategic planners. Nevertheless, the teacher was more than simply assigning speaking turns, for in her second role, she acted as primary knower with respect to the form the debate should take, in which positions were stated for or against the issue under consideration. Significantly, this role was not realized through direct instruction in sequence-initiating moves but through her follow-up moves, which acknowledged each contribution and, through further questions, sought to obtain clearly stated arguments to be written in the decision chart. In many sequences, her final follow-up took the form of a summary of the point that had been made or a review of several points and the relationship between them. In making these responsive contributions, she both helped the students to engage dialogically in their consideration of the arguments for and against proceeding with the invasion and also implicitly modeled the genre of formal argument, which was part of what she wanted her students to learn in this curricular unit. It seems that she was to some degree successful in this as the later contributions were more coherent in their arguments and were framed as attempts to support or refute earlier ones.

As with the preceding examples, this episode is not being presented in any way as an ideal exemplar of classroom dialogue. Rather, as with the others, it illustrates how one teacher, committed to adopting an inquiry orientation to curriculum, was, together with her students, feeling her way toward discursive activities that allowed knowledge to be constructed collaboratively through the interanimation of multiple voices in a search for greater understanding of the topic being studied. In our view, therefore, these examples taken together, despite their limitations, give clear evidence of a successful movement toward more dialogic modes of interaction in the creation of classroom communities of inquiry.

DISCUSSION

Before moving into a discussion of the issues raised by the preceding extracts, we think it may be useful first to summarize the findings of the two types of analysis—quantitative and qualitative:
• Over the duration of the project, there was a sustained and successful attempt in these classrooms to adopt an inquiry orientation to curriculum, and this, in turn, led to a more negotiatory and dialogic style of interaction.

• More specifically, there was a decrease in the proportion of sequences initiated by a teacher question, and correlatively, a significant increase in student initiation of sequences. Furthermore, when the teacher did initiate with a question she or he was more likely to request information for negotiation rather than known information; there was also a significant increase in the frequency of follow-up moves realized as requests for further (negotiatory) information. Also in the follow-up slot, there was a significant increase in the frequency of null evaluations, thereby allowing the discourse to proceed in a more dialogic style.

• Despite these departures from the recitation mode of teacher–whole-class interaction, the typical sequential pattern of discourse continued to be that of triadic dialogue, with the teacher exerting considerable control over the allocation of speaking turns. When interruptions to this pattern did occur, they tended to arise from the expression of conflicting points of view with respect to issues about which students felt strongly.

• Nevertheless, as illustrated by Extracts 4 and 5, there were, in addition, a number of quite lengthy episodes in which teacher-led extended stretches of dialogic interaction enabled participants to systematically explore an issue and work toward some form of conclusion.

• In sum, from the results of the analyses taken as a whole, it is clear that an inquiry orientation to curriculum does make dialogue more likely to occur. They also show that the single most important action a teacher can take to shift the interaction from monologic to dialogic is to ask questions to which there are multiple possible answers and then to encourage the students who wish to answer to respond to, and build upon, each other’s contributions.

Clearly, then, it is possible to engage students in productive dialogue in relation to topics arising from the curriculum, and the preceding extracts give an idea of the range of forms such dialogue may take. However, these findings raise a number of questions of pedagogical significance that need to be further explored. For reasons of space, we shall consider only three:

1. On what grounds can it be claimed that dialogue gives rise to learning opportunities that are superior to those that are provided by the recitation script?

2. Given the major responsibility of ensuring that students master the content of the prescribed curriculum, how can a teacher create opportunities for classroom interaction to be dialogic?

3. What is the relationship between choice of discourse formats and the enactment of a dialogic stance?
Learning Through Discussion

The arguments for the enactment of learning and teaching through purposeful, dialogic knowledge building have been developed at length in a number of recent works (Barnes, 1986; Mercer, 1995; Nystrand, 1997; Wells, 1999) and can be aptly summarized in the aphoristic statement that “knowledge is constructed and reconstructed in the discourse between people doing things together” (Franklin, 1996, quoted in Wells, 1999, p. X). In such discourse, as we have seen, there is the potential for three important features to work together synergistically.

First, when students are given the opportunity to participate in the cumulative construction of community problem solving, they recognize that their contributions are consequential for the decision that is jointly constructed over successive turns. Where this affects their control over future actions, as in Extract 1, it is easy to see why they are keen to express their opinions. But, as in Extracts 4 and 5, this motivation can be extended to decisions about topics of a more impersonal and abstract nature. What seems to be important in either case is, first, that participants are invested in the outcome of the discourse and, second, that the outcome is not predetermined in advance.

The second feature is the collaborative nature of the enterprise. Although competition can certainly be a motivator for cooperation (Hatano & Inagaki, 1991), it seems that there is an equal, if not greater, satisfaction to be gained through working with peers toward a jointly achieved outcome. Not only does this harness the social orientation of students’ interests, but it also enables them to achieve together more than any of them individually could have achieved alone. This is particularly evident in Extract 4. Furthermore, as Dewey (1916) argued, such early participation in collaborative decision making is essential for the maintenance of a society that claims to be democratic.

However, in the long term, the greatest benefit of collaborative knowledge building is the reciprocal development of understanding between individuals and the group. As Vygotsky (1981) noted, “the individual develops into what he/she is through what he/she produces for others,” (p. X) and it is in the effort to formulate our ideas for others that we most effectively clarify them for ourselves. This can be seen happening in all the extracts. But, as Bakhtin (1986) argued, the effort to fully comprehend the utterance of another also involves uptake and an active, if only incipient, movement toward a response. It is therefore both in the act of “saying” and also in that of responding to “what is said” (that is to say, the text produced in the act of saying) that individuals actively participate in the building of a common understanding and simultaneously extend and refine their own (Wells, 1999).

All these features characterize the “progressive discourse” of productive intellectual communities, where, as Bereiter (1994) expounded the concept, the ideal is that participants are willing to revise their own opinions as they open-mindedly consider the proposals and arguments of others and that, over successive contribu-
tions, the common understanding thus jointly created is superior to that with which the participants started. In the same article, Bereiter goes on to argue that this ideal can also be adopted in the classroom, for the knowledge that is jointly constructed does not have to be new in any absolute sense; “the important thing is that the [knowledge building] be progressive in the sense that understandings are being generated that are new to the local participants and that the participants recognize as superior to their previous understandings” (Bereiter, 1994, p. 9).

In our opinion, it would not be unreasonable to claim that this sort of progressive discourse is occurring in all the preceding extracts, though only intermittently in the earlier ones, where the motivation is more that of interpersonal competition than that of knowledge building per se. However, as most scholars would agree, the advance of understanding is rarely free of competitive argument as individuals seek to make their own opinions prevail (Hatano & Inagaki, 1991). The important criterion is not a lack of passion, therefore, but a willingness to listen to alternatives and to adopt those that advance the collective understanding, whether this is action oriented (as in Extracts 1 and 2) or more conjectural or theoretical (as in Extracts 3, 4, and 5). It is in this sense that a dialogic mode of learning and teaching has the potential to provide superior opportunities for the development of understanding than occurs in the monologic mode.

Dialogue in the Context of Prescribed Curricular Outcomes

Despite the obvious benefits of encouraging dialogic interaction in the classroom, it is frequently argued that, at best, dialogue is only appropriate when considering issues that are acknowledged to be controversial, and at worst, it interferes with the teacher-controlled instruction that is essential to “cover” the prescribed curriculum and to ensure that students are equipped with the knowledge for which they will be held accountable. These are arguments that need to be taken seriously, because they discourage many teachers from even attempting to create an atmosphere in which dialogue is possible.

In answer to the first objection, that of the limited range of topics about which dialogue is appropriate, it is worth pointing out that almost all of what is now taken to be assured knowledge was at some point—and in many cases still is—subject to disagreement and debate. To understand the conclusion that is currently accepted, therefore, one must be aware of the contending arguments and to consider them for oneself. Indeed, as Popper and Eccles (1977) argued

We can grasp a theory only by trying to reinvent it or to reconstruct it, and by trying out, with the help of our imagination, all the consequences of the theory which seem to us to be interesting and important … . One could say that the process of understanding and the process of the actual production or discovery [of theories] are very much alike. (p. 461)
Although it is clearly not feasible to engage in reenacting the original debates about all the now-accepted knowledge that students are required to learn (as proponents of the second argument mentioned earlier would insist), it is important, we believe, that students should have the opportunity to come to understand, through their own participation, that all knowledge of any scope is created through dialogue between alternative points of view, supported by argument from evidence, and subject to revision in the light of further evidence. In our view, therefore, the question is not whether dialogue has a place in the enactment of curriculum but rather in what ways this can be made possible and how it can be ensured that such dialogue is progressive in Bereiter’s (1994) sense.

Answers to these latter questions will clearly differ according to the disciplines being studied and the age of the students. But, as Gallas (1995) demonstrated, worthwhile dialogue about topics that will later be taught in science classes is already within the capabilities of first-graders. The first step toward productive dialogue, it would therefore seem, is to seize occasions that spontaneously arise to encourage students to express alternative points of view and to learn both how to provide supporting argument for their own perspective and to listen respectfully to, and attempt to understand, the perspectives and arguments of others. It may also be very worthwhile to devote time to explicit teaching of the social and discursive skills necessary for such dialogue, as has been demonstrated by Mercer and colleagues (Dawes, Mercer, & Wegerif, 2000).

Once these generic skills are on the way to being mastered, it is possible to bring them to bear in the different subject disciplines, as has been amply demonstrated by a number of subject specialists (e.g., Brown & Campione, 1994; Cobb & McClain, 2002; Lampert, 1990; Roseberry, Warren, & Conant, 1992). O’Connor (2001) advocated engaging in “position-driven” discussion, started by a statement or question, in which students are invited to express justified agreement or disagreement. This can certainly be effective in cases where there is a conventionally agreed-upon conclusion to be reached, as in her mathematical example: “Can any fraction be turned into a decimal?” (O’Connor, 2001). Roth’s (2002) example concerning where plants get their food is rather similar. In such cases, a review of all the relevant evidence, properly understood, ultimately leads to a single conclusion. But in disciplines such as history or literature, a single, determinate conclusion is not always attainable and a discussion that is organized in relation to a “position” may not be the most appropriate way of exploring all the relevant perspectives. It seems clear that more research is needed to identify effective discussion starters in different curricular areas, and practicing teachers are in a good position to conduct such investigations.

However, productive classroom discussion is not restricted to preplanned occasions such as those just discussed. Just as valuable are those that arise spontaneously from a student question or conjecture, or even from an “error” or “misconception” that leads to a discussion of basic principles in the discipline. Being alert
to the potential of such occasions is clearly an equally important aspect of teaching that seeks to promote dialogue as the means to increasing understanding.

At the same time, such curricular-oriented dialogues enable students to make connections between the topics presented as important for their success in school and their personal experiences and concerns in the world beyond the school. As Lampert (1986) argued

[Students] need to be treated like sense-makers rather than rememberers and forgetters. They need to see connections between what they are supposed to be learning in school and things they care about understanding outside of school, and these connections need to be related to the substance of what they are supposed to be learning. (p. 340)

Adopting a Dialogic Stance

In answering the second objection above, we want to emphasize that it is not necessary for all lessons to be conducted in a dialogic mode for the class to be committed to a “dialogic stance” toward the content of the curriculum (Wells, 2002). Although the distinction between monologic and dialogic interaction provides a useful way of characterizing the dominant mode in which the discourse in different classrooms is organized, it is clear that this simple binary distinction is not adequate to account for the various ways in which teachers who aim to be dialogic actually attempt to achieve this goal in relation to whole curricular units. Consider the following brief extract from a Grades 6 and 7 social studies unit on North American history (KM 1, Grades 6 and 7):

T: What did La Salle declare? . Matthew?
Ma: The Mississippi river?
T: What about the Mississippi river?
Ma: All the water that flowed down- .
T: What did he declare about it? .. er- Keith?
Ke: Well um he claimed that it was French um the ***
T: Right, that it now belonged to to France .. Who was the person who gave him the power to say that it did in fact belong to France? .. Fazad?
Fa: The king of France?
T: Yes . who was the king of France? Let’s see who remembers this- er . Lillia?
Li: King Louis the . something?
Sa: [whispered] thirteenth [Many students mumble at once.]
T: OK . its- Irene?- Louis the something?
Ir: Fourteenth?
T: King Louis the fourteenth . OK, good
Taking this extract alone, one might imagine that the teacher was involved in a traditional quiz, in which her chief concern was that the students should produce the correct answers. However, as the continuation of her follow-up move makes clear, the preceding extract was intended to serve a very different purpose:

T: So that’s the sort of attitude that the British and the French had. They would come to the area that we now know as Canada and they would say, “We claim this territory for our own.” And we talked a little bit about some of the battles that went on with Native peoples but we never really looked at it from their perspective. how the Native peoples felt about or reacted to the fact that these British soldiers or these French couriers de bois were coming in and saying “this land now belongs to .. to England or it now belongs to France.” And up until quite recently in .. in historical um- <stuff>- um in historical classes as well- people weren’t too interested - or- there weren’t a lot of materials around to help people find out about the Native people’s point of view in terms of what happens to- um- to the land that they had lived on and occupied for a long long time.

To evaluate this “monologic” episode, it is clearly necessary to understand its context, which was that the class was preparing to role-play a hearing before the Supreme Court of Canada, in which an (imaginary) native band, the Wish’ga, were reclaiming title to their ancestral land from the government of Province West. Revisiting the French annexation of the land around the lower Mississippi was intended to help the students to recall the study they had previously made of the implications for Native peoples of European expansionist policies to better prepare them to construct arguments and counterarguments for the cases of the competing parties in the Wish’ga claim. In other words, the reviewing of factual information already studied was judged by the teacher to be helpful for the students’ forthcoming historical inquiry into Native peoples’ experiences through a dramatic simulation constructed by the students.

Put more generally, the function that a discourse format serves on a particular occasion depends on the purpose of the activity in which it occurs and on how the activity is intended to contribute to the unit as a whole. Establishing “common knowledge” (Edwards & Mercer, 1987), for example, whether by eliciting information through known-answer questions or by sustained exposition of some kind, is often a crucial preliminary step in an inquiry-oriented curricular unit, to ensure that students are well prepared to make good use of the open-ended and explicitly dialogic activities that are to be the heart of the unit.

In fact, in the early observations in the project reported here, the small number of episodes that included dialogic stretches of interaction occurred exclusively when the class was planning future activities. In the late observations, by contrast, episodes including dialogic sequences occurred when making sense of al-
ready-gathered information, either in speech or in some form of written representation, or in reviewing what had been achieved over the course of previous activities. It would seem, therefore, that—as has already been suggested—in the early observations in the DICEP project, when dialogue occurred, it erupted spontaneously when students felt strongly about proposed actions, whereas, in the later observations, it was more deliberately planned for in the way in which teachers involved students in interpreting and/or commenting on information or experiences arising from preceding activities.

A second factor that plays an important role in a teacher’s choice of a discourse format is the extent to which students are familiar with the format in question and willing to take the risk of making a contribution that may not be judged by peers (or teacher) to advance the topic under discussion. Although this is still a relatively new demand for the students, a teacher may choose to act as initiator of most sequences to elicit contributions from less vocal or less confident students and to ensure that all those who want to contribute are given a turn.

But probably the chief reason for teachers choosing a format in which they retain control of the floor is the same as for the chair of an official meeting: to keep discussion on track and, in Bereiter’s (1994) sense, progressive. Evidence for this explanation can be seen in some of the follow-up moves they make in the presented extracts, as they summarize—and in some cases reformulate—what has been said to establish a clear basis for development or disagreement. Such moves occurred in all the episodes from which the five extracts above were taken, and in the case of the social studies unit on Native peoples’ land claims, when asked at the end of the unit, the students said they appreciated the teacher’s tight structuring of the review of the material encountered earlier in preparing them to construct the cases they were to present to the Supreme Court (Kowal, 2001).

However, keeping control of the floor does not necessarily entail also keeping control of the content of the discussion. Although it is almost always the teacher who proposes the topic of an episode and brings it to a conclusion, the topics of individual sequences are often selected by the students, as they propose alternative perspectives on the issue that is “on the floor” or react to preceding contributions by their peers. Confirming this claim is the fact that, in the episodes that have a dialogic “feel” among those analyzed here, the proportion of sequences initiated by a substantive teacher question is lower than in other episodes; instead, the teacher initiation is often limited to selecting the next speaker and implicitly giving him or her the right to select the topic (for example, as in Extracts 3 and 4). It is also noticeable that many student contributions received no evaluation by the teacher, but simply an acknowledgement. It was then at the discretion of the next selected student to decide whether to respond to what had just been said. As can be seen in several of the extracts, students were aware of the expectation that they would connect their contributions to those of others and were doing so very explicitly and sometimes very cogently as well.
In sum, we believe there are good grounds for arguing that the various
teacher-led discourse formats found in the above extracts and in several other epi-
sodes amply justify characterization as “dialogic.” Not surprisingly, given the in-
quiry orientation of the project, these formats occurred significantly more fre-
quently in the later observations than in the early ones, as the teachers
experimented with ways of making interaction in whole-class settings dialogic in
practice as well as in intent. At the same time, they were equally concerned to en-
sure that their students worked toward mastery of the knowledge and skills—the
required ‘outcomes’—specified in the curriculum for which they were respon-
sible. As illustrated earlier, they used monologic discourse formats when they con-
sidered them to be appropriate for the task in hand but without abandoning their
overall dialogic stance (Wells, 2002).

Nevertheless, given the teachers’ commitment to a dialogic stance, some readers
may be surprised that triadic dialogue was still so pervasive throughout the corpus
analyzed here. As discussed earlier, however, there are good reasons for teachers to
use some variant of this genre. Where large numbers of participants are involved, as
in most classrooms from kindergarten to university, it is important to have generic
discourse structures to which all participants orient, so that discussion can be orderly
and, ideally, progressive. The IRF sequence clearly fits this requirement. What mat-
ters for the quality of interaction, it seems, is not so much how the sequence starts, but
how it develops, and this, as we have argued, depends critically on the teacher’s
choice of roles and on how he or she utilizes the follow-up move.

There is also a second probable reason for the persistence of this genre, and one
that is quite compatible with the inquiry orientation to which our group is commit-
ted. At a macrolevel, the IRF structure can be seen to aptly characterize the
teacher’s major responsibilities. As the participant primarily responsible for the
classroom community’s engagement with the prescribed curriculum, the teacher
selects and prepares curriculum units and launches them in ways designed to pro-
vide appropriate challenges for each student member. This is the initiation. Stu-
dents, in turn, are expected to respond by taking up some of the challenges pre-
sented and by attempting, either alone or in collaboration with others, to go beyond
their current understanding or level of skilled performance. The teacher’s fol-
low-up then consists in responding to the students’ attempts by providing assis-
tance in a manner that jointly creates a zone of proximal development that enables
them to “go beyond themselves” (Vygotsky, 1987) in relation to the challenges that
they have taken up and to which they are personally committed. Viewed from this
perspective, the IRF discourse genre —when appropriately used—can be seen as
playing out at the more microlevel of the coconstruction of meaning the same fun-
damental responsibilities as are involved in organizing the more macrolevel activi-
ties in which the students are engaged.

However, to recognize the pedagogical effectiveness of particular subgenres of
triadic dialogue is not to give a positive endorsement to the genre as a whole, for all
purposes and in all situations. As we have argued earlier, it is important to distinguish between the various forms triadic dialogue can take and to evaluate particular instances in terms of the goals of the activities in which they are used. It is also necessary to ensure that, over longer periods of time, such as complete curricular units, the balance of discourse formats chosen supports the development of an ethos of dialogic inquiry in the classroom and, with this, the development of a disposition of respect for diversity of experience and difference of opinion, and a desire to increase understanding of the topics and issues that are seriously raised, whoever the originator. Thus, rather than weighing against the persistence of this genre in teacher–whole-class interaction, as for example Wood (1992) and Lemke (1990) have done, we suggest that it would be more productive for educators to try to understand the ways in which its underlying structure can be adapted to meet the varied demands of the pedagogical relationship, so that we can more fully exploit its potential to lead to a more exploratory, dialogic mode of knowledge construction.

REFERENCES


APPENDIX
Coding Scheme for the Analysis of Classroom Discourse (Summary)a

<table>
<thead>
<tr>
<th>Column</th>
<th>Field</th>
<th>Categories</th>
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<td>1</td>
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<td>1 – n</td>
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<tr>
<td>2</td>
<td>Episode task</td>
<td>M Math discussion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P Science practical</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S Science discussion</td>
</tr>
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<td>H History discussion</td>
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<td>R History role play</td>
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</tr>
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<td>W Writing discussion</td>
</tr>
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<td></td>
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<td>T Show and tell</td>
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<tr>
<td>3</td>
<td>Participant structure</td>
<td>C Whole class</td>
</tr>
<tr>
<td></td>
<td></td>
<td>G Group</td>
</tr>
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<td></td>
<td></td>
<td>D Dyad</td>
</tr>
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<td>4</td>
<td>Episode activity orientation</td>
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<td></td>
<td>O Organizing</td>
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<td></td>
<td>P Planning</td>
</tr>
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<tr>
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<td>S Problem solving</td>
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<td>F Further</td>
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<tr>
<td></td>
<td></td>
<td>A Adds</td>
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<td>S Consolidates</td>
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<td>C Challenges</td>
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<td>G Give</td>
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<td>G+ Give plus</td>
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<td>D Action</td>
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<td></td>
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<td>F Full clause (or more)</td>
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<tr>
<td></td>
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<td>FI Full (implicit)</td>
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<tr>
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<td>CI Single constituent (implicit)</td>
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<td>A Choice of alternatives</td>
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<tr>
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<td>P Polar (yes/no)</td>
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<td>A Rule-governed answer</td>
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<td>K Exclamation</td>
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</table>
| 21     | Evaluation level | H Accept plus uptake  
|        |                   | Q Follow-up question  
|        | Low              | P Accept plus praise  
|        |                   | J Reject plus justification  
|        |                   | L Accept/reject  
|        |                   | N Null evaluation  
| 22     | Follow-up commodity | V Evaluation  
|        |                   | J Justification/explanation  
|        |                   | C Comment  
|        |                   | U Clarification  
|        |                   | A Action  
|        |                   | M Metatalk  
| 23     | Follow-up subcategory (contingent on choice of commodity) |  
|        | Evaluation        | A Accept  
|        |                   | R Reject  
|        |                   | C Correct  
|        |                   | F Reformulate  
|        |                   | D Counter  
|        |                   | Y Repeat (accept)  
|        |                   | N Repeat (reject)  
|        |                   | P Praise  
|        | Comment           | E Exemplification  
|        |                   | A Amplification  
|        |                   | C Connection  
|        |                   | S Summarise  
|        |                   | O (Demand) Opinion  
|        |                   | D (Demand) Description  
|        |                   | L (Demand) Observation  
|        | Action            | N Now  
|        |                   | F Future  
|        |                   | S Suggestion  
|        | Clarification     | R Repetition  
|        |                   | I Identification  
|        |                   | C Confirm  
|        | Metatalk          | C Metacognitive  
|        |                   | O Metaorganizational  

*A full version of the coding scheme is available from Gordon Wells on request.*