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Children's Talk in Classroom Discussions

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This article describes children's and teacher's talk in classroom discussion that is a kind of speech event aimed at knowledge construction.

Eleven discussions attended by twelve 5-year-old children in two different social contexts and on two different subjects were recorded and analyzed. The discussions were preceded by shared activity and guided by the children's teacher.

Children's talk and teacher's talk are described through categories based on the sequential function of turns at talk. Sequences of two turns are identified and discussed.

Results suggest that, in the agreement phases of discussion, children's topical talk and teacher's topical talk are reciprocally affected. In particular, children's extended talk is more likely to occur when preceded by teacher's repetitions and rephrasings or by peer continuations. In the disagreement phases, peer discourse is to some extent more independent of teacher's talk, and topical talk is made up of claims and explanations that rely on the discourse structure provided by dispute.

In the disagreement phases of discussion, children's talk is closer to the teacher's aims. In justifying their own opposition, children produce explanations of the activity that preceded discussion.

RESEARCH BACKGROUND

In recent years, several studies have investigated instructional talk inside and outside school for its relevance to children's acquisition of cognitive and social skills (Cazden, 1986; Edwards & Mercer, 1987; Newman, Griffin, & Cole, 1984; Wertsch, Minick, & Arns, 1984). A common assumption of these studies is that

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dialogue between experts and novices can be analyzed in terms of *discourse practices* through which knowledge is transmitted and acquired.

What kind of discourse analysis fits the aim of identifying instructional functions of talk is still an open problem. Categories of discourse analysis in sociolinguistics and educational studies either attempt to identify structures and rules underlying talk or look for cognitive, social, and emotional functions of discourse as possibly related to children's learning. Categories are derived from different theories about verbal interaction and generally are not linked to some hypothesis about the learning mechanisms operative in conversation.

In this study, we explored how children's talk and teacher's talk are reciprocally affected when some interactive mechanisms of classroom conversation are changed. Although this analysis does not directly address the issue of instructional functions of talk, we believe that interactive mechanisms in conversation are an important component of the learning processes involved in dialogue.

We discuss the main directions of research in instructional talk, aiming to clarify the notion of *interactive mechanism* that we assume in this study.

Two major approaches are discussed: (a) sociolinguistic studies that attempt to identify patterns of verbal interaction typical of the school context (Cazden, 1986) and (b) studies closely inspired by the Vygotskian framework that try to determine how discourse promotes learning.

SOCIOLINGUISTIC STUDIES ON CLASSROOM DISCOURSE

First, the sociolinguistic approach has to be differentiated from the *process-product* research that is generally carried out in educational studies and is largely dominated by analysis models such as that of Flanders (1970) or Amidon and Hunter (1966).

In educational studies, the main objective is to identify variables in a teacher's verbal behavior that correlate with the pupils' learning. This objective is generally implemented by categories of analysis that, as Lumbelli (1985) convincingly showed, are theoretically eclectic. In many cases, they do not differentiate types of verbal behavior that have different interactive and communicative functions.

Research that uses a sociolinguistic approach (Cazden, 1986; Cazden, John, & Hymes, 1972; Mehan, 1979; Sinclair & Coulthard, 1975) considers classroom talk as a social activity whose patterns are expressions of underlying rules and structures rather than as the result of links between variables, as is hypothesized by process-product studies. Besides a formal analysis of talk, many sociolinguistic researchers have been interested in describing cultural differences and their impact on language use in school (Cazden et al., 1972; Mehan, 1979).

Classroom talk has been investigated through discourse analysis (Sinclair & Coulthard, 1975; Stubbs, 1983), which has been very concerned with the notion

of *well formedness* and the identification of sequential rules. The notion of *exchange* has been used to describe the sequential properties of discourse. The three-part structure of exchange, typical of classroom discourse, was described as teacher's initiation/student's reply/teacher's evaluation in Mehan's (1979) study and as teacher's initiation/student's response/teacher's feedback in the studies of Sinclair and Coulthard (1975) and Stubbs (1983).

The problem with this notion of exchange is that it assumes a rather generic interactional function (such as initiation) that is completely unrelated to the communicative function of utterances and to their sequential implications.

For example, "Can anyone tell me what this means?" and "Can you tell me where the Savoy Cinema is?" (Stubbs, 1983) are both initiations, despite striking differences in their communicative functions and their sequential consequences. In the first case, a teacher is assessing the pupils' knowledge; in the latter, a speaker is requesting directions in order to find a place. In the first case, the recipient is supposed to have access to the knowledge presupposed by the answer. In the latter, the recipient may not have access to the requested piece of information. The different communicative functions of the two utterances result in different sequential structures. In the first request, an evaluative comment is expected as a third move; in the latter, some acknowledgment of the recipient answer and some formal closing of the interaction are expected (such as "Thank you").

The theoretical difficulties related to the notion of exchange are not discussed in this study. What is relevant here is that this notion is not suited to analyzing how interactive mechanisms and communicative acts are interrelated. Indeed, this relationship is, in our opinion, a central learning mechanism of conversation.

On this perspective, the notion of sequential function provided by conversationalists can be fruitful. In conversation analysis, the sequential location of utterances does different interactional work, depending on the semantic content of utterances. For example, disagreement is a kind of "second-pair" turn, which has different sequential functions depending on whether it follows assertions or compliments (Pomerantz, 1978). After compliments, minimization of self-praise is expected, and disagreement is not an unpreferred reply (Pomerantz, 1978). The same is not true for assertions, which raise an expectation of agreement so that, if a disagreement follows, it has a nonstandard format in turn construction (with delay, prefaces, pauses).

Although the notion of *expectation* does not have a psychological meaning for conversationalists, in our opinion it can be interpreted in psychological terms. Namely, the sequential properties of conversation enable speakers both to project the recipient's talk and to be constructed by the previous speaker's talk. For example, if someone says "Are you busy this evening?," a proposal is projected in subsequent talk so that, if the answer to the request is "Yes," an account is expected in order to mitigate the implicated refusal of the proposal.

This property of conversation may be described in terms of predictability (Stubbs, 1983), with the specification that it is a local predictability closely related

to the communicative acts speakers are performing and to the activity they are sharing. With this specification in mind, it could be hypothesized that sequential organization of conversation hides a learning mechanism: That is, second-pair turns, such as agreement and disagreement, are partially constructed by previous discourse and tend to incorporate pragmatic and semantic features of the utterances to which they reply. Moreover, the local predictability of talk may result in more complex constructions of children's discourse. Namely, the possible conversational move of the recipient may be anticipated by the child, and discourse may be constructed to prevent possible and undesired replies by the recipient.

If this interpretation is correct, it is relevant to look at the "microgenesis" of discourse and the expectations that novice speakers begin to embody on the basis of the sequential properties of dialogue with an expert.

DISCOURSE AND LEARNING IN A VYGOTSKIAN FRAMEWORK

The study of the links between discourse and learning has great relevance within a Vygotskian framework in which higher psychic functions are hypothesized as internalizations of social actions through the mediation of language and other semiotic tools (Vygotskij, 1974). This hypothesis, which can be investigated with different methods, requires that the functions provided by discourse are analyzed at a microanalytic level in order to be identified as elements of the process of internalization.

Several studies have analyzed adults' behavior in terms of strategies that attempt to close the gap between task requirements and the skill level of the learner (Greenfield, 1984). In particular, researchers have analyzed the direct and indirect regulations of learners' actions (Wertsch et al., 1984), the socializing of attention (Zukow, 1988), the assigning of interpretations to children's communicative efforts (Wood, Bruner, & Ross, 1976), the signaling of components of routines (Ninio & Bruner, 1978), the making explicit of the means–end structure of a task (Bruner, Roy, & Ratner, 1982) or of the referents of children's statements (Ochs, 1979), and the modeling of behavior provided by taking on roles previously played by an expert (Brown, Bransford, Ferrara, & Campione, 1983).

The dependence of a child's behavior on the action performed by an adult, however, has not yet been grounded in a sequential description of the social activity. More frequently, phases of change in an adult's strategies have been related to corresponding developmental changes in a child's performance. A sequential description of the adult–child interaction (see Greenfield, 1984) found that adult and child have mutual responsibility in the organization of the activity. Greenfield found that an adult's utterances aimed at eliciting specific skills or actions were, in turn, replied to by the child in a way that led the adult to shift to nonverbal strategies (i.e., pointing, showing, cooperative action). In such cases, non-

verbal strategies from the adult were followed by relevant behavior by the child. This means that conversational expectations of the adult were not automatically embodied by the child in his or her own communicative repertoire.

In sum, even in a Vygotskian perspective, talk should be better analyzed in its interactive properties. Instructional functions of an adult's talk may be reinterpreted by a child. In turn, a child's communicative acts may modify an adult's means of implementing instructional aims. The discourse practices of instructional contexts have an inherent interactional nature.

DISCUSSION AS A TYPE OF INSTRUCTIONAL TALK

In this study, we analyzed quasi-experimental conversations produced according to two hypotheses. The first hypothesis is that children's topic extension in conversation is improved by what has been called *semantic contingency* (Snow, 1986), that is, by adults' utterances that repeat, recast, and/or extend a child's utterance. This claim emerges in child language acquisition studies, along with research in teacher–pupils interaction inspired by the Rogersian tradition (Lumbelli, 1981, 1985). Explanations of the semantic contingency effects are still tentative. It has been hypothesized that recasts and repetitions facilitate a child in comparing his or her own utterance with an adult's and in perceiving the linguistic structures contained in an adult's utterance (Nelson, 1981; Speidel, 1987). Snow, Perlmann, and Nathan (1987) contended that an adult's semantic contingency creates a discourse context that subsequently can be incorporated by a child in his or her own language. Lumbelli (1985) hypothesized a motivational effect. Namely, in recasts and repetitions, the speaker communicates an effort of comprehension and encourages recipients to continue the discourse by providing them with the opportunity to clarify and elaborate on their own message.

Our idea is that semantic contingency of a teacher's talk in a group situation facilitates children's comprehension of the semantic content of utterances and children's sharing of the discourse focus (Orsolini, 1988). Particularly, adult's recasts of the contribution of a previous child speaker may increase the participants' understanding of the information conveyed by the child. In fact, the adult's rephrasing is likely to make clearer the linguistic means through which the original information is conveyed. This same information is likely to be grasped by the participants just because it is introduced by a child speaker and is thus close to the children's thinking.

Our second hypothesis is that sequential organization of talk brings about conversational expectations that may face the child with new communicative acts. In particular, when an adult aims to elicit children's explanations, talk can draw on the conversational expectations of dispute. In disputes, accounts and justifications are expected interactive moves (Dunn & Munn, 1987; Eisenberg & Garvey, 1981; Shantz, 1987) that can be implemented by different communicative

acts (i.e., narratives, causal explanations, definitions) according to the specific topic and context in which dispute occurs. It is a matter of empirical investigation whether explanatory talk in school differs from that of less formal contexts. Our idea is that, even in the school context, new types of explanatory talk can be facilitated when they rely on the interactive mechanisms and conversational expectations of dispute.

In sum, the conversations analyzed in this study are characterized by the instructional aims of facilitating children's topical talk and children's arguing. We call these particular types of verbal interactions *discussions* (Orsolini, Pontecorvo, & Amoni, 1989; Pontecorvo, 1985, 1987; Pontecorvo & Zucchermaglio, 1983), because they differ from traditional classroom conversations in their general goal of promoting children's taking positions and reasoning.

We introduced the following conditions to produce discussion:

1. Before teacher–children's verbal interaction, there was a collective experience (e.g., a laboratory activity, a reading, a written composition) structured to lead to more than a single solution and to require a negotiation of meanings and interpretations. Such an experience provides a shared universe of referents and, because of the possibility of alternative solutions to the problem, motivates subsequent talk.
2. The teacher–pupil discourse provided interpretations of the shared experience and was organized to compare and evaluate different experiences and perspectives. To some extent, the conversation is proposed as "exploratory talk" in which external criteria of correctness and adequacy of knowledge are not addressed.
3. Phases of dispute, in which different points of view were expressed and discussed, were allowed to occur in discussion, because the teacher assumed that disagreement motivates children to produce arguments in order to support and make explicit their own point of view.
4. The usual turn-taking rules were changed. The teacher did not select the next speaker and did not use evaluative comments after children's answers. The teacher tried to limit her own contributions and to use repetitions and rephrasing of children's conversational contributions to promote children's topical talk.
5. A modification of the rules of leading conversation was related to a change in the teacher's beliefs regarding what and how one learns in school. The teacher agreed with the idea that children reorganize their knowledge by means of social and verbal interaction (Edwards & Mercer, 1987).

Discussion is stimulated by previous verbal and nonverbal experience but is constituted by discourse and is somewhat independent, in its local organization, of nonverbal actions. Discussion is a speech event that is different from lessons, because the teacher is not pursuing the objective of evaluating the adequacy of knowledge acquired by the pupils.

Talk in discussion also differs, however, from informal talk. In class discussion, a preliminary experience is thought up and structured by the teacher with particular educational aims. A major aim is that children should explain the solutions adopted in the previous experience and their eventual effectiveness.

RESEARCH AIMS

In this study, we explored how teacher's talk and children's talk are reciprocally affected in the particular kind of speech activity we call *discussion*.

In particular, we address the following questions:

1. In which sequential location within conversation are children more likely to extend a previous discourse?
2. Is it confirmed that a teacher's repetitions and recasts are effective conversational strategies for promoting children's topical talk?
3. Which interactive mechanisms are involved in children's explanations? Is it confirmed that children are very likely to produce accounts and explanations within disputes?

METHOD

Subjects

We observed 12 children between 5 and 6 years of age. The children were in the same *scuola materna* (preschool) class in suburban Rome and were selected on the basis of their good or average performance in narrative and comprehension tasks. These children, who came from a low-level sociocultural environment, were judged to be of normal cognitive capacities by their own teacher.

Procedure

Discussions occurred in two different social contexts: All children took part either in one large group (of 12 children) or in a small group (of four children). The small groups contained children of mixed linguistic ability. All the activities were led by the children's classroom teacher.

Discussion was preceded by tasks of two different types: a scientific and a narrative task.

The scientific task dealt with the physical concept of balance. The children were given three different materials: a balance with a movable fulcrum, a balance with a fixed fulcrum, and an object with a flat surface of irregular shape (called a *lake*) resting on a tennis ball that protruded from a glass jar. In the first large-group session, predictions were made about whether or not a balance could be

achieved by using the various devices. After children had played in pairs with these devices, a small-group discussion occurred. The overall final discussion of the balance topic took place in a large-group session.

The narrative task was concerned with a classical fairy tale, "Mascia and the Bear." A prediction-making phase took place in the small groups: The storytelling was interrupted at crucial points to allow reasoned predictions on how the story would continue. This was immediately followed by discussion of the story as a whole. Once again, a final overall discussion took place in the large-group context.

Corpus of Data and Units of Analysis

We analyzed nine small-group discussions and two final large-group discussions.

We adopted, as the unit of analysis, the talk included in one turn. Our categories describe turns that are linked to a previous one, either because it continues the topic introduced in a previous speaker's turn or because it performs an interactive act addressed to it.

For example, repairs or disagreements expressed with a simple "No" are interactive acts that are functionally linked to the previous turn without extending the topic of the previous talk. Not categorized in the present study are: isolated turns, the first turn of a sequence in which each turn is related to the previous one, and contributions whose only function is to control discourse participation (e.g., "Francesco, sit down please"). In all, 2,182 turns at talk were analyzed.

Observers' Codifying and Agreement Procedures

The discussions were categorized by working on the transcription and the tapes at the same time.

Some turns were interrupted by a subsequent speaker but were picked up and continued later. In these cases, the category was assigned to the continuation, whereas the interrupted turn was not categorized.

The codifying procedure was as follows: The first decision dealt with giving each turn the status of "turn linked to a previous one" or of "unlinked turn." The second decision dealt with giving a category to each linked turn.

Parts of the data were codified by all the authors, who discussed any cases of disagreement or uncertainty and clarified the reasons for it. After this initial stage, an entire discussion, consisting of 600 turns at talk, was independently categorized by the authors. There was 99% agreement regarding the identification of the linked turns and 93% regarding the application of categories.

Categories

Categories were constructed by taking into account two dimensions. The first is discourse continuity, in which turns at talk that provide a reply to a previous one are distinguished as "minimal talk" (i.e., simple answers) or "extended talk"

(i.e., continuations of an account). The second dimension concerns the distinction between agreement and disagreement.

For each category, we looked for linguistic cues (i.e., overt topical links) and/or suprasegmental features (i.e., volume, pitch, hesitations, unfilled pauses).

Table 1 lists the categories. We report here only the most frequent categories, because they are involved in results of sequential analysis that attain a statistical significance. Examples of categorizations of turns at talk are provided along with excerpts of discussions in the next sections, because single turns at talk lose their conversational meaning out of this wider context.

Statistical Analysis

Sequential analysis (Bakeman & Gottman, 1986) has been applied to raw frequencies of the teacher's and the children's categories. Probabilities and z points

TABLE 1
List of Categories for Children's and Teacher's Talk

Agreement
Children's Extended Talk
Extended continuation: Information introduced by a previous speaker is elaborated on. For example: (a) An interrupted utterance is completed, (b) a teacher's request for clarification or explanation is replied to with an elaborate answer, or (c) a previous telling or a claim produced in a previous answer is elaborated on.
Children's Minimal Talk
Simple answer: Information requested by a previous question is provided but not extended.
Disagreement
Children's Extended Talk
Elaborate opposition: Information provided in a previous claim is denied with justifications.
Elaborate counteropposition: Information provided in a previous opposition is rejected with justifications.
Children's Minimal Talk
Simple opposition: Information provided by a previous claim is denied without justification.
Teacher's Talk
Repetition and rephrasing: Information provided by a previous child's utterance is repeated or rephrased. For example: (a) Talk is addressed to the previous speaker in order to get him or her to continue talking, or (b) talk is addressed to the whole group to underline an item of information introduced by a previous speaker.
Contingent query: A previous turn is replied to with a contingent question. For example: (a) request for clarification and specification or (b) request for explanation.

have been computed with the Elag program (Bakeman & Gottman, 1986). Frequencies of children's categories pool occurrences produced by different subjects. Given the considerable quantity of data required for a sequential analysis, pooling data across subjects becomes an almost inevitable methodological procedure. Any conclusions drawn from this kind of analysis must be limited to the particular group examined.

RESULTS

Table 2 shows the frequencies of categories in children's and teacher's talk. Teacher's recasts have around the same frequency as requests for clarification and explanation when the latter are pooled together. This suggests that the teacher's behavior is consistent with our previous hypotheses. That is, the teacher tries to elicit children's topical talk with semantic contingent talk made up both by recasts and contingent queries. Children's simple answers are only 10% over the total turns at talk. Disagreement talk has about the same frequency as agreement talk, and it is mainly made up by justified opposition and counter-opposition.

In the next sections, we describe three major conversational sequences: mutual continuations, cycles of contingent queries–answers, and disputes.

Mutual Continuations

Mutual continuations are those sequences in which discourse continuity is obtained by means of children's extended continuations and the teacher's repetitions and rephrasings.

Extended continuations elaborate on items of information previously introduced: The contribution of a previous speaker is used as a frame for the construction of the current turn. The simplest way of providing a continuation is to add a noun or a predicate to a previous speaker's incomplete utterance. A more elaborate way is to continue an episode narrated by the previous speaker. In this case, the link with the previous talk is provided by temporal expressions (e.g., "and after that") and referential continuity.

The sequential analysis shows that extended continuations are followed by extended continuations (see Figure 1). In most cases, these types of turns reply to narrations of personal experiences or to short reports of actions or fictional events. Narrations, even when they are about shared events, generally are expected to be followed by simple responses or acknowledgments (Labov & Fanshel, 1977). For what reason do these children not limit themselves to simple acknowledgments? This problem can be partly clarified by taking into account that extended continuations are both recounts of a shared experience and delayed answers to the teacher's request to talk about a specific subject. Extended continuations are

TABLE 2
Percentages and Frequencies of Categories of Children's and Teacher's Talk

Children's Talk										*Teacher's Talk*					
Extended Continuation		*Simple Answer*		*Elaborate Opposition*		*Elaborate Counter-Opposition*		*Simple Opposition*		*Repetition Rephrasing*		*Request for Clarification*		*Request for Explanation*	
%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*
24.6	536	10.5	229	8.6	187	10.6	231	3.8	83	13.8	301	7.7	169	6.2	135

Note. Only the most frequent categories are reported in this table. For a complete exposition of results, see Orsolini, Pontecorvo, and Amoni (1989).

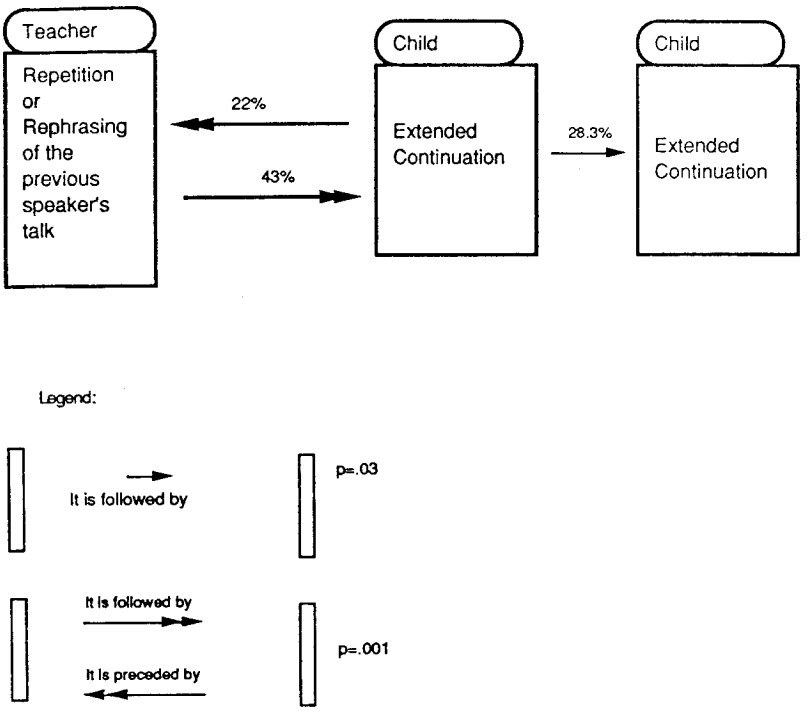

FIGURE 1 Transitional probabilities for teacher's repetitions and children's extended continuations.

collaborative procedures that adhere to the teacher's requests to "speak about a topic." They are, therefore, addressed to both the previous child speaker, whose discourse is continued, and the teacher, to whom they signal that the proposed object of attention has been accepted and that some knowledge can be communicated about it.

The addressing of extended continuations to the teacher is demonstrated by summons (e.g., "Teacher . . ."), prefaces (e.g., "You know . . ."), and turn competitions, as one can see in the following example.[1] In addition, the following terms are used in the examples to characterize the turns at talk: repetition and rephrasing (TR), extended continuation (EC), request for explanation (RE), elaborate opposition (EO), simple opposition (SO), and elaborate counteropposition (CO).

[1]Excerpts reported in the article are drawn mainly from large group discussion in the scientific task. The following conventions were adopted for transcriptions: Punctuation marks attempt to depict shifts of intonation; ellipses show unfilled pauses; and parentheses contain comments of the transcriber.

Example 1: Simona introduces a new topic by bringing up a statement made in a previous small-group discussion.

(Unlinked turn)		
46	Simona	Alessio . . . Alessio and Federica said that we were magic! Magic!
47 (TR)	Teacher	Yes, they said they were magic (She shows considerable interest). But . . . (She is interrupted.)
48	Pietro	That we had magic. But if we had the magic . . . (self-interrupted turn)
49 (EC)	Alessio	If you had the magic, you would have turned our teacher Maria into an animal. (He finishes the sentence almost laughing. They all laugh, including the teacher.)
50 (RE)	Teacher	Why an animal? Poor me! Let's hear; let's hear.
51 (EC)	Pietro	And if we were magicians . . . if we were magicians. . . . Shut up! (to Alessio). If we were magicians, we could make any wish "appear" (*comparire*), eh!
52 (EC)	Sabrina	And money too.

In Example 1, Pietro (51) continues the discourse of Simona (46), who implied that they were not magic. Pietro competes with Alessio to get the floor and defines the activity of magicians with a sophisticated term, *comparire* (meaning "appear").

In mutual continuations, an important role is played by teacher's repetitions and rephrasing of a previous child's contribution. These teacher's turns, which are similar in part to the expansions described in the literature on mother–infant interaction (Nelson, Bonvillian, Denninger, Kaplan, & Baker, 1984; Snow, 1986) were confirmed to have a positive effect on children's topical talk. In fact, sequential results show that teacher's repetitions are followed by children's extended continuations (see Figure 1).

Teacher's repetitions and rephrasings are addressed to the whole group more frequently than to the previous speaker. The teacher quotes the author of the message, emphasizing a particular item of information. The adult's repetitions seem, therefore, to act as "pointing" procedures that facilitate the children's sharing of information. They highlight some content of the conversational space and readdress to the whole group some piece of information that a child speaker has addressed to a particular recipient (the teacher and/or another child). Recasts socialize the children's attention (Zukow, 1988) toward a common topic and facilitate the sharing of information in a group situation.

Example 2: After an apparent digression by Sabrina about a television story in which a man was put on one side of a balance beam where money

and diamonds provided the counterweight, the teacher asks how children could be put on a balance beam in a way that it could balance. Walter answers that you can put two men on one side of the balance beam and two children on the other.

443 (EO)	Fausto	But if the children are here, it's still the same. The grown-ups are heavy, and they're even heavier 'cause they're big, 'cause they're fatter.
444	Sabrina	So we'll put . . . (She is interrupted.)
445 (TR)	Teacher	Because the grown-ups are heavy, they're fatter, he says. (This turn, which is interrupted, overlaps with the following.)
446	Walter	And then . . . and then we can do. . . .
447 (EC)	Sabrina	Then two women and two men. (She suggests putting two women and two men on the balance beam.)
448	Teacher	Not together, because we can't understand anything.
449 (EO)	Walter	Then some children on there. . . . Then I don't know. . . . If the men sit down on a balance like this, that's so little that the balance breaks down . . . because. . . .

The expression "are heavy" is stressed by the teacher (445): She pronounces it by articulating each syllable in a rather staccato way. Reference to the author of the message is expressed by "he says." Sabrina (447) takes into account Fausto's claim suggesting a new solution that focuses on people with a similar weight. Sabrina's solution is questioned by Walter (449), arguing about negative consequences of heaviness. The piece of information pointed to by the teacher is, therefore, elaborated on both in Sabrina's extended continuation and in Walter's elaborate opposition.

As Example 2 shows, the pointing by the teacher does not bring children's and teacher's knowledge any closer: The balance of the scale is conceptualized by Sabrina and Walter as an issue of quantity (two men and two children, or two men and two women), unrelated to the weight of each item. Weight evokes everyday knowledge. It means "to be fatter" (Fausto, 443) or to make something break (449), and, for Sabrina and Walter, it is not something that can be added to or multiplied by individual items put on the balance.

The teacher's recast, however, seems to focus the children's proposals more on the issue of weight than on symmetrical quantity (two items on one side of the balance and two items on the other). In fact, after the teacher highlights Fausto's claim, Sabrina (447) selects entities that have a similar weight.

Socialization of attention is different from socialization of knowledge. Nonetheless, it can be an effective strategy to modify children's categories. Through recasting, the teacher selects children's categories that are closer to her own knowledge on the subject and brings them back in the "conversational machinery" by readdressing the message to the whole group. She thus facilitates continuation of discourse from the perspective (or categorization) introduced by a previous child.

Results of sequential analysis also show that a teacher's talk and children's talk are mutually affected. The teacher's repetitions and rephrasings are replied to with extended continuations but are, in turn, replies to previous extended continuations. On the other hand, simple answers (see next section) are not repeated by the teacher. This result confirms that repetitions are not used by the teacher as simple encouragements to speak more. Rather, they are addressed to the group in order to draw attention to a discourse that has a level of complexity close to the teacher's expectations.

Cycles of Contingent Queries–Answers

The teacher's requests for clarification as well as requests for explanation are contingent queries (Garvey, 1984) that either act as other-initiated repairs (Schegloff, Jefferson, & Sacks, 1977) or prompt children to elaborate on the previous speaker's talk. It should be stressed that such turns are contingent on the semantic content of a previous turn and do not supply any new information.

Results of sequential analysis in Figure 2 show that requests for clarification are followed by simple answers that may be chained and followed by another request. Requests for explanation are significantly followed both by simple answers and extended continuations and are, in turn, preceded by simple answers. On the whole, around 50% of the requests for explanations are followed by extended continuations.

The first result shows that requests for clarification, at least in a multiparty dialogue, elicit minimal replies and are not perceived by the recipient as implicit invitations to continue the talk. This result is partially related to the turn-taking mechanism brought about by such questions. When children are asked to clarify or specify a piece of information, they are likely to answer by providing that information and then waiting for the next speaker to take a turn. Here the children's conversational expectations are driven by their experience of the standard structure of the classroom conversation in which the teacher's question is a way to allocate turns at talk (Mehan, 1979; Stubbs, 1983).

Results concerning requests for explanations are puzzling insofar as these contingent queries are followed by both simple and extended answers. The wider sequential location of these turns might clarify the result. Some requests for explanations, despite their apparent contingency, recycle a previous noncontingent question (introductory of some component of the task) that had received only a short answer from one of the children. Conversely, other requests for explana-

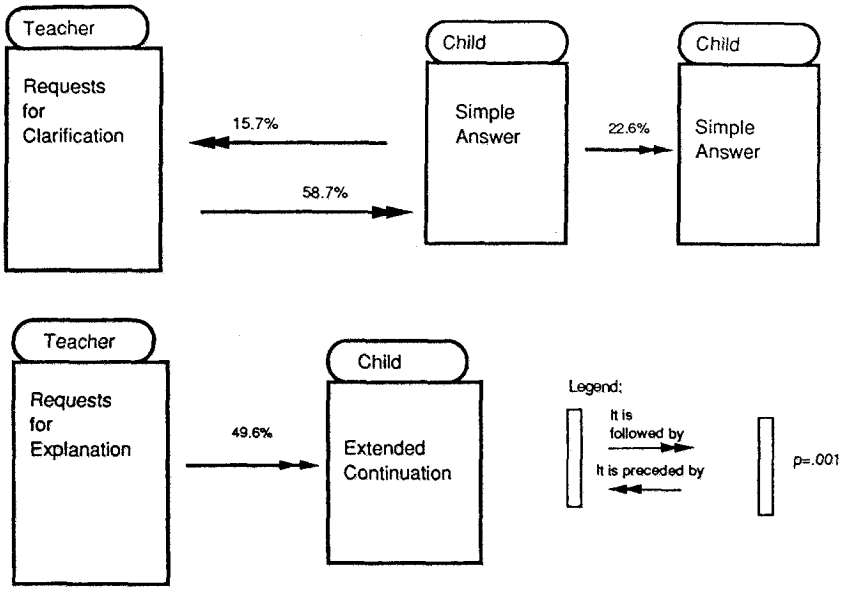

FIGURE 2 Transitional probabilities for teacher's requests for explanation or clarification and children's extended continuations or simple answers.

tion follow a child's talk in which an evaluation or a suggestion emerged. In this latter case, requests for explanation tend to be replied to by extended answers, as in the following example.

Example 3:

(Unlinked turn)

23	Teacher	Now let's talk about the lake a bit. Let's see what you've done. Did you manage it? One at a time!
24 (EC)	Walter	Me and Sabrina, me and Sabrina couldn't do it because each . . . a screw fell off, because the little screws had run out, and the big ones, too. And then we didn't know what to do because there were screws this small, screws like this.
25 (EC)	Sabrina	And then we changed them around and then. . . . (She stops speaking. Later on, Walter tries to shift the topic, but the teacher persists in her proposal to speak about the lake.)

(Unlinked turn)		
29	Teacher	Why don't we listen to someone else, child. . . . What did they do to balance it?
30	Pietro	Teacher!
31	Teacher	How did you do?
32	Pietro	Simona and me . . . we weren't that quick at putting on the screws; we did it slowly. Of course we didn't have to do it fast, because if you did it like that, then afterwards. . . . (He is interrupted.)
33 (EO)	Alessio	If me and Sabrina go slowly, it falls down all the same, doesn't it, Sabrì?
34 (SO)	Simona	No.
35 (EC)	Pietro	But I don't know how she did it because I, I, I, a few screws . . . because then when it balanced, Simona and me put the screws on only when it balanced. And then Simona even got the lake to balance with one screw.
36 (RE)	Teacher	With one screw? How did you do it? (She shows great interest.)
37[2]	Alessio	And without screws?
38 (EC)	Fausto	Yes, because she put it in the middle! Here in the middle. And because it was where the ball was. It was the center where the ball was.

In Example 3, the teacher's initial request receives a narrative reply from Walter (24). At the end of his contribution, Walter (24) introduces a limited evaluation element ("We didn't know what to do"). Pietro (32) shifts the discourse to an evaluative mode ("We weren't that quick at . . .") and a "prescriptive" one ("We didn't have to do it fast"), the latter of which sounds like a criticism of Walter. After Alessio's opposition, Pietro (35) finishes by stressing the success of his partner's action: Simona even managed to do it with just one screw. This comment, which concludes the story, is picked up by the teacher with an explanation request (36) that is then accepted by Fausto (38) and given an elaborate answer.

If our qualitative analysis is correct, children's elaborate answers are more likely when the teacher's request is located within a sequence of discourse in which a claim, an evaluation, or a suggestion emerges. In fact, this type of discourse introduces a child's point of view, and the request for explanation that follows is likely to be perceived as a request for justifying the speaker's commitment to that point of view. Once again, teacher's and children's conversational moves seem

to be reciprocally affected. Only when the children's talk projects a justifying move does the teacher manage to elicit an explanatory talk.

Disputes

In our data, a dispute phase of discussion starts with an elaborate opposition that denies the previous claim by providing a justification. In many cases, elaborate opposition turns provide an implicit denial of the previous assertion with a claim containing information that contrasts with that introduced by the previous speaker. In these cases, the denial is performed by prosody: Voice volume is very high; the utterance starts with a rising pitch; and it contains adversative expressions ("yes, but") or stressed emphatic adverbs ("I'm only . . .").

In other cases, however, elaborate opposition turns are constructed in two parts. The initial part is an explicit negation ("Oh, yeah!" or "Come off it") or a repetition in an exaggerated exclamatory tone of a phrase by the previous speaker. The second part is a claim introducing a piece of information that corrects or contrasts with the opposed claim.

Not all types of claims can be opposed. An analysis of the ways in which conflict starts shows that opposition stems from claims in which evaluations, advice, and instructions are present. Very rarely are factual contributions subject to opposition.

Thus, what children discuss is not the facts but a classmate's position, that is, his or her attempt at interpreting and evaluating or a clear intention to provide some kind of teaching in the form of instruction or suggestions.

An initial elaborate opposition can receive two possible replies from the "opposee" (Eisenberg & Garvey, 1981): either a simple rejection of the opposition ("It's not true" or "No") or a counteropposition in which the recipient's claim is denied and some kind of reason is given. Counteropposition turns may start with an explicit denial (*Mica*, translated as "Of course not"), followed by a claim that elaborates on the information introduced by the speaker and that shows up its contradictory or unconvincing aspects. Some counteropposition turns concentrate on defending one's own previous claim by elaborating some information that might undermine the opposer's claim. In these cases, counteropposition turns may contain emphatic words and phrases, such as "certainly" or "but of course," as a preface to an explanation. A counteropposition turn is generally followed by a further counteropposition on the part of a speaker who has already taken the role of opposer or by a classmate who joins the discussion at that moment.

The results of sequential analysis (see Figure 3) show that elaborate oppositions to a previous claim are followed by justified counteroppositions that are in turn followed by further counteroppositions. Simple oppositions may be followed by counteroppositions.

Example 4: (Discussion is about the story of Mascia. In this story, the bear that kidnapped Mascia is in turn deceived by her. Mascia manages to es-

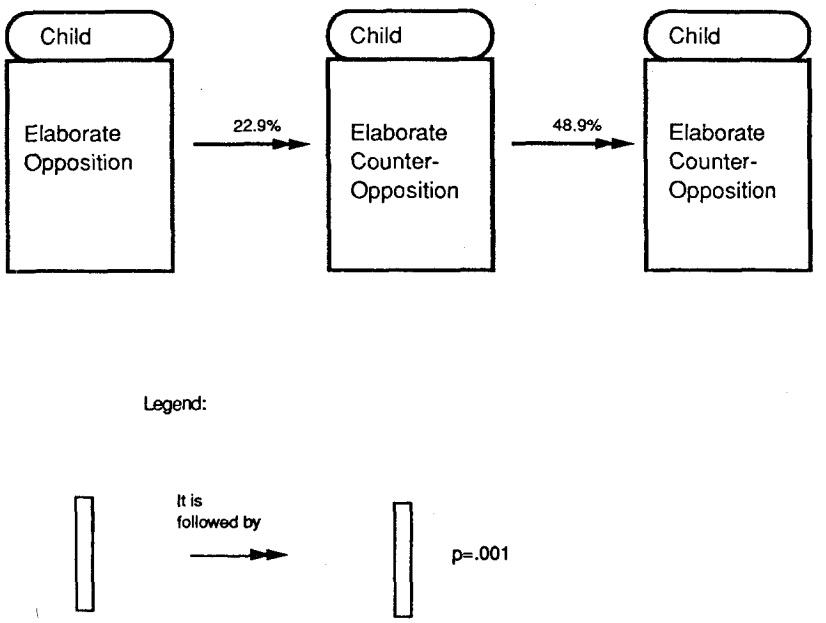

FIGURE 3 Transitional probabilities for children's disagreement moves.

cape by hiding in a basket. The teacher has asked: "What would have been the clever thing for the bear to do?")

206 (EC)	Fabiana	He could smell Mascia; he looks in the basket and sees Mascia.
207 (TR)	Teacher	Ah! He could feel the weight and smell her scent!
208	Federica	But, but she . . . (She is interrupted.)
209 (EO)	Fausto	Oh, yeah! (sarcastically). The wolf hasn't got such a big nose that his nostrils are this big! (He laughs.)
210 (TR)	Teacher	He says he can't smell her because. . . .
211	Federica	But he's got eyes . . . (She is interrupted.)
212 (CO)	Fabiana	But when he was going past, she got out of the basket and went right in front of the wolf's nose, and Mascia said, "I'm in real trouble now."
213 (TR)	Teacher	"I'm in real trouble now": Is that what Mascia said? Ah, because he was passing right in front . . . the bear was passing right in front of the basket, down there, the basket was

		right next to the bear's nose, and so she says that he could smell the scent.
214 (SO)	Fausto	Nooo!
(Unlinked turn)		
215	Teacher	Federica says he could feel the weight because the basket weighed more.
216 (EO)	Fausto	Oh, yeah! (sarcastically). A bear is stronger than a person. So if a bear is stronger. . . .
217	Federica	Because she, because she, what's her name?
218	Teacher	Mascia.
219 (CO)	Federica	Mascia was heavier, so of course the bear couldn't carry the basket any more, so he . . . he put it near the door, then he saw. . . .

In this discussion, Fausto's opposition (209) contains an explicit rejection of Fabiana's claim. He justifies his rejection, elaborating on the condition of the action mentioned by Fabiana; that is, smelling Mascia's scent implies that the bear has a particularly big nose. Fabiana (212) does not explicitly deny Fausto's opposition but defends her own claim by explaining the conditions of the bear's smelling. The teacher rephrases Fabiana's claim, which is again opposed by Fausto. Then the teacher introduces a previous contribution of Federica that is denied by Fausto (216), namely, that the bear is very strong and so it would not have noticed Mascia's weight. Federica (219) defends her claim by trying to explain the condition of the bear's noticing the weight.

Argumentative strategies that children use to justify opposition include elements that are close to the teacher's objective of eliciting explanations. Namely, children attempt to (a) explain the effectiveness of actions performed (in the balancing experience), focusing on their conditions and results; (b) infer possible consequences of the recipient's solution; (c) infer emotional states of the characters in the narrative task; and (d) hypothesize alternative solutions to the problem that the characters face.

Justifying is an interactive act that supports disagreement and tries to convince the recipient of the speaker's claim. This act does not necessarily involve explanations. For example, children's justifications in disputes during social symbolic play tend to consist of simple continuations or backgrounding of the preceding pretence proposal (Orsolini, 1990). In teacher-led discussions, justifying tends to consist of sentences that refer to causes, consequences, and intentions.

Thus, in discussions, children tend to construct explanations that support their opposition and defend their point of view (Pontecorvo, 1987). This result can be interpreted by taking into account the fact that, to some extent, children's disputes in classroom discussions are insertion sequences (Schegloff, 1972) prefaced by a teacher's request for explanation or evaluation (see Example 4). In turn,

the teacher's request is part of a wider activity in which the means–end structure of actions has been foregrounded by a problem-solving task and by an interpretation of the actions as "disputable." In particular, children's actions in the balance-beam task are interpreted as disputable, because the teacher presented the task by stressing that many different solutions of the balance problem could be reached. Characters' actions in the story task are interpreted as disputable, because the teacher's request to predict the continuation of the story opened the plot to different possible developments.

Therefore, in classroom discussions, children's disputes are embedded discourses. They are prefaced by a teacher's request for explanation or evaluation and are inserted into a wider activity in which the means–end structure of actions has been foregrounded both by a problem-solving task and by the interpretation of the task as being open to different possible solutions.

CONCLUSIONS

In this study, some new conditions, made up both of teachers' conversational strategies and of activity preceding the teacher–children talk, have been introduced in a quasi-experimental context. These conditions have affected the sequential environment (Levinson, 1983) of children's talk.

Three main kinds of sequences emerge in discussion: mutual continuations, cycles of contingent queries–answers, and disputes. Each kind of sequence facilitates children's topical talk in a different way.

In mutual continuations, children extend topics mainly in a narrative discourse mode, and the teacher's rephrasing of children's contributions succeeds in improving children's extension of the topic. Contributions that receive teacher's repetitions are more likely to be continued and extended by subsequent speakers. The teacher's talk is also affected by children's talk, however, in that only children's extended continuations are significantly rephrased by the teacher.

In this kind of sequence, children's topical talk is also affected by peer discourse. Previous continuations tend to be followed by further continuations in a rather cooperative way, which is uncommon in school lessons or conversations. In discussion, cooperative peer discourse emerges within a process in which the adult manages to get the children inside the task and to negotiate a common activity; this is similar to what sometimes happens in spontaneous peer-group interaction (Gottman, 1983).

Cycles of contingent queries–answers are less involved in children's extended talk, but, when requests for explanation are offered, children are likely to produce elaborate answers. In particular, when the previous speaker's turn is an assessment or a claim, the teacher's requests for explanation succeed in eliciting elaborate answers, because children use explanatory talk to justify their own commitment to a point of view.

In disputes, children's extended talk is made up mainly of accounts and justifications that are dependent on the expectations raised by opposition. The pragmatic function of justifying opposition, which also emerges in spontaneous peer-group disputes (Eisenberg & Garvey, 1981; Shantz, 1987), forces the speaker to reconsider his or her own previous claim and to turn it into an articulate taking of a position. Children's disputes in teacher-led discussions, however, are also types of insertion sequences (Schegloff, 1972), because they usually start from denying a previous speaker's answer to a teacher's request for explanation or evaluation.

Further research should analyze more closely the types of explanations that children and teachers produce in discussion. Our study suggests that children's explanatory talk emerges as it relates to the intertwining of two different interactive acts: that of justifying opposition and points of view and that of providing an answer to a teacher's request for explanation or evaluation. In turn, these two interactive acts are embedded in a wider activity that allows children to focus on the means–end structure of actions. In this particular context and sequential environment, children's attempts to talk about conditions of actions, causes, and consequences emerge.

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