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Social Organization and Referential Coherence in Classroom Discussions

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Introduction: In acquiring and mastering the skills of literacy young students must gain access to situations which allow them to learn and practice a variety of interpretive processes under the guidance of an adult. The following paper is concerned with how the language used by students and teachers influences the learning opportunities children encounter in formal classroom settings. More precisely, it is concerned with the way social organization interacts with question-answer strategies and topic-introducing strategies, to produce different learning environments for young students.

The way school children are organized into social groups and the linguistic means by which they communicate in those groups have an obvious bearing on the linguistic and cognitive skills they show as adults. This fact motivates the recurring concern in the United States with how social and linguistic factors influence achievement in a stratified educational system. In the past decade there has been a good deal of language-oriented research concerned with the effects of family background and teachers' expectations on educational achievement. Using a variety of coding schemes, discourse analysts and educational psychologists have found that teachers' elicitation strategies and students' response patterns vary with students' classification as high-ability or low-ability (Brophy & Good, 1974; Cherry-Wilkinson, 1978; Mosenthal and Jin-Ma, 1980). While rigorous in isolating linguistic and behavioral variables for analysis, this research suffers from two defects. First, it fails to situate ability-classification in an historical and institutional framework which would shed light on the observed patterns of behavior and achievement. Second, it concentrates on small discourse units (for example, question-answer pairs) and so fails to provide a processual account of the communication found in high-ranked and low-ranked classroom activities. What is needed is a precise account of the way the typical social organization of classrooms constrains the communicative options available to students and teachers, and does so in such a way as to produce the different patterns of linguistic behavior reported in the literature.

An important part of the organization of most early primary classrooms is the ability group. The ostensible justification for ability grouping is that it permits instruction to be tailored to student aptitude and that, being flexible, it can be adjusted to the given student population and to changes in that population. In practice it represents a very inflexible classifying procedure, permitting little movement into or out of groups, once
ability-status has been assigned. A recent review by Eder (1982) discusses the lack of fit between individual aptitude and ability grouping. She reports that variance in measurable aptitude accounts for less than one-fifth of the variance in ability group assignment. Variables such as socio-economic background are much more important in determining placement. Teachers and administrators are reported to believe strongly in the necessity and effectiveness of ability grouping, despite accumulating evidence to the contrary. In short, ability grouping represents a powerful a priori classification which restricts mobility, because groups are not added, deleted, or changed, despite initial or subsequent heterogeneity of student aptitude.

One result of such practices is that students who are perceived as less prepared or less attentive in early primary grades are grouped together as low-ability. But these decisions are made when children are five and six years old, an age when "ability" is very difficult to determine. The negative result is that once ranked, low-ability students are given different instruction than their high-ranked counterparts. The difference is due in part to teacher expectations, but also to the organization of activity. Micro-ethnographic studies of reading groups have shown that in low-ranked lessons there is more apparent inattention and distraction (both from inside and outside the groups), with the result that less time is spent actually reading. Thus, students most likely to have difficulty learning are assigned to groups where the social context is much less conducive to learning. There are clear and well-known effects on achievement.

The picture I have drawn so far is one in which an ideology regarding the classification of aptitude results in a social organization of classroom activity such that learning contexts differ radically for students classified in different ways. In particular, in low-ranked groups there seems to be less sustained attention to actual reading. It is well known that perception and learning require selective attention. Perhaps less well known is that attention in groups is a social accomplishment. Attention is signalled through verbal and non-verbal cues and maintained through sanctions. Additionally, the giving and receiving of sustained attention requires that participants in a communicative encounter be involved—that is, that they share some sense of the purpose of the communicative encounter, and further, that they pay one another sufficient heed for the exchange of relevant information (Goffman, 1972; Gumperz, 1982). However, as Goffman (1963) has pointed out, managing attention during an interaction is itself a form of inattention. It is a departure from the central purpose of an encounter, so as to create or maintain the necessary conditions for an encounter. Its relevance for the study of communication in educational settings is that time spent managing attention is time not spent teaching or learning.
Findings: Let us now look at the findings on all three measures. There were two low-group and two high-group lessons, from a second-grade and third-grade classroom, for a total of eight lessons analyzed. This gave a corpus of approximately three and a half hours of conversation and reading. In the tables, numbers of instances, N, are listed in the left columns; mean averages, expressed in events per minute or percentages, are in the right columns. The rows key the groups, for class I (second grade) and class II (third grade).

Comparing high with low groups for indices of inattention, in the high lessons turn-violations occurred .45 times per minute, while in the low lessons they occurred 1.44 times per minute—that is, three times as frequently. Comparing groups for management acts, in the high lessons there were .29 per minute, while in low lessons there were .67 per minute—that is, they were twice as frequent. These differences, summarized in table I, are significant even without tests for inter-variable effects.

Table 1: Measures of Inattention.

<table>
<thead>
<tr>
<th></th>
<th>Management Acts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#/mins.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Class I</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
</tr>
<tr>
<td>16/39</td>
<td>.41</td>
</tr>
<tr>
<td>61/43</td>
<td>1.42</td>
</tr>
<tr>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Class II</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
</tr>
<tr>
<td>32/67</td>
<td>.48</td>
</tr>
<tr>
<td>70/48</td>
<td>1.46</td>
</tr>
<tr>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
</tr>
<tr>
<td>48/106</td>
<td>.45</td>
</tr>
<tr>
<td>131/91</td>
<td>1.44</td>
</tr>
</tbody>
</table>

The findings on turn-violations indicate that low-ranked students have less of an opportunity to engage in self-monitoring and self-correction, and further, that some form of inattention or disruption will occur twice as frequently during their reading. In short, the act of reading is granted less dignity.

The measure of local uptake was whether questions incorporated any part of an immediately preceding answer. This is a simple formal measure of teacher-uptake, indicating where there is at least referential continuity between a response and a subsequent question. As is shown on table 2, in the high lessons 49% of all questions incorporated an immediately preceding answer, while in the low lessons only 39% did so.
Table 2: Measures of Uptake.

<table>
<thead>
<tr>
<th></th>
<th>Uptake/No-Uptake</th>
<th>Percent Uptake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>51/99</td>
<td>52%</td>
</tr>
<tr>
<td>Low</td>
<td>55/127</td>
<td>42%</td>
</tr>
<tr>
<td>Class II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>120/249</td>
<td>48%</td>
</tr>
<tr>
<td>Low</td>
<td>66/177</td>
<td>37%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>171/248</td>
<td>49%</td>
</tr>
<tr>
<td>Low</td>
<td>121/304</td>
<td>39%</td>
</tr>
</tbody>
</table>

Although I have not yet performed statistical tests for significance on this measure (the work is part of a larger dissertation-in-progress), the different amount of uptake seems important. Greater uptake of student responses is pedagogically beneficial, because it involves teacher-guided expansion of student contributions. It shows a fine-tuned adaptation of instruction to student performance.

Uptake included three related types of engagement: first, actual overt incorporation of some portion of a preceding utterance; second, elliptical incorporation, where the subsequent question unavoidably presupposed the preceding answer; third, paraphrase, where a word or phrase in a subsequent question provided a close restatement of a preceding answer. All three types are illustrated in examples one and two.

In example one the discussion concerns a passage in which street lights have been mentioned. I think it is clear that uptake, marked with a plus in parentheses, provokes an elaboration of the discussion and draws out the students' knowledge of the passage and the topic.

(1) Incorporation of answer into question (+).

1  T  Alright, what are they looking for?
2  C  Signals.
3  T  What signals? (+)
4  C1 Red.
5  C2 Red light and green.
6  C3 Three signals.
7  T  Alright, traffic signals.
8  C  Where do you find those? (+)
9  C  On the street.
10 T  Alright, where on the street? (+)
11  C1 Corners.
12 C2 Uh, corners.
13 T  The corner of the street...
14 T  At the corner of what kind of street? (+)

All of the uptakes involve overt incorporation, but the phrase
subsequent question overtly incorporates the paraphrase "Where do you find those?" (those=traffic signals=red light and green, etc.).

A second example is taken from a discussion which occurs after reading a passage from "Puss in Boots." The passage concerns a cat's plans to advance the social position of his master by fooling a king.

(2) Incorporation of answer into question (+).

1  T  What was the plan?
2  C  To make Jack play like he was the Duke of Willowonder.
3  T  Yes? (+)
4  C  To jump and then run into the river, but leave your clothes.
5  T  And pretend that he was doing what? (+)

The second question, line three, is simply "Yes?". It is an example of elliptical incorporation. Because it fully presupposes the preceding answer, it is like a "Why?" or "What else?" question in isolation; it merely signals "Go ahead." The student responds, in line four by reading a passage from the book, with slight modifications. The original text is "[I want you] to run and jump in the river, but leave your clothes under a stone." The teacher responds to the reading with a question, in line five, which incorporates an overt pronominal reference to the "your" of the preceding answer, and which requests a further specification of the protagonist's activities.

I would like to contrast the preceding with two cases of non-uptake. Examples three and four show an acknowledgement of answers, but no attempt to elaborate on the students' responses. Non-uptake is indicated by a minus in parentheses. In the examples the instructors seem to be covering a preset list of topics. In three the discussion concerns a passage, based on a variant of the Chicken Little story, in which a chicken and several animals are going to inform a king that the sky is falling.

(3) Non-incorporation of answer into question (-).

1  T  Why do you think they want to tell the king?
2  C  So they could get out of their city.
3  T  Okay, so maybe they can leave.
4  D  Do you think they think the king should know? (-)
5  C  Yes.
6  C  Cause he needta know too.
7  C  Cause he the owner of the city.
8  T  Alright, so they think that he should know
9  that the sky is falling.
10  T  Alright, what does this fox tell them? (-)

Even though the students have given causal explanations in lines six "Cause he needta know too," and seven, "Cause he the owner of
the city," the teacher merely acknowledges the positive nature of the response, and then continues with a new topic.

In example four the discussion concerns a story about a rural Mexican family going to market.

(4) Non-incorporation of answer into question (-).

1  T  Okay, when we think of village, what do we think of?
2  C  Of village, we had that word once before.
3  T  A little town.
4  C  A small town, yes.
5  T  And, uh... the son's name is what? (-)
6  C  Raymon.
7  T  Raymon. And Raymon is going with his father and mother...
8  T  to the village market to sell their pottery.
9  C  Um, who had the reins? (-)

In this example we again see a perfunctory pattern of answers being acknowledged and then followed by questions which introduce different topics. In sequence the students are asked to define "village", the name of "the son" and finally, in line nine, "who had the reins?" (of the burro in the story).

As was noted above, and as should be clear from the examples, uptake is pedagogically beneficial. It draws students into whatever instructional dialogue the teacher is attempting to achieve, by use of their own answers. Some possible reasons why it occurs more frequently in high-ranked lessons are discussed below, but first let us turn to the last measure.

The analysis of referential coherence revealed that the typical way of establishing and maintaining question-topics was for the topic to be introduced with a lexical NP or name and subsequently referred to with a third person or zero-anaphor, during a series of question-answer-evaluation cycles. Topic-shifts were accomplished by introducing the new topic with a lexical NP or name.

This is a common pattern in English and can be seen in example five. The question-topic is introduced in line one,"Jenny," and thereafter referred to with a pronoun "she." When the question-topic is shifted in line nine then a lexical NP, "Her mother," is used.

(5) Typical NP distribution (NP_{jlex} - NP_{jpro}.../NP_{ilex}...)

1  T  Alright, what is Jenny_j doing?
2  C1 Runnin' out there like a stupid fool.
3  CC Runnin' out in the crosswalk.
4  T  Alright, running out into the street.
5  C  Is she_j supposed to?
6  CC No!
7  C2 She_j s'posed to wait for her mother_1.
8  T  She_j's supposed to wait.
9  C  Her mother_1 is where?
10 C3 Over across the street.
11 T Alright, on the other side of the street.
12 And what is she$_1$ signalling to Jenny$_j$?

There is a notable departure from this pattern, however. Sometimes shifts in topic-perspective occur which are not accomplished with lexical NPs, but rather with potentially ambiguous pronouns. Such shifts are interesting for several reasons. For one, they throw into relief the kinds of contextual and semantic knowledge participants use to infer antecedents in a discourse. For another, conflicting inferences occur far more frequently in the low-ranked lessons, forming a complement to the heightened inattention and lessened uptake discussed above. Finally, in recounting and commenting upon the events contained in a text, students are practicing a variety of inferential strategies for determining antecedents in a discourse. It seems plausible that these are similar in kind to the strategies which skilled readers employ in comprehending text (Cf. also Gibson & Levin, 1975, and Webber, 1980).

The use of text knowledge, prior discourse, and semantic information to infer antecedents can be seen in examples six and seven. As an aid to the reader, in these examples the text which the discussion concerns is typed above the conversational excerpt.

(6) Successful resolution of ambiguous pronominal reference.

Text: The city mouse wanted to see the country mouse. "I know what I can do," he said. "I'm going to the country. I will surprise country mouse."

1 T Alright, so what does the city mouse$_1$ want to do?
2 CC See the--go to the country.
3 T Go to the country and visit who?
4 CC The country--the country mouse$_j$.
5 T The country mouse$_j$.
6 Alright, does the country mouse$_j$ expect him$_1$?
7 CC No.
8 T No he$_j$ doesn't, he$_1$'s going to what?
9 CC Surprise.
10 T Surprise him$_j$, he$_1$'s gonna surprise him$_j$.

In line eight there is a sudden shift in the reference of the pronouns: the first "he" refers to the country mouse, who does not expect the visitor; the second "he" refers to the city mouse, who is going to surprise his rural counterpart. In following the sudden, unmarked shift concerning who is in focus as the agent, the students had to apply their knowledge of the passage which had been read, as well as their knowledge of what aspects of the passage had been discussed thus far, in order to predict—as they successfully do—the likely antecedent of "he" in "He's going to what?"
A more elaborate example can be seen in seven. This is also taken from the lesson of "Puss in Boots." The passage has been read and partially discussed, a fragment is reread by a student, then the conversational excerpt occurs.

(7) Successful resolution of ambiguous pronominal reference.

Text: Two men were standing guard. The cat called to them.
"The King is coming along the road. He will ask whose field this is. If you don't say it belongs to the Duke of Willowonder, I'll come back and chop you to bits."

1 T So that's why he_i's gonna chop their heads off...
2 He threatened them_g, didn't he?
3 C1 Uh huh, so they_g would tell the_king that
4 that is the Duke of Willowonder's_s_j.
5 T Why'd he_k tell him_k that?
6 C1 So the King_k would know--So the King_k would realize that he_j is the Duke of Willowonder_s_j.
7 T That he_j had something, didn't he_j?

In the question in line five, the teacher changes grammatical number from plural ("they") to singular ("he"). In order to infer that a guard is the antecedent of "he" in five, the students must have a clear idea of who was going to be speaking to whom and in what order. For example, they must infer that "why'd" equals "why would" rather than "why did," in order to get the correct sequencing of speech and speaker (cat tells guard, guard will tell king). The "he" of line six is the cat's master, Jack, who has not been mentioned in some time. Yet when Jack is re-introduced anaphorically, neither students nor teacher have trouble interpreting the reference of the pronoun (he=Duke of Willowonder=Jack), or understanding that Jack the Duke would be the one who "had something" in line eight.

But this sort of reference-maintenance occasionally breaks down. That is, situations occur in which contradictory interpretations are assigned to a pronoun, with the result that two or more topics are simultaneously on the floor. These situations occur much more frequently during low-ranked reading lessons. One result is that discussion time is given over to "repairing" reference, that is, to establishing just what is being talked about at a particular moment in the lesson. Examples eight and nine provide illustrations.

Eight is taken from the same lesson as example six. The discussion concerns the story of the city and country mouse, but occurs later, after the country mouse has invited the city visitor to dine with him.

(8) Referential misfire.

Text: City mouse wanted to eat. But he did not like the food.
eat with me?" "I can't," said city mouse. "I don't like this food. Why do you eat it, country mouse?"

1 T Who's not eating the corn?
2 CC The city mouse!
3 T Why not?
4 C1 He, don't like it.
5 CC He, don't like it.
6 T He, doesn't like it.
7 But does the country mouse like it?
8 CC Yeh!
9 T Yes he does--
10 C1 -He like eat insects.
11 T --he likes that--
12 C1 -He like eat insects.
13 T Who?
14 C1 Uh...
15 T Which one?
16 C1 The gray one.
17 T Well, which one is he, the gray one?

Lines four through thirteen are most important. A student, C1, refers to the city mouse as "he" in line four "He don't like it." The teacher then talks about the country mouse in lines seven and nine: "But does the country mouse like it? ... Yes he does." In lines ten through thirteen we see the temporary breakdown which ensues as the teacher tries to establish just which mouse is being referred to by "he."

A second example can be seen in nine. The excerpt is taken from a lesson dealing with the behavior of a young chameleon who refuses to change his color, with the result that he is spotted and nearly eaten by a passing crow. Prior to the conversational excerpt a student reads a passage in which the crow has spotted the chameleon and flown closer; whereupon, the chameleon, sensing danger, darts under a leaf. There is a lengthy interlude, to discuss a violated spelling rule, then the exchange in nine occurs.

(9) Referential misfire.

Text: Christopher felt a shadow blocking out the sun. And opened one bright eye and knew the time had come to run! Beneath the leaf he darted, as fast as he could go. And then he clung there hoping that he had lost the crow. "I'm sure I spotted something," croaked the crow from quite nearby. "It looked like a lizard from up there in the sky."

1 T Okay... Alright, after he'd run or he'd darted under the leaf, he started thinking about it, didn't he?
2 C1 Yeh.
3 T What'd he think?
In this passage, one possible topic-perspective, that presumably intended by the teacher, assumes coreference between the "he" of "dart" and the "he" of "think" in lines one and two. An alternate perspective assumes disjunctive reference, giving an interpretation something like the following: "When he, the chameleon, darted under the leaf, what did he, the crow, think?" This alternative interpretation is made by some of the students, as is indicated by the speech which they quote. "I spotted something" is the speech of the crow.

Although such referential "misfires" are not pervasive, they do occur regularly in low-ranked lessons, usually one or two per lesson. When they occur, question-topics are typically abandoned, or returned to only after lengthy discussion aimed at clarifying who said or did what to whom. Although for this discussion I have selected examples which provoked probing by the teacher, answers which were referentially ambiguous were also likely to be ignored, whether correct or incorrect. Situations where contradictory inferences are drawn probably contribute to increased inattention and lessened uptake. But such reasoning should not proceed in an overly deterministic fashion.

Discussion: In thinking about causes for the above findings, the various measures should not be seen as simple cause and effect, but rather as different sides of a mutually reinforcing cycle. Lessened attention results in lessened uptake and referential coherence; these, in turn, lead to further inattention. All three measures are aspects of a synergistic process resulting in reduced communicative involvement.

The components of inattention are complex in themselves. "Calling out" may start as help—students providing the correct answer when someone hesitates or miscues. But it very quickly becomes a divisive form of rivalry, annoying each reader in turn, yet tolerated by the instructor. It prevents self-monitoring and self-correction and reinforces a fragmented oral reading style. By lessening the respect paid a turn at reading, and the intelligibility of reading and discussion during and after a turn, calling out lessens involvement in reading. This, in turn, provokes management acts, as teachers attempt to maintain attention by reprimanding inattention. The reprimands further disrupt the process of reading and discussion, contributing, albeit in a limited way, to lessened uptake.

If we ask why differential uptake occurs, several potential answers suggest themselves. One is that inattention directly reduces the possibility of uptake. If we focus on the difference between high-group and low-group management acts (N=31), we find that eleven of those thirty-one acts occurred during a question turn, when students had been asked a question, and had responded
with an answer which was correct, but provoked no elaboration. Assuming that a distraction during a question-answer-evaluation cycle will lessen the likelihood of uptake, then the intersection of the two categories of events provides an explanation for part (ca. 10%) of the lessened uptake in the low-ranked lessons. But this is only a partial explanation.

An alternative hypothesis is that differential uptake simply reflects either (a) the teacher's expectations about students and the pedagogical agenda thus employed, or (b) the inappropriateness of the students' responses. Both sides of this hypothesis are difficult to prove. If subsequent analysis were able to isolate a number of identical question and response patterns, which showed uptake with one group of students and lack of uptake with another, that would provide direct evidence of expectation effects, or a site for contrastive analysis of the appropriateness of student responses. It would leave still unanswered the question of what it is about the general communicative environment which maintains and reinforces the teachers' apparent predilections for differing uptake.

In the case of decreased referential coherence, the question is how contradictory, yet equally plausible interpretations of topic get established in the rapid back and forth of classroom discussion. It may be that low-ranked readers do not have as coherent a model of the text as their high-ranked counterparts, with the result that their anaphoric inferences are less constrained, more open-ended. But that is impossible to assess in this study. It may be that the oral discourse style of low-ranked readers places an additional interpretive burden on the teacher. These readers tend to use a fragment of reported speech when introducing a new topic, as if compensating for the shift in reference by clearly indexing the speech of the character (for example, in nine). This way of introducing characters may require additional inferential work by the teacher, to determine what the intended topic is. Last, and perhaps most important, in many of the referential misfires timing is important—for example, in nine, where discussion of a spelling rule had intruded between the reading of the text and discussion of the text. In several other cases, some sort of distraction occurred just prior to the misfire.

Conclusion: Whatever the ultimate causes of increased inattention and lessened uptake and coherence, it seems clear that the different ability groups encounter strikingly different contexts for learning. It is a sad irony that students perceived as low aptitude are grouped together so that—as a group—they encounter lessened communicative involvement in the task of reading. This practice—justified by a false and inflexible ideology regarding "ability"—merely reinforces existing inequalities of access to learning opportunities.

It should be noted, however, that the foregoing discussion has attempted to do more than document the effect of teacher expectations. Instead, I have discussed a few exploratory measures for assessing the overall coherence of communication
within learning micro-environments. The measures discussed do not assume taxonomic models of classroom discourse, but rather attempt to get at the preconditions for attentive, sustained involvement in the collaborative process of learning to read. These preconditions seem to include an orderly way of assigning turns, the right to a turn and to time for self-monitoring, a certain amount of teacher responsiveness to student contributions, and participants' ability to establish and maintain a shared sense of topic. Taken together, these preconditions indicate the complexity of the communicative events involved in acquiring the skills of literacy. Properly analyzed, they can enrich our understanding of the social, linguistic, and cognitive variables which play a role in those communicative events. Last, with regard to referential coherence, I hope to have suggested an area where there is a particularly interesting overlap between the strategies for interpreting talk and those for interpreting text.

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Notes:

1. See Collins (1982) for additional description of the larger study and the individual groups.

2. The procedure is adapted from Marslen-Wilson, et. al. (1981), who use a similar distributional analysis to study reference maintenance in narrative.

3. Although it may seem more plausible that the "he" of line five refers to "Jack" or "he" in line two, uptake is restricted, for this analysis, to immediately adjacent speaker-turns; therefore, the uptake is assessed in terms of the coreferencerelationship which exists between "your (=Jack)" in four and "he(=Jack)" in five.

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