Chapter Six

Talk with Peers and Computers

If you think about the meaning of the vague preposition *with* in this chapter title, you’ll realize that it refers to different kinds of assistance. *With* peers means “together with peers,” whereas *with* computers means “by means of computers,” like eating *with* a spoon. Computers don’t actively collaborate with us as peers can do, and we don’t expect peers to let themselves be used solely in our service, as we wish computers would always do. Despite these differences, working with peers and computers often go together. When the number of available computers is limited, collaborative work among students is not only theoretically advocated but practically necessary. Student computer expertise can supplement the limited availability of the teacher. Moreover, an inherent feature of the technology is that work in progress on the screen is public in a way that paper on a student’s desk is not.

In general, differences between learning in teacher-led lessons and learning in peer groups are becoming less marked. Teachers do not always maintain the stance and voice of authority, and there are often more student–student exchanges, even when the teacher leads the discussion—preceding chapters have presented examples. In Gallas’ non-traditional sharing time and Lampert’s nontraditional lessons, students are expected to respond to what has been said by peers as well as by the teacher. In other discourse variations, some teachers deliberately “re-voice” one student’s contribution to a discussion in order to position students to speak directly to each other. In Reciprocal Teaching (RT), teachers start out leading text discussions with the intention of gradually turning that responsibility over to the students. Brown’s Community of Learners (COL) classrooms have multiple participation frameworks with
opportunities for varied speaking roles—some including the teacher and some without. This fluidity, rather than a sharp contrast between talk with the teacher and talk with peers, characterizes many of the current innovations in classroom organization and participation structures.

Shifts between interacting with the teacher and with peers can even happen over a very short span of time. One striking example occurred in a second grade I was observing toward the end of the school year. During shared reading time with the whole class, controversy erupted between two interpretations of a short story the teacher was reading aloud. To make discourse space for more children to participate in the controversy, the teacher said simply, “Turn and talk,” twirling her forefinger in the air as she was speaking. Children immediately turned to their neighbor and talked excitedly. A few minutes later, the teacher asked for new interpretations, took a vote on alternative predictions, and returned to the text to read on. “Turn and talk” had obviously become a familiar routine in this classroom, and by May the teacher’s twirling forefinger might have been a sufficient cue by itself. (A teacher in Anchorage, Alaska called the same brief activity “buddy-buzz.”) But even with such increased opportunities for student talk within teacher-led lessons, there are still reasons to arrange times for students to work together, in pairs or small groups.

The discussion of “internalization” or “appropriation” as an essential learning process (Chapter 4) included Bakhtin’s contrast between two modes of appropriation: “reciting by heart” and “telling in one’s own words.” More formally, Bakhtin contrasts “authoritative discourse” with “internally persuasive discourse.” ¹ If we encounter the ideas of others as authoritative discourse—the words “of a father, of adults, and of teachers”:

[It] demands that we acknowledge it, that we make [that authoritative discourse] our own; it binds us, quite independent of any power it might have to persuade us internally: we encounter it with authority already fused to it.

This is the way students often hear the words of their teacher, even the way teachers may want to be heard.

Authoritative discourse can be learned by heart, to be repeated in the future, on demand. But until it becomes detached from that authority, it is not “one’s own word”; it is not yet “internally persuasive.” Again, in Bakhtin’s words:

Internally persuasive discourse—as opposed to one that is authoritative—is, as it is affirmed through assimilation, tightly woven with “one’s own word.” In the everyday rounds of our consciousness, the internally persuasive word is half ours and half someone else’s. Its creativity and productiveness consists precisely in the fact that such a
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word awakens new and independent words, that it organizes masses of our words from within, and does not remain in an isolated and static condition. . . . The semantic structure of the internally persuasive discourse is not finite, it is open; in each of the new contexts that dialogize it, this discourse is able to reveal ever new ways to mean.

Theoretically, it seems possible that students will be more apt to actively struggle with new ideas—rephrasing them, arguing with them, conceptually trying them out and verbally trying them on—when they are spoken by (less authoritative) peers than by the (more authoritative) teacher.

From this perspective, we look at examples of activities in which peers talk together without computers and then ones in which they interact in various ways with them. At the end, we consider the relationship between discourse quality and students’ social relationships with each other.

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In pair and small-group activities, students can take on various intellectual roles vis-à-vis each other. Four such roles are spontaneously helping one another, tutoring another student when assigned by the teacher, reciprocally providing “critique” of each other’s work (as in peer writing conferences), and collaborating as presumably equal status learners on assigned tasks.

Spontaneous Helping

Students of all ages regularly ask for help and give it to each other—regularly, that is, unless such help is outlawed as “cheating.” One such helping interaction occurred in a fifth grade in a central Los Angeles school in which 90 percent of the students are Latino and helping others is encouraged. Earlier grades in this school are taught bilingually, but the fifth grade is taught mostly in English.

The class had taken a trip to the desert, and now back in the classroom they were asked to record words and illustrations that describe the desert. Students sitting together at one table are Alvaro and Desiree (of Mexican descent) and Bonita and Carlos (of Fijian descent). Bonita asks for help in remembering a word. In Figure 6–1, Schegel has numbered lines of speech rather than turns, and analyzes how the children “use each other’s memories as word search resources, in addition to their textbook and their teacher.”

Bonita describes what she is trying to name, simultaneously adding gestures that reinforce her “rolling” image (1–4, 8). From their shared
Figure 6–1
Spontaneous helping

1 Bonita: [Bonita gazes straight ahead] uh, What are those rolly things?
   [Bonita holding a marker, begins twirling her hands as she say “rolly.” Alvaro turns his gaze to Bonita as she twirls her hands.]
2 They be rolling on the ground . . .
3 (.3) You know on cartoons or the commercials sometimes?
4 lb //
5 Alvaro: // From movies? [Bonita looks at Alvaro.]
6 (.3) Like the one // with Pee Wee Herman? [leans back and points index finger as he says “one”]
8 [twirls her hands as she speaks] And then // you start rol: ling
9 Alvaro: [twirls his finger, then his hand]
10 Bonita: Yeah thro:=ye. [drops marker]
   Alvaro: [places his hand on his mouth: thought position]
11 I remember that.
12 Let me tell the teacher. [leaves the group and goes to the teacher]
* * *
19 Teacher: → [off camera] Tumbleweed? [Desiree looks toward Alvaro and the teacher.]
20 Alvaro: [off camera] (.4) Tumble?
21 Carlos: (.3) What is that?
22 Bonita: (.7) What?
23 Carlos: (.3) That, [Carlos points at the picture.]
24 Alvaro: → tumblewe // ed [uttered as he walks back to the table]
25 Bonita: // It’s just be
26 Desiree: → (1.0) [to group] tumble // we:ed.
27 Bonita: [looks up and out, possibly at the teacher]
   → // oh yeah tumblewe:ed.
28 Alvaro: → (2.4) [sits] It’s tumblewe:ed.

experience on the class trip, her peers can help. In addition, “group members can rely on their shared experiences . . . as children who participate in and have knowledge of popular culture meaningful to them”—namely, cartoons and commercials (3, 5–6). Bonita’s clues work for Alvaro, who joins in her gesture (9) and leaves to “tell” the teacher (out
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of hearing of the tape recorder) what they together have described. The teacher offers a candidate name, “Tumbleweed?” (19). Alvaro relays her suggestion back to the group (24). It is eventually ratified by Bonita, and the word search is successfully completed with a word whose first morpheme, tumble, is a lower-frequency synonym for Bonita’s initial verb, roll.

In his analysis of this “socially shared cognition,” Schegel emphasizes the importance of the children’s body positionings and gestures accompanying their speech that serve to encode and communicate the image of rolling or tumbling. When synchronized by two children, as when leaning back in 6 and 7 and twirling fingers in 8 and 9, these movements also serve to reinforce social bonding.4

Note also how Bonita’s success depended on the recently shared in-school resource of the field trip, especially by contrast with another word search in the same classroom. When a small group of Mexican-descent children are asked to write about anything they see in a surrealist painting by Marc Chagall, Hector sees something he cannot name and asks peers and teacher for help. He tries many gestures, and the teacher offers several candidate names. But it takes longer than for “tumbleweed” before someone off-camera suggests the subsequently ratified “plow.” Hector later explains “he was recalling a photograph of his grandfather as a young farmer working a plow in Mexico,”5 a personal image that was not shared knowledge and could not be easily communicated in words or gestures to peers or teacher.

Assigned Teaching or Tutoring

In the fall of 1999, two teachers—Frank McCarthy (English) and John Sullivan (Social Studies)—at Cambridge Rindge and Latin High School in Massachusetts organized a “millennium project.” Their tenth-grade students worked in pairs to investigate the most important events and the most infamous persons of one of the last twenty centuries and then presented their findings to their peers. Fourteen-year-old Siobhan O’Sullivan comments on the whole project:

The best part was that we learned from our friends. When they got up to present the research on the events and people of their century, we understood it more because the information was being given in a way we could understand.6

This project is similar to the Jigsaw participant structure that is a recurring activity in the Community of Learners program described in Chapter 5. Each participant is responsible not only for learning a part of the whole curriculum unit themselves, but also for teaching that part to their peers. What Brown found in California is undoubtedly also true
in Massachusetts: Knowing from the beginning their later responsibility for teaching makes the students especially serious about their own initial learning.

In *Children of Promise: Literate Activity in Linguistically and Culturally Diverse Classrooms*, Heath and Mangiola recommend that students’ resistance to formal schooling can be overcome when they find new dignity and identity in becoming an “expert” in some activity. As one example, they describe cross-age tutoring, in which “at-risk” non-native English-speaking fifth graders become reading tutors for first graders in Redwood City, California. The teachers worked with the tutors before their tutoring began, and met with them in small groups as it proceeded.

The goal of these discussions was to help the tutors see themselves as becoming “experts” about the processes of reading, writing, and talking . . . and to see themselves as sources of knowledge that matters to someone other than a distant adult.7

Heath and Mangiola found that the tutoring benefited both tutors and their tutees in several ways:

- Students could read and tutor in either Spanish or English; many tutors started out in Spanish but then began to read and discuss in English, demonstrating their ability to transfer knowledge about literacy across languages.
- Tutors increasingly asked their tutees to retell stories with puppets and to write stories, thereby helping the tutees’ comprehension and enjoyment.
- Tutors were encouraged to write about their tutoring. In letters to their tutees and to the tutees’ teachers at the end of the year, the tutors expressed appreciation of the literate development of the tutees, perhaps thereby gaining new awareness of the value of literacy for themselves too.

Moreover, while literacy was the main school goal for the cross-age tutoring program, the tutors’ classroom teachers noticed “a growth in their [students’] willingness to speak out in class and to take leadership roles.”8

For research on interaction in the San Diego multigrade classroom where the Chapter 3’s Birthplaces lesson took place, Mehan and I set up what we called “instructional chains” in which the teacher taught a language arts task to one student and then asked that student to teach one or more peers. In two of the chains, third-grader Greg taught first-grader Everett (both African American) and first-grader Veronica taught first-grader Alberto (both Mexican American). In both pairs, the tutors engaged in remarkable style-shifting for their speech in the “expert” role. These shifts have been summarized from the San Diego tapes by Zina
Steinberg for her research with another instructional chain in a school for emotionally disturbed middle school children:

Greg was often in trouble with both teachers and principal, both for not doing his work and for getting into fights. On the morning when he was to be tutor, he was wandering around the room alone, hidden in a paper-bag mask, singing to himself and making “jive” movements with his body. Yet once he was involved in learning the task and then teaching it, he did an excellent job. Moreover, his casual, even slurred black dialect shifted to a careful, crisp, even exaggerated pronunciation as he read sentences to his younger tutee. When the job was done, he poignantly asked one of the teachers, “Why am I so special today?” and explained that he meant by that “teaching” and “them fun things.”

Veronica could not give an adequate description to the adult teacher of what she was going to tell her tutee to do; yet in the course of repeating the directions in response to his noncompliance, her directions became more and more elaborated and complete. . . . Like Greg, Veronica’s pronunciation of the English words for her tutee to spell was crisp and precise; but in her case this is all the more remarkable because she was still going to daily lessons in English as a Second Language (ESL) and gave her instructions to her tutee in Spanish, except for these words.9

For the student in the teaching role, the tutoring relationship provides an opportunity to engage in speaking actions usually reserved for the teacher. Remember the role reversals that developed over repeated occasions of language games played with parents at home, like peek-a-boo and picture-book reading (see Chapter 4). In school, such reversals in speaking roles would be unusual in interactions with the classroom teacher. The best situation for students to give directions (instead of just following them) and to ask questions (instead of just answering them) is with peers.

Beyond the benefits to the students, Steinberg suggests how much teachers can learn about their students’ competencies by observing and listening to activities and interactions in which students take on an authoritative role:

Teachers know that they don’t see all aspects of a child’s individual and interactional competence in that portion of behavior displayed within eyeshot and earshot of the teacher herself. But teachers may not realize how much of a child’s “best behavior” they miss—best in the sense of closest to the goals of education itself—until they have the chance to eavesdrop on them in situations like the ones we have described here.10

When such eavesdropping expands teachers’ awareness of their students’ competencies, it can lead to heightened teacher expectations for the very students who need it most.
Reciprocal Critique

In discussing “social constructivism” as a theory of human learning, I called attention to two meanings of social. Resources for learning, at home and at school, are most obviously and immediately available in the social interactions, the discourse that we engage in with others. But there are also the less obvious social origins, even if distant in time and place, of all the processes and products we encounter in our activities, from the math materials in Kate and Ryan’s classroom below to computers and their software.

There is a third meaning of social as well, what Bakhtin calls the “addressivity” of any utterance—the quality of turning mentally to someone and anticipating, hoping for, humanly needing, a response. When speaking, response can be immediate. But when writing (or painting or creating a video), response often comes too late to be helpful during the formative creative process. So, we can benefit from feedback given by someone else who can take on that audience role while change in still possible.

One general name for the enactment of this audience role is critique. Critique differs in important ways from criticism that we read in reviews of films or books:

- Criticism is about finished work; critique is about work still in progress.
- Criticism is often given by persons who do it as their primary job, (such as film critics for a newspaper); critique is a temporary role offered by one artist to another.
- Criticism is one-way, from critic to creator and potential audience; critique is a two-way, reciprocal relationship.

Like “portfolio,” the term critique comes to us from the arts. In addition to comments from the prospective of audience, it can include comments on more aesthetic (formal) and functional (use) criteria.

One familiar critique activity is peer writing conferences. One second-grade conference was observed by Barbara Kamler, an Australian writing teacher, when she was visiting Donald Graves’ research team in the United States. The teacher, Egan, held regular writing conferences with individual children. In addition, she encouraged the children to hold peer conferences with each other. Here is Kamler’s account of conferences between two students, Jill and Debbie:

On March 11, Jill was one of six children scheduled for a writing conference. . . . At Egan’s direction, Jill and the other conferees went to the language table. Egan had requested that Jill first spend time with seven-year-old Debbie, going over the book to be sure it was ready for a conference. . . .
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Jill began by reading each page aloud to Debbie. . . . As Jill listened to her own words, she made changes on page 1, 2, and 3 without any prompting or comment from Debbie, and on pages 4, 5, and 8 in direct response to questions Debbie asked. . . .

At the conclusion of this half-hour conference, Jill had made six content changes which affected the overall meaning of the piece. She had deleted information which made no sense or which she could not support; she added information to clarify or explain. Debbie's presence forced Jill to reread the book for the first time since composing; Debbie seemed to make the concept of audience visible for Jill. Jill also needs an active reader to ask questions. . . .

[Later] Debbie claimed her time: "OK, Jill, you help me now!" They reversed roles, returned to the language table to work on Debbie's book, Ice Follies, until Mrs. Egan was ready to see Jill twenty minutes later.

Kamler suggests that each child author benefits in two ways. More obviously, the peer asks questions, and some of Jill's changes were in direct response to Debbie's questions. Less obviously, the peer silently, but no less effectively, represents the needs of an audience and makes "the concept of audience visible."

Youth worker Elizabeth Soep described a writing conference between two teen-agers that took place in an arts-based summer program, which culminated in a Final Day Performance for families, friends, and mentors. As the writers prepared for their Final Day readings, they turned to peers for "honest feedback and thoughtful guidance." Here is Soep's description of one conference, also between two girls, Maya and Amy.14

Amy's Critique for Maya

In the writing studio, Maya pulled her friend Amy away from the computer, saying, "Come on, we need to workshop." Grabbing copies of several poems in progress, the two retreated to a quiet area away from the tap-tapping of fingers on keyboards. Maya and Amy knew that I was conducting research on out-of-school arts education, so they agreed to let me listen to their critique session. Maya handed each of us a printout of her piece, "I Dreamed of a Bed," and proceeded to read it aloud. Shoulders back and chin up, she shifted into a dramatic vocal delivery that gave the poem lyrical cadence. As soon as she finished, her tone and posture settled back to normal and she observed tentatively, "I don't know. It's so-so—you know?" Amy took another moment to read over the printout of the poem before editing basics like spelling and grammatical errors. Then she tackled the more substantive matters:

"What does devised mean?" asked Amy, referring to a line in the poem about how Maya had devised her own world: "I knew this place / I knew it well / I had constructed it / I had devised it / These four walls." But Amy was not requesting a simple definition. She was pushing Maya to express the deeper meaning behind the term: "What are you
saying about your world?” Amy probed. “What have you done to it exactly?” “Okay,” Maya said, getting the point. “I made it up. Devised—I created it in my head.”

They worked their way through the entire piece like this, line by line, sometimes word by word.

Maya’s Critique for Amy

When the two moved on to Amy’s piece, called “My People Love Too Much,” the critique process proceeded in a similar fashion. Amy read her poem aloud and then encouraged Maya to “go for it. Cut it up.” Amy wondered, “Are there enough images to know exactly what I’m saying?” and Maya replied. “I mean, I can see like, flashes of it, but you have to read it twice to understand some of those things, you know what I mean? Even though I know that’s the image you’re trying to portray, but just to make it straighter for the reader.” Maya went through each image and suggested elaboration or clarification where she deemed necessary. With every comment Amy urged Maya to “write it, write it! Before I forget!” Maya complied but pointed out, “See, you don’t have to use these words: You can use whatever words you want.”

In contrast to Egan’s second graders, these two older students help each other with their poems in more individualized ways. When Maya expresses only a general (perhaps formulaic) dissatisfaction with her piece—“I don’t know. It’s so-so—you know?”—Amy starts with editing and then initiates a deeper discussion. She follows up her specific question—“What does devised mean?”—with a more unusual invitation to deeper reconsideration, “What are you saying about your world?” When roles are reversed, Amy asks Maya for help with her images. Then, when Maya had made suggestions about each image, even writing them out as Amy requested, she warns Amy, “See, you don’t have to use these words; you can use whatever words you want.” She seems to understand that suggestions from peers can, like those of a teacher, be taken too authoritatively, while the deeper benefit to learning and to imaginative creation will come from transforming the suggestions of another into internally persuasive words of one’s own.

Both these conferences can be deemed successful, and teachers know that making peer conferences happen like that takes a lot of work. Soep found wide variations in kinds of adult assistance across the programs she observed. “Some programs lay out specific rules for critique—for example, lead with something positive. In other programs, young people learn how to critique by picking up the communicative strategies modeled by their instructors and more experienced peers.”

In the second edition of In the Middle: New Understandings About Writing, Reading, and Learning, teacher researcher Nancie Atwell describes a complex year-long apprenticeship in conferencing with her seventh
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and eighth graders. Her apprenticeship neither scripts their interactions
nor simply expects them to learn from their conferences with her. She
gives a series of procedural minilessons specifically on conferencing,
role-plays effective and ineffective conferences, and periodically calls
the attention of the whole class to what she hears in their conferences
during writing workshop.\textsuperscript{16}

Collaborative Problem Solving

Two common small-group activities in which students are expected to
work together as equal-status collaborators are problem-solving groups
in math and “book talk” groups in language arts/English.

Mathematics educator Paul Cobb and his colleagues conducted a
year-long study of math teaching and learning in one second grade in
which small-group work was a regular activity. The nontraditional “in-
quiry” curriculum focused on multidigit addition and subtraction, and
instructional activities were designed to promote both conceptual and
computational development.

The teacher worked hard to establish social norms for learning in
her classroom, including explicit expectations for working with a peer
partner. According to Cobb, these included:

\begin{itemize}
  \item explaining one’s mathematical thinking to the partner,
  \item listening to and attempting to make sense of the partner’s explana-
        tions,
  \item challenging explanations that do not seem reasonable, justifying in-
        terpretations and solutions in response to challenges, and
  \item agreeing on an answer and, ideally, a solution method. \ldots
\end{itemize}

It should be stressed that the teacher did not simply list these norms
as rules or principles to be followed; instead she capitalized on specific
incidents in which students’ activity either instantiated or transgressed
a social norm by using them as occasions to discuss her expectations.\textsuperscript{17}

(Note the similarities between Atwell’s and this teacher’s complex mix of
teaching strategies across differences of grade level and curriculum area.)

In by far the longest chapter in the book on this research, Cobb pre-
sents four case studies, analyzed from video tapes, of pairs of students
who worked together over ten weeks. Near the beginning of their work
together, Katy and Ryan were working with “multilinks” of different
lengths to solve their math problem. Figure 6–2 gives sixteen consecu-
tive turns.\textsuperscript{18}

While Ryan starts immediately to lay out the multilinks (1), Katy
solves the problem by counting on her fingers (2). But when she an-
swers his question (3), whether addressed to her or to himself, she
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Figure 6–2
Solving a math problem using multilinks

The children were asked to solve, “How many do you add to III::: [36] to make I Illl.: [53]?”

1 **Ryan:** [Starts to put out bars of multilinks]

2 **Katy:** [Counts from 36 to 53 on her fingers] 17.

3 **Ryan:** Look, 36 [points to 3 ten-bars and 2 three-bars]. And how many do we have on that? [points to the picture of 53 on the activity sheet]

4 **Katy:** 53. So you add 2 more tens.

5 **Ryan:** 2 more tens and take away one of these [points to three-bar].

6 **Katy:** Come here, come here, I think you’re not getting this right. All right, you have this many numbers [points to the picture of 36] and that makes 36, and that makes 37, 38, 39, 40 . . .

7 **Ryan:** [Interrupts] Look, look . . .

8 **Katy:** [Ignores him and completes her count] . . . 50, 51, 52, 53.

9 **Ryan:** Well this is 36 [points to the activity sheet], and we have to take away one of these things [a strip of three squares in the picture of 36].

10 **Katy:** Oh no you don’t.

11 **Ryan:** [Ignores her] and then we add 2 of these things [two strips of 10].

12 **Katy:** Here, I’ll explain it to you how I got the number.

13 **Ryan:** [Ignores her] and then we add 12 of these things [two strips of 10].

14 **Katy:** Here, you have that many numbers, 36, and you add 10 more, makes 46 [holds up both hands with all 10 fingers extended], 47, 48, . . . 53 [puts up 7 fingers as she counts].

15 **Ryan:** Katy, look, you have to take away a 10 [remainder of his statement is inaudible].

16 **Katy:** I’ll show you how I got my number. See, you have 36, and add 10 more makes 46 [holds up both hands with all 10 fingers extended], 47, 48, . . . 53 [puts up 7 fingers as she counts]. Do you agree with 17?

Speaks of adding “two more tens” (4). Then ten turns later, after arguing back and forth, she explains her whole process as adding ten and then counting on her fingers only the remaining 7 (14 and 16). In making this strategic shift away from thinking only in ones, Katy may well have been influenced by Ryan’s actions with the ten-bars.

Meanwhile, Ryan solves the problem in two ways, both different from Katy’s: first, adding 2 tens and then taking away a 3-bar (5); and later, taking away a 3-bar first and then adding 2 tens (9 and 11). We cannot tell from this excerpt what either Katy or Ryan understood
about the equivalency of their three solutions; but Katy is at least going to make sure they agree about the answer at the end (16).

In Cobb’s analysis, which is more complex than mine and draws on what he knows from his longitudinal observations of the children’s work and his conversations with the teacher, he calls their interactions, “multivocal” by contrast with the “univocal” dominance of a single perspective: “Multivocal interactions are constituted when both children attempt to advance their perspectives by explicating their own thinking and challenging that of their partner.”

While Cobb does not question how gender may have influenced the interaction between Katy and Ryan, the influence of such potential aspects of classroom status is one focus of Cynthia Lewis’s study of peer literature discussions in a combined fifth–sixth grade. In this class of predominantly European American children, age (or grade), gender, and ability, as perceived by the teacher, turn out to be significant. The teacher, Julia, has high standards for her students’ interpretive competence, expecting them to refer to the text for supporting claims, and high standards for their social competence, expecting them to be responsible to the classroom community and value learning from others. In analyzes of peer discussions and interviews with focal students, Lewis finds complex peer relationships enacted through the discussions.

One discussion among eight students of “Number the Stars,” about the Nazi occupation of Denmark, began with Jason reading from his journal (see Figure 6–3).20 When Nikki questions Jason’s connection between sadness over Lise’s death and her impending marriage (2), Jason does not support his statement from the text, although he could have done so, and withdraws from the discussion. Nikki repeats her disagreement (6), and later escalates it by adding, “I mean, marriage isn’t that big of a deal” (10).

From interviews with the students, Lewis offers more interpretation of their interactions than can be inferred from this excerpt. Jason (a fifth grader of medium to low ability, according to the teacher) told her “he didn’t like discussing big issues because it was too hard and too slow” and preferred an optional all-male group of fifth-grade boys like himself. In Lewis’s observations, this was a group “where the boys focused on plot and action rather than on character relationships.” Nikki (a high-ability fifth grader) “was considered an oppositional thinker by her peers and her teacher . . . [who] often read against the grain of the text” in both peer and teacher-led discussions. While Kate (9) seems to dismiss Nikki’s ideas as just typical Nikki, David (a high-ability sixth grader) is more positive. Although his position vis-à-vis Jason and Nikki is not clear (7), he told Lewis in a final interview that among his classmates Nikki’s comments “particularly stand out for him,” and recounted another example:
Excerpt from a peer literature discussion

1 Jason: [reading from his journal] Lise died when she was just a few days from marriage which was pretty sad since she was so close to getting married. There was also a king named Christian and then her little story was over.

2 Nikki: I have a question. Why is it so sad that she got—died just before she got married?

3 Jason: Well ‘cause /

4 Lisa: Because she was getting married and then all of a sudden she died.

5 Kate: Duh.

6 Nikki: But I don’t get why that means sad because like it’d be sad if she just got married and died, I think.

7 David: It’d be sadder. It’s always sad when someone dies.

8 [laughter]

9 Kate: Not to Nikki. It’s like, oh great a person’s gone. Yes!

10 Nikki: What’s it matter if she died before she got married. [Others are talking over her, teasing her.] I mean, marriage isn’t that big of a deal.

11 Several Students: OOOOH!

She always thinks like, for some of the books that are from an American point of view, like “April Morning,” she’ll try and think of what the, what the British soldiers are thinking, you know. And that’s exactly what I was thinking, so she says a lot of the same things as me.

Through her interviews Lewis discovered that low-ability Jason was not the only student sometimes reluctant to participate with his peers. High-ability Mackenzie, often asked by the teacher to lead literature groups, expressed trouble of a different kind, sometimes feeling freer to speak her mind when the teacher was present. While other students had told Lewis that “the teacher would sometimes recast their ideas in ways they didn’t understand or felt alienated from,” Mackenzie considered it easy to disagree with the teacher: “What you need is confidence enough to be able to say, ‘No, that’s not what I was thinking. I was thinking this.’” But for Mackenzie, that confidence didn’t transfer to discussions with peers. She recounted to Lewis a discussion about whether it was right for a character to plot revenge:

Mackenzie felt that she had to say she thought it was right to plot revenge because everyone else in the group thought so, many of whom were her friends. But when Julia asked her what she thought, she found herself saying that it was wrong because, “That’s really what I
thought.” I asked her if having Mrs. Davis there had anything to do with her decision to say what she believed: “Probably, I mean, knowing that Mrs. Davis was definitely gonna, I knew before she said it that she was gonna agree with me.”

Lewis’s analysis raises many important questions about the dynamics of peer discussions and the influences on whether they promote their goals of enhanced participation and both academic and social learnings. There is no single answer to how to make peer group activities successful for all students. The contextual influences are too varied and too influential. In a review of research on “group processes in the classroom,” Webb and Palincsar present the evidence for thirteen possible influences, including ability and gender (discussed by Lewis) and the teacher’s role (emphasized by Cobb). At the end, they conclude, “[T]he long list of group and classroom features provides a menu of possible ways to enhance the quality of collaboration in the classroom.”

Each is thus a candidate for research by teachers in their own classrooms.

**Talk With, At, Through, and In Relation to Computers**

Because learning with all forms of electronic technology is such a fast-growing and changing field, this chapter does not attempt a thorough analysis. Instead what follows is more of a conceptual map of the territory and some suggestions about where to pay attention to matters of discourse along the various paths within it.

The ways computers enter into, and influence, classroom talk can be expressed in four prepositional phrases:

- **With computers** refers to interaction between a student and computer software.
- **At computers** refers to interactions between two or more students as they sit at the computer keyboard.
- **Through computers** refers to interactions among students at a distance, via telecommunication.
- **In relation to computers** refers to classroom interaction not at the keyboard but incorporating work done there.

More about each in turn in the following sections.

**Talk with Computers**

One of the first uses of computers in education was “computer-assisted instruction” (CAI), in which a solitary student interacts with some kind of computer software. (When more than one student is present at the keyboard, then there is talk at the computer, not just with it.) Usually
fitting the barest IRE/IRF model of interaction, such computer use has been widely criticized as merely an electronic workbook, a high-tech form for a low-tech function.

Because the student–software interactions are completely dependent on the computer software, and those programs vary so widely, little can be said here in detail. Two general points are, however, worth keeping in mind. First, it may be tempting to consider such software as a potential scaffold, helping a learner attain proficiency in some skill—for example, an online tutorial program for a new software program itself. In a book edited by British researchers, Computers and Talk in the Primary Classroom, Mercer and Fisher warn against that assumption:

[B]ecause any educational software that we have observed in use offers, at best, a very limited set of “feedback” responses to children’s input, and since such responses are often a poor match for the problems actually encountered by children in the classroom, we do not feel that the use of the term “scaffolding” is appropriate. Moreover, we have observed that (a) pupils often get into difficulties in spite of information or guidance offered by the program, and (b) it is precisely at such times that a teacher’s supportive intervention is sought and received.24

More positively, we have to admit that when the computer software does give feedback (F) to a student’s keyboard response (R), it does so depending entirely on the nature of that response. Unlike a teacher, the computer never sees skin color, never hears dialect or accent, and never knows anything about the student’s living conditions (at one extreme, homelessness) or educational status of family members (at another extreme, two professional parents). Because teachers, consciously or not, often do take such factors into account, for better or worse, some advocates for poor and minority students have stressed the potential benefits of computerized instruction.

*Talk at Computers*

When two or more students sit together at a terminal, interaction changes in qualitatively significant ways. Discussion can take place between the computer’s initiation and students’ response:

- **I**: Initiation by the computer
- **D**: Discussion between the children
- **R**: Response by the children acting together
- **F**: Follow-up move by the computer25

IRF discourse is transformed into IDRF in a way that would not be likely in noncomputer interactions. (The second-grade teacher’s request to the students, “turn and talk,” before predicting the next story event is close.)
Figure 6–4
Talk at the computer during a computer game

1 Simon: Dig [evidently a possible keyboard response]
2 Roger: What can we do? What can we do?
3 Simon: To see if the grass is not that again [pointing].
4 Roger: What can we do?
5 Simon: Just then we can see um um dig to see if the grass is that hard.
6 Roger: No, that’s too hard, remember.
7 Simon: Yeah, but I know but that path is hard but we are going to be on the grass. I (2) look, if we go there we need to get on the grass. If we if we walk in there we’ll be on the grass, right? So, we’ll press Dig to see if the /
8 Roger: Dig.
9 Simon: And then we’ll see if the grounds ( . . . ) now press Dig.
10 Roger: [presses key] No it won’t work.26

Figure 6–4 contains a brief snapshot of talk as two boys, Simon and Roger, play Concept Kate, an adventure game. They have met an obstacle, a blocked path ahead, and have to decide how to get through. In this transcription, a pause of less than a second is marked with a slash (/), while longer pauses are indicated by number of seconds in parentheses; ( . . . ) indicates unintelligible speech.

Such talk can be analyzed in the same ways as other peer collaboration. In these moments, Simon is speaking in exploratory talk in two senses: exploratory in the sense of first draft, with pauses and repetitions (5, 7) and in the sense of hypothetical if–then suggestions (5, 7, 9). Roger takes a secondary role, offering one short-reasoned objection (6, seemingly referring to something they had previously encountered and should “remember”) and following Simon’s direction about which response to enter.

One difference between interacting at the computer and interacting at a table with other materials, such as the math multilinks that Kate and Ryan used, is that one division of labor is more definite: one participant—here, Roger—will be sitting in front of the keyboard and become the one to physically enter responses. During collaborative composition with word processing software, one person will be the primary typist. Tracking how students collaborate at the keyboard—for example, in suggesting and evaluating candidate sentences when composing—is another context in which to monitor the quality and quantity of speaking rights and listening responsibilities that were discussed in Chapter 5.
More complex software may include what Wegerif and teacher Lynn Dawes call a “talk support module.” For example, in a simulation of plant growth “embedded in an overall narrative frame in which students ‘role-played’ scientists trying to find the formula to help a friend win the local flower show,” the program not only explicitly directs the students to discuss predictions, but provides a cumulative visual record of their previous predictions and how they turned out. The assumption behind the provision of such modules is that they will support increasingly complex collaborative thinking and talking.

Without computers, this kind of support can be approximated by the teacher at the blackboard or overhead projector, or by students themselves on paper as they work. But computerized support is potentially both quicker and richer.

Talk Through Computers

Telecommunication makes possible communication among students at a distance. In the words of technology teacher Philip Sitnick in the Laguna Middle School in New Mexico: “[T]echnology is a bridge between worlds.” Electronic bridges are not built easily, requiring accessibility to telephone connections as well as computers. Reports of telecommunication projects, mostly by the teachers involved, describe problems of inadequate planning as well as inadequate hardware, and the benefits for student learnings when the problems are solved.

Many of the telecommunication projects available in published reports are by middle and high school teacher researchers. Some communicate through BreadNet, the electronic network for the Bread Loaf School of English that was established in 1993 especially to connect otherwise isolated rural schools. BreadNet now includes about 500 teachers who are or have been summer school students at Bread Loaf. Typically, their telecommunication projects involve two or three teachers who plan together to coordinate projects in their respective classes and regularly exchange student writing about them.

One important quality of these exchanges is that they are not communication between pen pals. Some personal writings will be exchanged, especially when students introduce themselves to their new audience, often distant in culture as well as geography, but the emphasis is always on substantive curriculum content. In the English teachers’ classrooms, this is usually literature all the participating students have read.

In one unusually large exchange, Scott Christian, then a teacher in rural Alaska, participated in a BreadNet exchange with eight other teachers in Alaska, Mississippi, Vermont, and New Mexico. In all classes, students read Anne Frank: Diary of a Young Girl and exchanged writings,
comments, and questions prompted by the book. Christian subse-
quently wrote a book about this “Anne Frank Conference,” analyzing 
the growth in student writing that it stimulated.

Sometimes, the curriculum focus is a replication in each classroom 
of an agreed-on local inquiry. Two teachers in the Southwest each 
described their exchange about “raptors” (birds of prey like eagles). 
Sittnick was teaching in the Laguna Pueblo, and Vicki Hunt was team 
teaching with a biology teacher outside Tucson—her students were 
from Mexico, Vietnam, and Korea. The study of raptors at each site, 
and the writings exchanged, included comments and questions about 
raptors as an endangered species (“Do you believe in shooting raptors 
or saving them?”); mythology and folklore about raptors from their re-
spective cultures (the Laguna Eagle Dance and the eagle legend on the 
Mexican flag); and imaginative writing.

In a separate report, Hunt includes a few examples of student writ-
ing sent to Laguna. Here’s one student’s self-introduction, followed by 
another student’s poem:

Hi my name is Edgar E. Esparza and I’m an 11th grader at Peoria High 
School. I’m from Monterey, Nuevo Leon, Mexico. I have lived in United 
States of America for 4 years in Peoria, Arizona. Today 3/31/95 is my 
birthday.

Pride
The hawks hang around in the dark. 
As for the eagles they soar high through the wind 
And they talk with the gods above.
No other is stronger than the eagles.
He has a special kind of talent.

—Cheryl Silva

While the primary purpose of these telecommunication projects is 
to enlarge the audience for student writing, they bring implications for 
oral discourse as well. Some of the writings—personal introductions, 
like Edgar’s, and brief comments and questions—are the kind of oral/ 
written hybrid that has become familiar to many of us on e-mail. The 
projects also bring enhanced opportunities for talk “around” computers 
in each classroom that we’ll return to below.

Classroom exchange projects are not restricted to the English lan-

uage. Teacher/researcher Dennis Sayers has been working since 1985 
with De Orilla a Orilla (From Shore to Shore), a network for encour-
aging exchanges across languages as well as cultures to encourage bilin-
guialism and positive cross-language attitudes. One of the first projects 
involved an exchange between a class in Puerto Rico and a bilingual 
class in Connecticut that included recent immigrants from Puerto Rico 
as well as English-speaking children from Puerto Rican-background
families. In the course of producing a bilingual newspaper, the bilingual children in Connecticut became valued experts, and their English-dominant peers’ attitudes toward Spanish became more positive.30

More unusual is the use of an electronic network in the larger social project of revitalizing an endangered indigenous language. The Leoki bulletin board system was developed at the University of Hawaii at Hilo as one component of its support for the Hawaiian immersion schools in which a seriously endangered “heritage” language is the medium of instruction for initially English-speaking students.31 As of 1997, there were nine Hawaiian-medium preschools and fourteen elementary and secondary immersion schools throughout the islands. For these students, there is still little opportunity to hear, speak, read, or write the language outside of school. So, being able to exchange writing in Hawaiian among the schools can enlarge their audience significantly. Hopefully, such exchanges will someday include native speakers on the special privately owned small island of Niyihau.

Moreover, because computers symbolize the world of the future, they change students’ perception of the “heritage” language they are now learning. “In order for Hawaiian to feel like a real living language like English, it needs to be seen, heard, and utilized everywhere, and that includes the use of computers.”32 Sittnick titles his report of the Laguna computer projects that were conducted in English, “A school at the crossroads of the ancient and the contemporary.” That title would be even more apt for Leoki exchanges.

These exchange projects could obviously be carried on in a low-tech fashion by means of regular mail. Cummins and Sayers detail the origin of “global learning networks” in the postal exchanges initiated by Celeste Frenet, a teacher in a one-room rural school in the French Maritime Alps in the 1920s.33 But all the telecommunicating teachers today agree that computers make a qualitative difference. Speed alone is a benefit when students are waiting for a response and the momentum in each classroom can’t be allowed to drop. Beyond speed are positive student attitudes toward learning about computers and about what learning through computers makes possible.

A different use of telecommunication, more common in postsecondary education, is when a class is taught partially or wholly via computers. One semester, Mehan taught a college class (on classroom interaction) via two media: to one group of students in a regular classroom setting and to another group electronically. Some differences were predictable, such as longer lag time between Initiations and Responses via computer. More interestingly, Mehan and his colleagues also found qualitative differences in the discourse. Topically, in contrast to the regular classroom, the electronic discussions pursued “multiple threads”
rather than only one at a time. In other words, the criterion of relevance for any comment shifted to the class material as a whole; that is, it was not limited to the immediately preceding talk.

Structurally, the three-part IRF sequence was also changed: Students gave longer, and more thoughtful, answers to questions; teacher evaluations were almost totally absent; and students received more comments from their peers. This classroom–telecommunication comparison is important not only because it offers a glimpse of what may become a more common medium of instruction, but also because it highlights contrasting features of the more familiar classroom.

**Talk in Relation to Computers**

In the telecommunications exchange projects described here, there is much talk away from, but *in relation to*, computers simply because each of the projects is central to the class curriculum for a limited period of time. So there is extensive talk both before anyone touches the keyboard to send any writing and after partners’ writing is received.

One three-way BreadNet exchange between an Inupiat village on the Alaskan shores of the Bering Sea, a private international school in Kuwait, and a white middle-class suburban school in greater Salt Lake City collected and exchanged oral histories of their communities. In each classroom, students planned and conducted interviews with elder members of their community and participated in deciding what to send to their partner classes. Citrino and Gentry describe some of the talk that ensued:

> We didn’t feel obligated to send everything students wrote. Instead, we tried to select what was best or most representative of the whole, and students participated in making these choices. This selection process helped students to analyze the elements of good writing, and the power of narrative in their own writing, and their attention to these concepts was greater than when we simply pointed them out in anthologized literature.

At schools where computer experiences are not so central to the class curriculum, Crook warns against “the danger of their dislocation from a main stream of educational discourse.” Whether computers are in a corner of the classroom or isolated in a lab, computer use is too often marginalized from the rest of the curriculum. “The nature of computer-based tasks readily encourages this marginalization . . . given that the opportunity for children to use the technology independently is seen as something positive . . . [and] because of the opportunity they can provide to release a teacher’s time and attention.”
Crook argues that the “dislocation” is less physical than conceptual, involving two kinds of learning loss. One loss is what he calls “lateral loss”—the loss of transfer across learning contexts. Citrino and Gentry’s description of the classroom discussions about which writings to forward electronically suggests such positive transfer between the telecommunications’ project and the students’ own future writing.

A second kind of loss Crook calls “longitudinal loss”—the gradual loss of a build-up of what he calls “intersubjectivity,” what Edwards and Mercer call “common knowledge,” and what I call shared “contexts in the mind.” Individual experiences automatically become part of that individual’s private mental context for future experiences. But a common mental context that is shared among members of a classroom community—a shared resource for future learnings—takes deliberate teacher work.

Crook summarizes Edwards and Mercer’s analysis of the discourse devices that teachers use to this end:

- “organized recapping that allow[s] the creation of a shared memory of what happened . . .
- “cued elicitation that serves to solicit an agreed [-on] account of what was currently happening . . .
- “summarizing, challenging, questioning, and so on, in ways that both check current positions and update the evolving shared context . . .

“This common knowledge is generative,” Crook concludes; “becomes the platform for new understandings and new connections to be made.”

We saw an example of such common knowledge construction in Wells’ analysis of the IRF discourse in the lesson about “a fair test” in Chapter 3. The unrecorded conversations around these telecommunication projects can contribute to the same end.

To teachers, Crook stresses its importance in planning all computer use in classrooms where learning about something other than computers is the goal. To researchers, he stresses the importance of longitudinal research through which such continuity in learning for a class as a whole can be understood: “The consequent achievements only become visible if we research beyond the moment-to-moment level of conversation; if we concentrate on more protracted structures of social exchange.”

The importance of such longitudinal continuity for learning is in no way tied to computer use. Crook stresses it in a book about how technology can enhance learning because computer experiences are particularly vulnerable to isolation. I follow him in stressing it here for that same reason, and also because thinking about optimal computer use
Social Relationships Among Students

Amidst current arguments for creating a community of learners, it is important not to idealize the notion of “community” and to consider realistically the relationships among students that such learning environments assume. All of the emerging changes in classroom participant structures, and the kinds of discourse that we hope will happen within them, combine to raise the importance of these social relationships.

In more traditional classrooms, social relationships are extracurricular, potential noise in the instructional system and interference with “real” schoolwork. What counts are relationships between the teacher and each student as an individual, both in whole-class lessons and in individual seat-work assignments. In nontraditional classrooms, the situation has fundamentally changed. Now each student becomes a significant part of the official learning environment for all the others, and teachers depend on students’ contributions to other students’ learning, both in discussions and for the diffusion of individual expertise through the class.

Social Relationships in Discussions

Researcher O’Connor reminds us of the parallel between the importance of the interpersonal context for teacher–student scaffolding (stressed by Addison Stone and quoted in Chapter 4) and the importance of the interpersonal context for all group discussions. Her blunt statement of the problem applies as much to groups of peers as to talk led by the teacher.

In recent work on classroom group discussion and its role in learning, an idealized view of classroom discourse frequently appears. In this idealization, content-related meaning is continually negotiated and created in the moment by peers who respect each other’s views. . . . Unfortunately, the idealization itself, however heartening, may do a disservice to teachers and students alike, in that it encourages us to avoid serious examination of the complexities posed by classroom group discussion and group learning. . . . Put less elegantly, social relationships of various kinds can work against the desiderata of “group sense-making” and “negotiation of meaning.” . . . In short, implementing the classroom discourse practices intended to create a “community of learners” or a “discourse community” or a “thinking curriculum” is not for the faint-hearted.41
One way of gaining more information on how these relationships may be affecting patterns of discourse is to supplement analysis of talk with student interviews. Reports of such interviews, whether done by researchers or teachers, are not easy to find. In Cynthia Lewis’ research on group literature discussions, we saw how Jason and Mackenzie felt about their participation. Also in language arts, Alvermann heard from interviews with three gifted eighth graders (two girls and one boy) “a continuing concern about the argumentative nature of their small-group discussions.”

In math discussions, the option of accepting alternative answers does not remain as viable because students know that in the end some are going to be “right” and others “wrong.” So disagreements have a sharper edge. In one thoughtful analysis, Lampert and two colleagues interviewed a group of Lampert’s fifth-grade math students about their feelings about public disagreements. One of them was Ellie, whose idea that “eight minus a half is four” was a focal point of the excerpt from Lampert’s classroom in Chapter 3.

In quoting what Ellie said to them, the authors’ comments have been separated from Ellie’s by using square brackets and italic type.

Ellie: I don’t like reasoning because whenever you have a wrong answer people try so hard to prove you’re wrong. [Her friend Saundra agreed with her . . .] Um, when, when you do realize that you have the answer wrong they still want to prove it to you that it’s wrong . . . and you just want to crawl under your desk. [But Ellie had an intellectual concern as well. She was worried about her own capacity to hold on to her thinking in the face of disagreement.] Um, sometimes I don’t like discussions because when you’re trying to prove something it just turns into something else and you don’t get to say what you think. [After she said this, several students in the class muttered agreement.][^42]

Lampert and her colleagues conclude that “the teacher’s role goes beyond the connection of students’ work with the big ideas in the disciplines. . . . Teacher intervention is also significant on the social front.”[^43]

**Social Relationships in the Diffusion of Individual Expertise**

Being able to use technology assumes a set of literacy skills that are special in several ways. Initially unevenly distributed across the classroom due to differences in home computer use (from lots to none), basic computer literacy requires supplementing for each software program. For such tutoring, teacher time will be limited, and some students may quickly become more expert than the teacher. So student-to-student transmission of expertise becomes necessary.

Effective diffusion of expertise through a classroom can involve a mix of assigned tutoring and spontaneous helping. In Brown’s Commu-
nity of Learners project, the teacher would teach a new computer skill to only one research group and then give those students the responsibility for teaching the rest of the class and presumably also for giving subsequent help as needed. In such situations, it is vital that social relationships among students support rather than impede that diffusion.

In a comparative study of two sixth grades in which computers and word processing software had been introduced, Sarah Michaels discovered some of the influential factors. In an end-of-the-year, on-screen performance test of students’ individual editing skills, she found large differences between the two classes. In Classroom B, fourteen out of seventeen students completed the editing tasks; twelve students used technical vocabulary, such as cursor and Control C, in explaining what they were doing; and there were no obvious gender differences in these results. In Classroom A, however, only one student completed the tasks (Richie, whom the teacher had taught and then relied on to teach others), only two students used any technical vocabulary, and not a single girl showed that she knew how to insert or delete text.

From field notes written throughout the year, Michaels was able to figure out some of the reasons for this extreme disparity.

In Classroom B, the single most important factor is that the students often worked in pairs at the computer (at least 30 percent of the time). Partners were assigned on the basis of the order in which first drafts were completed and edited by the teacher; hence, a certain unpredictability was introduced. Mixed sex and mixed computer ability pairings were common.

In Classroom A, there was no official partner policy. As a rule, groupings at the computer divided along sex lines (as did groupings in the lunchroom and on the playground). Not surprisingly then, on the computer quiz, the only two other students to demonstrate some knowledge of the QUILL commands were boys who were close friends of Richie.

This study offers a particularly clear picture of how information, once introduced, spreads, or doesn’t, through two classrooms and some aspects of the participation structures that supported or constrained that spread. In other classrooms, other aspects will be influential. But in all classrooms, the quality of the classroom “community” is at stake.

“Interventions . . . on the social front,” which Lampert calls for, are necessary both for the discussions that are her concern and for diffusion of student expertise that is Michaels’ focus. Beyond their importance to academic learning, such interventions are also essential for student’s development toward active citizenship in a pluralistic democratic society. It makes no sense, and it seems almost dishonest to “mainstream” students across some dimensions of diversity and “integrate”
them across others unless the social organizations of classrooms promote the habits of speaking and listening from which positive interpersonal relationships across those differences can grow.

Notes

1. Bakhtin quotes are taken from 1981, 342–346 (italics in the original).

2. In May 2000, six members of an audience of teachers in Haifa, Israel, joined me in reading aloud the math lesson from Chapter 3 studied by Hiebert (Figure 3–4) as a play script; each person read the part of one child, as the rest of the audience followed our reading on an overhead. The man who read (played) Roberto inserted an additional comment after Maria’s answer (6): “She stole that from me! That was my idea!” The audience laughed appreciatively as an important commentary about attitudes toward “cheating” was implicitly expressed.


4. Gestures deserve more attention by teachers and researchers alike, especially of children who are only recent learners of the classroom language. Schlegel refers to psycholinguist David McNeill’s 1992 pioneering study of Hand and mind: What gestures reveal about thought. Bonita’s gestures and words encode the same rolling meaning, but McNeill shows on his videotapes how gestures sometimes encode complementary aspects of meaning not caught by words alone. He argues, in contrast to Vygotsky, that verbal language often does not fully express the thoughts and images in the speaker’s mind. Erickson 1996 analyzes the importance of body positionings.

5. Schlegel op cit., 198.


8. Ibid., 23. An appendix gives suggestions for initiating such a program.

9. Steinberg and Cazden 1979, 263. The full analysis of Greg’s tutoring is in Cazden et al. (1979), and of Veronica’s in Carrasco et al. 1981. Anyone who tries to audio- or videotape peer speech in the classroom will probably encounter problems in getting good sound. Wireless microphones that children take turns wearing are one solution. Surprising as it may seem, children (at least young children) quickly forget about them, even after thorough “informed consent” discussions.

10. Steinberg and Cazden op cit., 264. Another kind of helping—spontaneous or requested, in public or private—happens when bilingual students use their valuable expertise in translating for a new immigrant peer. Common as this undoubtedly is in many classrooms today, descriptive research is hard to find.


12. Grubb (1999) includes critiques in a little-studied educational setting: vocational classes in a community college. I know of no such descriptions of comparable research in vocational high school classes.

14. Soep 1996, 43–44. See also Heath and Smyth 1999 about Arts programs based in out-of-school youth organizations that have been the subject of decade-long research by Heath and Milbrey McLaughlin. Soep was a researcher on this project.

15. Soep op cit., 43.

16. Atwell 1998, 148–49. Atwell and Paley are probably the most widely known teacher researchers and most influential through their books. In both, the significance of their research for changes in their own teaching practice is most evident when reading across their books written some years apart. Paley’s rethinking about the problem of equity in speaking rights was discussed in Chapter 5; Atwell’s rethinking from the first edition to this revision includes the all-important role of the teacher.


19. Ibid., 42.

20. Lewis 1997, 193; quotes following the excerpt are from 193–94.

21. Ibid., 186.


23. This typology is adapted from Crook 1994. This book and Wegerif and Scrimshaw (1997) are excellent discussions of discourse aspects of using computers for learning. Crook is especially fine on collaboration for learning generally; Wegerif and Scrimshaw present more observations of classroom computer talk, especially from the at computer category, as we’ll see later.


28. For example, Edgar and Wood 1996, Christian 1997, Howard and Benson 1999. Because I have taught at the Bread Loaf School of English for many summers, I am more familiar with exchanges by these teachers than by others.


33. Cummins and Sayers op cit., ch. 4.


36. Crook op cit., 106. See his entire Chapter 5, “Collaborative interactions in relation to computers.”

37. Ibid., 109.

38. Edwards and Mercer 1987; Crook op cit.; Cazden (1992) discusses individual “contexts in the mind” in several places (see index), but doesn’t sufficiently emphasize the value of them becoming shared within a classroom community.


40. Ibid., 111. On this same page, Crook criticizes Schegloff, and thereby implicitly the methodology of conversation analysis, for attending only to contexts created in the moment of talk. Wells’ presentation of the IRF discourse in the lesson about “a fair test” in Chapter 3 is one example of such common knowledge construction and the way it creates a shared mental context for future teaching and learning.

41. O’Connor 1996 and 1998. (Both discuss this important point, although I fail to find these exact words—CBC.)

42. Lampert et al. 1996, 742.

43. Ibid., 760.


45. Michaels 1985a.
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