

ACCOUNTABLE TALK[®] SOURCEBOOK: FOR CLASSROOM CONVERSATION THAT WORKS

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TABLE OF CONTENTS

ENGAGEMENT WITH LEARNING THROUGH TALK	3
ACCOUNTABILITY TO ACCURATE KNOWLEDGE	5
ACCOUNTABILITY TO RIGOROUS THINKING	5
READING BETWEEN THE LINES: WHAT MAY GO UNSAID IN AN ACCOUNTABLE TALK CLASSROOM	8
EMBEDDING TALK IN RIGOROUS ACADEMICS: MOVING FROM PURPOSES TO INSTRUCTIONAL TASKS TO TALK	11
ORGANIZING FOR THE ACCOUNTABLE TALK COMMUNITY	13
STABLE ROUTINES AND TALK FORMATS	14
TALK FORMATS: WHAT KINDS?	15
TEACHER MOVES	21
NORMS FOR EQUITABLE AND RESPECTFUL PARTICIPATION ALL STUDENTS HAVE A RIGHT TO ENGAGE IN ACCOUNTABLE TALK CONVERSATION	25
APPENDICES	
APPENDIX A: THE PRINCIPLES OF LEARNING	33
APPENDIX B: RESEARCH PERTAINING TO IRE	35
APPENDIX C: WAYS WITH WORDS: A CASE OF ETHNOGRAPHY OF COMMUNICATION	38
APPENDIX D: CULTURAL DIFFERENCES: TWO CASES IN POINT	40
APPENDIX E: ANTHROPOLOGICAL RESEARCH ON CLASSROOM TALK	45

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ENGAGEMENT WITH LEARNING THROUGH TALK

Talking with others about ideas and work is fundamental to learning. It gives us the opportunity to organize our thinking into coherent utterances, hear how our thinking sounds out loud, listen to how others respond, and, often, hear others add to or expand on our thinking. But not all talk sustains learning. For classroom talk to promote learning it must be accountable: to the learning community, to accurate and appropriate knowledge, and to rigorous thinking.

Accountable Talk® classrooms are filled with talk that seriously responds to and further develops what others in the group have said. It puts forth and demands knowledge that is accurate and relevant to the issue under discussion. This academically productive talk uses evidence appropriate to the discipline (e.g., proofs in mathematics, data from investigations in science, textual references in literature, documentary sources in history) and follows established norms of good reasoning. This discourse sharpens students' thinking by reinforcing their ability to use and create knowledge.

There is an extensive research base on classroom discourse which examines the nature of classroom talk and the relationship between talk and learning in school. Researchers and experienced classroom teachers alike know that simply getting students to talk out loud or talk to one another does not necessarily lead to learning. What matters is what students are talking about and how they talk. When students are merely chatting about social events and personal matters—or if they are simply going through the motions of discussion without really working on the learning problem—the talk distracts from their learning rather than advancing it.

Accountable Talk practices are not something that spring spontaneously from students' mouths. It takes time and effort to create an Accountable Talk classroom environment in which this kind of talk is a valued norm. It requires teachers to guide and scaffold student participation. Teachers create Accountable Talk norms and skills in their classrooms by modeling appropriate forms of discussion and by questioning, probing, and leading conversations. For example, teachers may press for clarification and explanation, require justifications of proposals and challenges, recognize and challenge misconceptions, demand evidence for claims and arguments, or interpret and "revoice" students' statements. Over time, students can be expected to carry out each of these conversational "moves" themselves in peer discussions. Once the norms for conversation within the classroom have been established, academically productive talk is jointly constructed by teachers and students, working together towards rigorous academic purposes in a thinking curriculum.

Conversations in the classroom can take a wide variety of forms: whole class discussion, small group work, partner talk, peer or teacher conferences. But regardless of which form is used, talk should be accountable to the learning community, to knowledge and the standards of evidence that are appropriate for the subject, and to generally accepted standards of reasoning. These forms of accountability can be seen in what the students say and in what the teacher says. They are supported by classroom norms and recurring activities as well as by carefully designed tasks.

All students have a right to engage in Accountable Talk discussions, not just the "best and brightest," nor only those who are struggling in school. It is not something that should be limited to special times of the day, or to special groups of students. And we should expect to find Accountable Talk discussions across all grade levels and in all subject areas.

The process of Socializing Intelligence takes place in and through talk. Intelligence is much more than an innate ability to think quickly and stockpile bits of information. Intelligence is a set of problem-solving and reasoning capabilities along with the habits of mind that lead one to use those capabilities regularly. It is also a set of beliefs about one's right and obligation to understand and make sense of the world and one's capacity to figure

In classrooms where students engage in this kind of talk, we can be sure that we will find a teacher who has carefully laid the groundwork for classroom norms that support it. We are likely to observe a wide array of teacher moves that support accountability to the community, moves that help students and teachers jointly create talk that is responsive to the community.

Accountability to Accurate Knowledge

Accountability to accurate knowledge means that when speakers make an observation or claim, they try to be as specific and accurate as possible, not just saying anything that comes to mind. Speakers should be concerned that what they are saying is true or supportable, that is, that they have their facts straight. If they make a statement or claim based on a text they have read, their reference to the text must be accurate and appropriate. In classrooms where accountability to accurate knowledge is the norm, students expect to ask and answer challenging questions, to work hard at "getting it right": Are those statistics accurate? Where did they come from? What is your basis for that conclusion? Who said that? When did that event take place? What textual evidence supports that interpretation? Their responses to such questions may cite a specific passage from a text that they are working with or refer to knowledge built in the course of discussion. Or they might offer an explanation or example grounded in knowledge from outside the classroom. But even this outside knowledge will be accurate, relevant, and accessible to the whole group—that is, something that they can refer to together. Students do not shut down discussion with emotive statements of personal preference or opinion that defy challenge.

How can we tell whether the talk in a classroom is accountable to accurate knowledge? There are consistent signs in such classrooms that both students and teacher consider themselves responsible for the accuracy and truth of their claims. We would see many instances in which students make specific reference to their classroom community's previous "findings" to support their arguments and assertions. Topics they have studied together in the past are referred to in later discussions, where relevant. The learning community builds on the knowledge it has collectively acquired.

Whether in English language arts, mathematics, science, or social studies, we will see students make reference to specific information: the source might be textbooks, books they have read inside or outside of class, or other sources including films, television and personal experience. The information—used to support claims and to bolster argument—will be specific and open for verification by others. In classrooms that are accountable to knowledge, we see teachers and students questioning unsupported claims and asking for information, facts, or knowledge that could be used to strengthen those claims. Students and teachers ask others to define terms. Finally, students and teachers will be on the lookout for points where additional knowledge is necessary. They will seek to identify factual evidence that is needed to address an issue. And they will frequently discuss how one might find the knowledge needed to make progress in a particular enterprise or problem.

Once again, in classrooms where students engage in this kind of talk, we can be sure that we will find a teacher who has invested time and effort in making sure that students develop and sustain the relevant values and habits. We are likely to observe a wide array of teacher moves that support accountability to accurate knowledge, moves that will ensure that every discussion and instructional conversation foregrounds accurate and relevant knowledge.

Accountability to Rigorous Thinking

If accountability to accurate knowledge can be thought of as getting the facts straight, accountability to rigorous thinking has to do with building a line of argument. Making cogent and compelling arguments requires linking together claims and evidence (facts) in a logical, coherent, and rigorous manner. When classroom talk is held to rigorous thinking standards, students and teachers consistently push for clear statements of claims (positions, explanations, or predictions) and sound reasoning in backing up those claims with evidence.

Teachers and students examine evidence critically, knowing that just having accurate facts is not, in and of itself, enough. The evidence presented has to be "good" or what is often called "warranted" evidence. Beyond merely being accurate, the evidence has to be sufficient (e.g., a claim about people in North America vs. people in Europe needs to be based on more than an informal survey of a few people from Chicago and an exchange student from Paris). The facts must be credible (information quoted from the Washington Post is more authoritative than information quoted from an unnamed source in the National Enquirer or downloaded from an unrefereed bulletin board on the Web). The facts must be relevant to the claim being made (information about Japan, however accurate and authoritative, will probably not be germane to an argument about North Americans vs. Europeans). And the claim must be appropriately qualified (if all the evidence for a particular claim comes from interviewing people from New York City, it might not be fair to generalize to the entire population of North America).

Disciplines vary in the types of evidence they value.

When students are digging into a good poem or story, for instance, they might be trying to sense how the words and rhythms create tension or convey emotions. No one expects a student to provide a "proof" for her claim that a verse evoked a particular emotional response. However, if a student provides an interpretation of the motivation behind a character's actions, we would expect that student to cite multiple pieces of textual evidence to support that interpretation. Within a social studies lesson, students may marshal historical facts to support a position that begins as an "opinion." But if a student explaining his thinking about a fractions problem were to say, "I think the 4 stays the same because it just feels right that way," he is not being accountable to the standards of evidence that apply in the discipline of mathematics. That it "feels right" might be recognized as an intuition and valued as such as a starting point. But it would be appropriate to ask the student to examine this intuition and push for a more mathematically relevant basis for it. There are thus different standards of evidence in different fields, and students need to be inducted into those different kinds of academic communities. As early as first grade, we can begin to socialize students into those different worlds.

Distinguishing sharply between accountability to knowledge and accountability to rigorous thinking is not easy because they so often go hand in hand. It is possible, of course, to have rigorous and cogent reasoning, but with a factually false premise. It is possible to have inadequate or incorrect evidence for one's claims. Similarly, it is possible to have well-researched, factually accurate evidence that is not directly relevant to the claim one is making. The evidence, while counting as accurate knowledge, simply does not warrant the conclusion drawn. Thus it is possible to distinguish between factual knowledge and standards of reasoning, but in practice, they are intertwined and both necessary.

It takes effort and time to teach students to adhere to rigorous thinking standards. In a classroom that is accountable to rigorous thinking, we may not always see perfectly structured arguments and reasoning. What we will see, however, is consistent attention to the quality of claims and arguments: How well supported is a claim? Is the evidence good? Sufficient? Authoritative? Relevant? Unbiased? In seeking to build sound and rigorous arguments, students and teachers ask questions that test their own understanding of concepts, redefine or change explanations as needed, and identify their own biases. They draw comparisons and contrasts among the ideas presented as evidence and indicate to what degree they accept the evidence and claims.

In classroom talk that is accountable to generally accepted standards of reasoning, students use data, examples, analogies, and hypothetical "what-if" scenarios to make arguments and support claims. Students are encouraged to seek out different kinds of supporting evidence, strengthening an argument by using a variety of sources to support it. Students and teachers assess and challenge the soundness of each other's evidence and quality of reasoning, often posing counter-examples and extreme case comparisons to illustrate a point. Hidden assumptions are uncovered and examined. Students and teachers consistently ask one another to show why the evidence used to support a claim is accountable to rigorous thinking.

In emphasizing accountability to rigorous thinking in classrooms, regardless of content area, one central purpose is to create a public arena where arguments can be explicated more fully and made public, looked at by others, interrogated, and developed further. We want students to learn ways to expand and improve their reasoning, making their ideas clear and compelling to others, in part by making their contributions elaborated and explicit. We want students to dig deep, to question their underlying assumptions, to evaluate the adequacy of their evidence, and to see things from a variety of perspectives. Explicating one's reasoning in words or in writing makes it public and available for others (or oneself) to assess, critique, question, or challenge.

Imagine instead that your goal is to clarify one particular mathematical concept and press the students to be explicit and clear in their reasoning. Which would be better: a general group discussion or a few selected student presentations?

Another example: imagine that your purpose is to involve the students in debating several different interpretations of a text in language arts. You have a concern, however, that the group might not have time to fully inquire into and discuss the various interpretations of a complex text. You might consider the advantages of a group discussion guided by the teacher, or group work followed by a much shorter group discussion wrap-up, or teacher-guided whole group discussion interspersed with a few strategically placed episodes of partner talk.

Once you have made decisions about the kinds of talk formats you will use, consider how these formats will affect the overall coherence of the lesson. To ensure a highly coherent lesson, would it be better to have the students at their desks the whole time (for both whole group discussion and group work) or moving to a central place on the rug for the lesson introduction, back to their desks for group work, and then back to the rug for the recap?

There is not a single “best” way to accomplish a particular academic purpose. There is not a particular talk format that works for all students at all times. Nor is there one best sequencing of different talk formats to ensure lesson coherence. But how a task is conceived and set up, and which talk formats are selected at any given point, will have a dramatic impact on the quality of talk and the nature of participation. Moreover, how the links between the talk formats are articulated (“Now we’re back together to summarize the main point of the work we’ve just done...”) will have an impact on overall lesson coherence. That is why it is crucial for teachers to think in advance about purposes, rigorous instructional tasks, talk formats, and the value of lesson coherence as primary tools for Accountable Talk promotion.

In order to assess the quality of the talk in any particular episode of classroom interaction, it is crucial to recognize the contribution of what happened earlier in the day, or even earlier in the week. It is also crucial to know what the planned trajectories of the current task, lesson, and unit are. It is simply not possible to identify “good” or “productive” or “accountable” talk without taking into consideration the teacher’s academic goals, the linkage among topics within and across lessons, and the relationship of the learners to each other and to the task at hand. This is especially important for outside observers to understand, particularly those who are unfamiliar with the classroom and the teacher being observed, those who are unfamiliar with the content domain under investigation, or those who visit the classroom for a very short time and may well have walked into the middle of the conversation. Indeed, the point here is that one is always, in some sense, walking into the middle of a conversation. Out of respect for the complexity of classroom practice, it is important to acknowledge that there may be contextual factors—particular purposes the teacher has or some aspect of recent classroom history—that an observer needs to know to adequately evaluate the quality of talk and learning taking place. Here is a simple case in point: One teacher reported that after her principal observed a lesson, he had little of substance to comment on. But he did note (quite critically) that she had never once called on the only Hispanic boy in her class. She later commented to a colleague that she hadn’t had the nerve to tell her principal that this was the boy’s first day back after being in the hospital for two months.

ORGANIZING FOR THE ACCOUNTABLE TALK COMMUNITY

How does a school community support Accountable Talk across the curriculum and throughout the year? Teachers who succeed in supporting productive talk in their classrooms point to principles and practices that have helped them ensure access to the conversation for all students. They point to principles and practices that have helped them ensure sustained attention to a high level of academic rigor. In this section we will introduce several ideas that emerge out of the work of both teachers and researchers who have looked closely at productive classroom talk.

This example of "morning meeting" illustrates a recurrent, familiar event that is understood by all students in this classroom. However, it's not enough simply to set up a recurrent, well-understood time and place for a particular activity or topic of discussion. The teacher must work to make sure that the event has a clear and sustained focus on rigorous academic content. Academic goals and purposes, not just sociability, must drive the talk. The routine nature of the event simply creates the structural supports for high levels of thinking and participation by all students. Above and beyond the "routine," the teacher must have a clear set of goals, a set of expectations for what students are likely to think and say, and strategies supporting this talk once the discussion is underway. For example, in this "morning meeting" routine, students know that when they present a piece of current event news which the teacher scribes, they must first categorize it as "International," "National," or "Local." And they must set forth a specific set of facts (when, where, who, and what).

Talk Formats: What Kinds?

There is no definitive set of talk formats. Many variations on a theme are possible, and, in many classrooms, hybrid forms emerge. The creativity of teachers and the specific circumstances of particular classrooms result in new and different talk formats. However, there are a small number of "types" which recur frequently in many classrooms. In some talk formats, the teacher is firmly in charge, guiding and choosing and making decisions about the activity at each point in the event. In others, the teacher is not in charge and not directly monitoring all student activity. Rather, groups of students or students working in pairs take responsibility to explore a concept, solve a problem, plan an activity, carry out a project, or respond to a text.

The group discussion format can include within it a number of other talk formats, such as small group or partner talk or individual presentations. In these "hybrid" talk formats, the teacher may continue to play an active, guiding role while also opening up other roles and positions for students to play.

Below is a basic inventory of routines and talk formats, along with their strengths and liabilities, their opportunities and limitations. These talk formats are only tools to use in the larger activity of supporting learning.

Teacher Lecture

This term may call up images of a 45-minute lecture in high school or college, with the teacher at the board and students sitting at their desks taking notes. However, the lecture is a talk format that can be used in a wide variety of ways, from a short mini-lesson in the middle of a longer discussion, to a lengthy "benchmark" lecture that sets up the conditions and content for a long project. While it is true that lectures in general do not allow for exchange and interaction on the part of students, some lecture formats do allow students the right to pose questions for clarification or even to challenge a point that has been made. Individual teachers will differ in the ways they set students' rights and obligations within this format. They will also differ in the ways they use the board, slides, overhead projectors, and other resources to engage student thinking.

Recitation

Recitations are characteristically organized by teacher questions to individual students—questions to which the teacher holds a desired answer in mind. The classic interaction sequence in a recitation is a teacher question followed by a student response, followed by a teacher evaluation.

T: What's the capital of Argentina, Mary?

M: Buenos Aires.

T: Good.

This common three-part structure has been called the "Initiation, Response, Evaluation" (IRE) sequence. It has been well-documented and studied and has been found to be by far the most common type of classroom talk. The hallmark of recitation, as opposed to a teacher-guided discussion, is that there is no necessary relationship among the individual question/answer exchanges.

Teacher-Guided Small Group Discussion

In this talk format, the number of participants is reduced, so students have more opportunities to talk and teachers have latitude to engage students in more depth than is sometimes possible in other settings. Some students may be more willing to contribute to a discussion if it takes place within a small group. On the other hand, students outside the small group are unmonitored by the teacher as she directs her attention to the small group. This talk format requires careful planning and use of tasks and activities that will offset this liability, such as learning centers set up around the room or student-assigned seat work. And of course, teacher-guided small group talk will be more or less productive, depending on the nature of the questions asked and the way student contributions are built upon by the teacher and other students. Just as in large group discussion, the instructional tasks must be carefully planned and students must be held accountable to community, knowledge, and rigorous thinking if the talk is going to promote learning.

Teacher-Student Conferences

This format is characterized by a focus on one or two students. The goals and supporting talk can be highly tailored to individual students' needs. Conferences are particularly useful in discussing individual pieces of student writing, so that the conversation can focus on the particular issues and opportunities presented in the text. (Note that some teachers accomplish this same purpose using a whole group talk format known as "author's chair," where an individual child presents his or her writing to the entire group.) While teacher-student conferences may allow for individualized attention and in-depth focus on a given student, this format has the same liabilities as teacher-guided small groups: other students will be monitored only to the extent that there are other teachers or adults assisting in the classroom.

Student-Led Small Group Work and Peer Conferencing

A great deal has been written about small group work ("cooperative learning") and peer conferencing. Research and years of experience have led to an understanding that while there may be many social and intellectual benefits to having students working in cooperative groups or with a partner, not all small group or pair work is necessarily cooperative or academically productive.

Several things are critical for small group work to succeed. First, the task must be carefully designed: it must be conceptually rich enough so that there are multiple points of entry, and so that all of the group members are needed to get the job done. Second, there must be well-established cooperative norms and mechanisms (for example, rotating roles) that ensure equitable participation and access to materials and talk.

Third, care must be given so that the students become resources for one another. For example, if a group contains a student whose home language is Spanish and who is just starting to learn English, the teacher might make sure that the group contains both native English speakers and at least one fluent Spanish-English bilingual, to ensure that all members of the group have access to the conversation. Fourth, there must be some form of individual as well as group accountability to prevent a few students from carrying the intellectual ball for the rest of the group.

One of the advantages claimed for small group work, when done well, is that a teacher can actively engage a heterogeneous group of students in a challenging task and they can become resources for each other. Another is that small group work gives each student more "air time"—more opportunity to engage in academically productive talk. For students who are shy or fearful about talking in a large group setting, the small group can provide practice time that may result in their participating more extensively in whole group discussions.

Without the teacher present, of course there are no guarantees about what will transpire within the small group or among the partners. This is one of the disadvantages of the format: students may talk off-task. They may treat each other disrespectfully, exacerbating status differences that always exist in any social group.

suggestions for improving the presentation. In other cases, students merely watch the presentation, and the teacher takes on the role of primary responder, questioner, or evaluator.

How do student presentations promote classroom conversations that work? In this interactive format, in stark contrast to partner talk, the students are expected to explicate their reasoning in a formal manner, that is, to "go public." In student presentations, the presenters are positioned as "experts" on their own work, and critiqued and questioned by both teachers and other students. They must develop an explicit enough account of their work, reasoning, theory, or project so that it will be clear to others who have not been a part of their earlier group or partner conversations. At the same time, the other students are expected to attend and respond to this presentation as a critic or questioner.

Teacher Moves

Classroom events and activities may be built out of a wide variety of talk formats. But the thinking and reasoning that get done within these interactional formats must be carried out utterance by utterance. Individual speakers build up their contributions one sentence at a time. How do they learn to do this? Very few students come to school adept at constructing well-reasoned arguments. Very few students are used to supplying well-grounded evidence to support any claims they might make. In fact, some students may pass through years of schooling without ever having the opportunity to make an intellectual claim of any kind, beyond providing a simple answer to a teacher's question. Teachers, therefore, play a critical part in helping students develop these abilities. By scaffolding students' responses and contributions, teachers can quickly make a difference in the level of rigor and productivity in classroom talk.

There are a number of "moves" teachers can use to promote accountability to community, knowledge, and rigorous thinking. In this section we give examples of conversational moves that teachers and researchers have found to be helpful in supporting Accountable Talk practice.

Teacher Moves in Group Discussion

There are a variety of moves that teachers can use to insure purposeful, coherent, and productive conversation. A number of moves have been identified that help students in building understanding of complex ideas, while at the same time keeping students engaged and "on the same page." Teachers can bring everyone's attention to a key point, for example, by "marking" a student's contribution ("that's an important point"), asking the student to repeat the remark—or restating it in their own words—and indicating why the point is important. If someone asks a thought-provoking question, the teacher might turn the question back to the group ("good question, what do you think?")—possibly directing them to consult the text—as a way to encourage students to push their own thinking. By citing facts and posing counterexamples, teachers can challenge students to elaborate or clarify their arguments ("but what about...?"). They can model what desirable behaviors and habits of mind look like, "I'll show you what good readers do when they're monitoring their own comprehension." They can focus the group's thinking by recapping or summarizing key points that have been brought up in a discussion.

Marking: "That's an important point."

Sometimes a student will make a contribution, either in answer to a question or as a spontaneous addition to discussion, that is particularly valuable or notable, given the teacher's current academic purposes. The teacher can mark this in a variety of ways, pointing out to the other students exactly what was valuable or important. For example, "Did everyone hear what Samantha just said? She made a comparison between this problem and the one we did last week. That's important because it shows that we're remembering to use the strategies we came up with then."

Challenging students: "What do YOU think?"

One way a teacher can support a more academically rigorous conversation is to challenge students by turning the responsibility for reasoning back to them. The teacher might press students with a counterexample or explicitly ask the students to answer a question that another student has posed. "Hmm...that's a great question, Rebecca. What do you guys think?" Beck, McKeown, Hamilton, and Kucan (1997) call this kind of move "turning back," redirecting a question back to the students or using students' contributions as a source for a further challenge or query. This kind of move has been called a "reflective toss" by van Zee and Minstrell (1997) and shown to be a powerful move for developing shared understandings in the classroom.

Modeling: "Here's what good readers do."

Modeling is used widely in teaching of all kinds. It simply means that the teacher herself is showing the learner how she carries out a particular activity. In the Accountable Talk realm, modeling is an important move that takes the form of the teacher making public some aspect of her thinking. In this way, teachers demonstrate to students expert forms of reasoning through talk.

Recapping: "What have we discovered?"

As part of their efforts to make talk accountable, effective teachers use a move called "recapping" by Beck et al. (1997), and "summarizing" by many others. This is particularly important in a group discussion, because ideas can evolve through the contributions of many students. Recapping is a way of making public in a concise, coherent form the group's achievement at creating a shared understanding of the topic under discussion.

Learn More About Teacher Moves



Beck, I.L., McKeown, M.G., Hamilton, R.L., & Kucan, L. (1997). Questioning the author: An approach for enhancing student engagement with text. Newark, DE: International Reading Association.

van Zee, E.H., & Minstrell, J.A. (1997). Reflective discourse: Developing shared understandings in a physics classroom. *International Journal of Science Education*, 19, pp. 209-228.

Moves and Practices That Support Accountability to the Learning Community

Accountability to the learning community requires that students listen to one another, attending carefully so that they can use and build on one another's ideas. Students and teachers agree and disagree respectfully, challenging a claim, not the person who made it.

To support this kind of accountability, teachers must establish a classroom environment where everyone can hear each other, and where everyone knows how important it is to hear and be heard. Teachers can facilitate students' access to the conversation by keeping the channels open ("Did everyone hear what she just said?"). They can keep everyone on the same page by asking students to explain or restate another student's contribution. They can help students connect their contributions with previous turns ("Who agrees or disagrees, and why? Who can add on to what he said?") in ways that promote coherence and rigor. And they can verify or clarify a student's contribution by revoicing it ("So, are you saying that...") and giving the student an opportunity to either confirm or correct the re-statement of the idea.

Keeping the channels open: "Did everyone hear that?"

Accountability to community encompasses accountable speaking and accountable listening. If students are going to build on each other's prior contributions, those contributions must be audible. Teachers who succeed in creating Accountable Talk classrooms spend time and effort making sure that students can hear each other, and moreover, that they know they must hear what others have said. One teacher move that lets students

know they are responsible for hearing and remembering each student's contribution is to ask "what did she just say?" Another is to request that a speaker "say that again, nice and loud, so everyone can hear."

Keeping everyone together: "Who can repeat...?"

Accountability to community also means making sure that everyone not only heard, but also understood, what a speaker said. Teachers can keep everyone together on the same page with questions like "Can you repeat what he said in your own words?" "Was that what you were trying to say?" This is a simple sequence, but one that can quickly change the quality of classroom discussion. By asking a student to repeat what another student said, in his own words, the teacher is accomplishing two goals. First, she is assessing student attention and comprehension. Second, she is pushing the student to process what his classmate has just said, to understand it in his own terms. Further, by asking the original speaker whether that was the intent of the original utterance, she is actively scaffolding the two students, and all those watching from the sidelines, pushing them to address one another as members of the same thinking and learning community.

Linking contributions: "Who wants to add on...?"

Many teachers have found that when students start out learning academically productive talk, they need a scaffold to help them frame their contributions. The scaffold itself makes explicit the relationship between their new contribution and what has gone before. When a teacher asks "does everyone agree?" or "who disagrees?" or "who wants to add on to what she just said?", he is helping students link their contributions to the on-going conversation. When a student says "I agree with Leona, because..." that student is showing respect for a classmate, but is also using that classmate's ideas as a basis for his own. When students hear their own contributions being built upon, their own investment in the course of the discussion grows.

Verifying and clarifying: "So, are you saying...?"

Teachers can model and promote accountability to the learning community by verifying or clarifying a student's contribution, thus helping both speakers and listeners to engage more profitably in the conversation. One way to do this is by "revoicing": repeating what the student said and offering the student a chance to agree or disagree with the teacher's rendition. This move allows the student to hear her own contribution and to realize that with every utterance she is accountable to the learning community: she must make sure they can understand what she said. In order to do this, she herself must be clear about what she said.

Moves and Practices That Support Accountability to Accurate Knowledge

Accountability to knowledge means that when speakers make an observation or claim, they try to be as specific and accurate as possible, always maintaining attention to evidence, truth, and the community's accumulated knowledge. If challenged, they offer evidence that meets the standards of the discipline under discussion. Speakers are attuned to the sufficiency of their knowledge: Do they need more information to support their claims? Can they find more and different sources to support their claims and to make their argument more powerful? Some students have little experience backing up their statements with evidence from texts. And many students will make the reasonable assumption that if the class has read a book together, for example, then that constitutes shared knowledge—there is no need to make it explicit. In informal, nonacademic situations with friends, this is usually right. In social settings, it may even be considered odd to talk explicitly about knowledge that is common to the community. However, to lead students to higher levels of collective and individual reasoning, it is important for teachers to ask students to make clear the sources of knowledge that they are using. Teachers can help students by continually pressing them for accurate and sufficient information ("What do we know? What's our evidence? How can we find out?") and by encouraging them to build on what they know ("Do you guys remember...? How does this connect?"). As the knowledge base grows larger and more complex through the school years, these habits and practices grow in importance.

Pressing for accuracy: "Where can we find that?"

One of the hallmarks of talk that is accountable to knowledge is a concern with the accuracy and sufficiency of the evidence presented to support an argument. Are the facts correct? Are the claims accurate? Is the information complete? Is it based on an exhaustive review of the relevant material or is it simply an impression? Are there other kinds of evidence that could support the claim? Is the evidence sufficient? Teachers can hold students accountable for the accuracy, credibility, and clarity of their contributions in a variety of ways: "That could be right, Angelo. How could we get more evidence for that?" "Wasn't there something about that in the book we used last month? Could we check that?" "How could we find out more about this? Who will take that on for us?" "Are you sure those statistics are accurate? Where in the text did you see that?"

Building on prior knowledge: "How does this connect?"

Accountability to knowledge is often supported by the teacher's attempts to tie a current contribution back to knowledge accumulated by the class at a previous time. Teachers can remind students of knowledge they have access to based on joint previous experience, and students can support their claims and arguments by making reference to that previous knowledge.

Moves and Practices That Support Accountability to Rigorous Thinking

Accountability to rigorous thinking means that students and teachers consistently strive towards the goal of clear reasoning. They pay attention to the logic of their arguments and the evidence for their claims. They connect ideas within and between texts and use appropriate background knowledge to support their ideas and opinions. Most students will not be able to construct perfect arguments from the first attempt. Their reasoning may be faulty at times. They may need help in drawing out the logical connections implicit in their contributions. Teachers build students' skills by using talk to focus attention on the quality of claims and arguments, skillfully scaffolding students to make explicit the logical connections they intend ("Why do you think that? What's your reasoning? What's your evidence?"), and by making room for expanded reasoning ("Can you say more about that? Take your time...we'll wait.").

Pressing for reasoning: "Why do you think that?"

One of the hallmarks of talk that is accountable to rigorous thinking is an unwavering commitment to presenting evidence for claims. Simply making a statement is never enough. If someone makes a statement intended as a claim or a conclusion, then that person must supply the evidence that led to it. If someone makes a statement intended as evidence to buttress a classmate's claim, it must be labeled as such. Moreover, in addition to getting the facts straight (a part of accountability to knowledge), accountability to rigorous thinking means marshalling the facts into a coherent argument. Teachers can use various prompts to elicit evidence and to establish what contribution the student's utterance is intended to make within the group's larger enterprise: "Why do you think William's problem is like Leo the late bloomer's?" "What do odd and even numbers have to do with what you just said?" "So you're trying to tell us that we can't decide that until we know what the missing value is?"

Expanding reasoning: "Take your time; say more."

One of the most important teacher moves for supporting rigorous thinking is one of the simplest. We all know it takes time to think something through, and the pressure of thinking out loud in a group sometimes actually slows our thinking down. Therefore, it is critically important to use what is often called "wait time." A silence of ten seconds may seem interminable, but it is often the minimum needed for a student to formulate an answer to a question that calls for rigorous reasoning. This is especially important with students who are learning English as a second language, but native speakers of English often need just as long.

In addition to waiting, teachers can help students expand their contributions by simply asking them to say more, or asking them to repeat what they just said so that everyone gets a second chance to hear the content of their ideas. "That's interesting, Diego. Say more about that." "That's a complicated idea, Shahita. I

need to hear that again. Can you say it one more time, so everyone can really understand your thinking?" Both kinds of moves (waiting and prompting for more talk) open up extra time and space in the conversation for student reasoning. As such, they can be powerful tools for creating a culture of thoughtfulness in the classroom.

Norms for Equitable and Respectful Participation

A classroom "culture" that supports students' trust, risk-taking, and respect for one another's ideas is crucial. This can be established by the creation of specific norms for participation and turn taking.

Although conversations are productive for student learning, it may be frightening or uncomfortable for students at first. We are asking them to expose their thinking to all of their student colleagues, making themselves vulnerable to disagreement, challenge, or criticism. We want students to put their best thinking on the line, before they are expert in a domain or certain they are correct. And we want them to respond to fellow students in ways that might be construed as critical or unfriendly. In a thinking curriculum, we pose challenging problems, with no obvious or simple answer. We want students to offer multiple solutions, to develop alternative approaches, to argue with one another and with text. This kind of "exploratory" talk requires trust and respect.

How does one go about setting up the conditions for trust and respect? How does one make the classroom a safe place for students to tackle complex problems through Accountable Talk conversations? To establish a "trusting culture," the teacher, from the beginning of the school year, must put in place certain norms and practices to ensure that students allow others to speak (at designated times) without interruption and that they will treat each contribution as important. No one can ridicule or attack another student's contribution. The focus is on the ideas, not the person. In addition to injunctions against disrespectful talk, positive examples of respectful ways of talking are explicitly modeled and practiced.

Establishing Turn-Taking Norms

In order for everyone to have a turn to speak, there must be orderly and equitable norms for getting a turn at talk. Different teachers handle this in different ways. Some teachers call on students themselves, so as to be able to control the distribution of turns at talk, strategically calling on quiet students or students they know have something important to contribute. They can make sure that both boys and girls participate equally. Other teachers set up different turn-taking norms, such as "handing off" (where the last student to speak selects the next speaker) or rely on a student moderator (who selects student speakers). These latter approaches give students more control over speaker rights to the floor. Others will institute (when needed) the "gender rule," requiring boys and girls to alternate speaking turns.

There are positive and negative aspects to all of these approaches and teachers must decide for themselves which ones will work best in their classrooms, given their students and their particular academic purposes. All of these means and methods are merely tools for teachers; they should be used strategically and thoughtfully.

Of course, turn-taking norms and rules do exist in most classrooms, but orderly turn-taking is only the first step. The eventual goal is for students to incorporate and build upon the previous turns of other students, to actually carry out a dialogue with the other members of their learning community. This requires planning and routines that go beyond the ordinary turn-taking conventions.

Using Wait Time

In most classrooms, teacher and student exchanges take place at an "astonishing speed" according to Mary Budd Rowe (1986). When she studied classroom conversations, she discovered that teachers typically wait less than a second for a student response. Increased wait time of at least 2.7, and preferably at least 3, seconds can have these effects on students:

will say to other students things like, "That's OK, give her time." Or, "That's OK, we'll wait." This kind of behavior models accountability to the community.



Learn More About Wait Time

Cazden, C.B. (1988). *Classroom discourse: The language of teaching and learning*. Portsmouth, NH: Heinemann.

Cazden, C.B. (2001). *Classroom discourse: The language of teaching and learning* (2nd ed.). Portsmouth, NH: Heinemann.

Rowe, M.B (1986). Wait time: Slowing down may be a way of speeding up! *Journal of Teacher Education*, 37, 43-50.

Wait time after a student gives a response

A third kind of wait time emerges after the student has given a response. It is easy to forget that when a student produces an answer, not all of the other students will be able to process that answer equally quickly. The teacher may find ways, in addition to silence, to extend the time that the student's answer "hangs in the air." For example, the teacher can thoughtfully repeat the student's answer: "Hmmm, the fractions with odd denominators." Some teachers take the step of writing an answer on the board, or slowly clarifying it in a revoicing move: "So, you're saying that the fractions with odd denominators will be the ones that create repeating decimals. So Anna's conjecture is that repeating decimals will result for all fractions with odd denominators. Is that right Anna?" Other teachers may ask another student to repeat what Anna has said. Although none of these moves involve silence, all are a form of "wait time," because all give the students additional time to process what has been said.

ALL STUDENTS HAVE A RIGHT TO ENGAGE IN ACCOUNTABLE TALK CONVERSATION

As our classrooms become more diverse, an increasing number of our students come from different ethnic groups, different language communities, and different neighborhoods from one another. Students in any particular classroom have had widely different experiences with talk, at home, in the community, in religious settings, in after-school programs, and with relatives and neighbors.

We have seen that classrooms are structured into recurring talk formats with different norms for talk and participation. These different interactive formats create different socializing forums and different opportunities to learn. But not all students come to school having had comparable experiences with talk. How do we take into account the fact that classrooms are made up of many different individuals and these individual students bring to the table a wide range of cultures, languages, and past experiences in and out of school? How do we create the conditions so that all children gain access to the classroom conversation and are held accountable to high levels of academic rigor in their talk—in spite of cultural, linguistic, or experiential differences?

Consider some important "findings"—principles and ideas that have been shown to be true—based on extensive research in a wide variety of fields relating to language and education. Regardless of children's race, culture, or socioeconomic status, all biologically intact children have well-developed "ways with words"—ways of telling stories, giving accounts, providing reasons, arguments, and evidence. And all children have the capability to think abstractly about situations, concepts, and even about language itself. This has been robustly documented in the research literature on children's language and culture in the fields of linguistics, sociolinguistics, anthropology, developmental psychology, and cognitive science.

With very few exceptions (such as when a child has a serious neurological impairment), children come to school as extraordinarily adept language learners and language users. Linguists have shown definitively that

all biologically intact children are grammatical speakers of their home language, that is, they use language in consistent and rule-governed ways. While their dialects may be different from Standard English, all children speak their home dialects as native speakers, with fluency and correctness. Some children even bring a second language to the classroom—at a level of sophistication and fluency that few of their teachers may be able to match.

If all children have such amazing linguistic abilities, why then does it seem that certain students are not adept language users? Why does it seem that some students don't bring much, if any, language from home, or don't talk well about academic subjects? Why does it seem that certain students are good at "talking science" and others are not? These are common and widespread reactions that teachers have to culturally and economically diverse groups of students.

The primary reason for a perception of linguistic "deficits" can be found in the phenomenon of difference itself. All speakers of all languages have a tendency to perceive "inadequacies" or "deficits" where there are in fact "differences" in the ways people speak and structure their ideas. This all too human tendency can be problematic in the classroom. A focus on deficits in children's language makes it harder to connect with children, harder to build on their strengths, and harder to create the conditions for Accountable Talk within the classroom.

Each child in this society learns culturally appropriate ways of using language and of taking meaning from written texts in the early years at home. Each cultural group in this society has sophisticated ways of integrating the oral and written language around them into their daily social life. However, ways of using oral and written language are closely tied to culturally different ways of interacting with others and with culturally different values and attitudes. Some children have home-based ways of using language that are closely related to the ways in which language is used in schools. The home-based practices of other children diverge from those expected in many schools. Children from different backgrounds come to school with different discourse assumptions and styles—different ways of interpreting a question, giving an explanation, or telling a story. Moreover, some children have had far less exposure and experience than other children in providing explanations, analyzing data, making arguments, providing evidence for their claims, or interpreting texts—practices that form the basis of many instructional tasks and are called for in the Accountable Talk classroom.

It is best not to think of these linguistic and experiential differences, rooted in children's home communities as deficits in children. They are differences. In some situations, these differences play out as limitations (in performance, knowledge, or experience). An extensive body of research suggests that differences—in dialect or discourse style—can easily lead teachers to make negative judgments about intelligence and about the quality of student's thinking. These judgments can affect a teacher's expectations or treatment of a child as a contributing, thoughtful participant in the classroom. Hearing the coherence, the sophistication, the structure in children's talk—if it is organized differently than we are accustomed to—is not easy.

Consider an example. In the common speech event in early primary classrooms known as "Sharing Time," research has shown that Anglo teachers are often more effective at working with middle class, Anglo students, in turning sharing time into a kind of "oral preparation for literacy." In contrast, these teachers (well meaning and very dedicated) often hear the sharing time accounts of minority children as rambling, less coherent, less important, less intelligent than the talk of mainstream children, and they often interrupt, cut off, or mis-evaluate the intellectual abilities and sense making of these children. A close analysis of the narrative strategies and complex linguistic patterning of minority students' sharing time turns suggests that the problems are not in the children or due to deficits in the children's thinking or speaking. Rather, they are in the teachers' understanding of the children and in the subsequent expectations and relationships that emerge between teacher and student (Michaels, 1981).

**Learn More About Language, Culture, and Differential Treatment of Students:**

Michaels, S. (1981). "Sharing Time": Children's narrative styles and differential access to literacy. *Language in Society*, 10(3), 423- 442.

Further reading on "Sharing Time":

Cazden, C.B. (2001). *Classroom discourse: The language of teaching and learning* (2nd ed.). Portsmouth, NH: Heinemann.

Gee, J.P., Michaels, S., & O'Connor, M.C. (1992). Discourse analysis. In M. LeCompte, W. Millroy, & J. Goetz (Eds.), *The handbook of qualitative research in education*. Orlando, FL: Academic Press.

Research on cultural differences shows that it is hard for teachers to recognize and build upon the reasoning of children, particularly minority and poor children, whose "ways with words" are not those of the teachers. These subtle and not so subtle mismatches with respect to language and culture in the classroom can lead to serious problems of equity and access. These differences in ways with words and resulting negative judgments can become barriers to communication, to trusting relationships, and to the conditions which nurture active participation and effort. And this, in the end, can result in significant decreases in student motivation, participation, and ultimately, in learning, creating deficits in students with regard to knowledge and performance—with far-reaching real-life consequences.

Learn More About:

Read "Ways with words: A case of ethnography," excerpted from Michaels, S., O'Connor, M.C., & Richards, J. (1984), found in Appendix C.

So what is one to do when facing a number of children from different cultural and linguistic backgrounds and different home-based experiences? Our recommendation is to treat all these children as if they were highly intelligent foreign diplomats. This may sound silly or trivializing of a complex problem, but it conveys an important kernel of practical wisdom. Just as we would in meeting a group of famous foreign diplomats, we must presume them to be highly intelligent and multi-talented—but accustomed to communicating and using their intelligence in ways that seem to us hard to comprehend or appreciate. In the fast pace of classroom conversation, it may not be possible to see these children's native intelligence, their wit, their analytic skill—right off the bat. But it is crucial to trust in these children's innate capacity to think deeply, to reason abstractly, to develop sound arguments. Communicating an assumption of competence makes it easier to build on students' contributions (even if poorly formed, in a nonstandard dialect, or if some of the information is left implicit). For Accountable Talk participation to be an expectation for all students (not just those who are good at it to begin with), we must presume intelligence in these children in order to promote it.

Once all children are invited into the conversation and given opportunities to engage in coherent instructional tasks, to hear and build on the contributions of their peers, and to hear Accountable Talk models by teachers and peers, they will gradually take on the "ways with words" and forms of competence that are valued in school.

It is critical to find ways to listen for intelligence in all children. We must presume that competence, talent, and capacity lie beneath disfluency or hesitation, beneath the use of a non-standard home dialect, or beneath a remark that sounds confusing or off the mark.

But how does one "listen through cultural differences?" How do we ensure that each child participates in the conversation and each child is held to rigorous standards of Accountable Talk discourse? How do we promote equity and access—with respect to talk—built on a base of sociolinguistic diversity?

To Learn More:

Read "Cultural Differences: Two Cases in Point," found in Appendix D.

In spite of the importance of understanding and taking account of cultural differences in classrooms, one finding emerges through much of the work in ethnography of speaking: children are very adept at learning how to participate in school speech events, learning what the implicit norms, rights, and obligations for speaking are. Children, according to research in situated cognition, are remarkably attuned "tuners" to different contexts. When kids resist taking on the roles or norms of classroom activities, it is not because they are not smart enough to know what the norms are, but is rather because taking them on means taking on a social or academic identity they do not feel comfortable in.

Taking on particular "ways with words" means taking on particular social and intellectual identities (attitudes, values, beliefs about self and others). So in order for children to enter into these worlds of talk, they have to feel as if they belong, as if being a "member of this club" is something they want to be. In order for powerful talk to occur in a classroom, all students must be assumed to be members of the practice—accorded all the rights and status of a full member—even before they have full mastery of the discourse.

Anthropological research on classroom talk emphasizes participant structures (whole group, small group, one-to-one conferencing with the teacher) and the different norms and rights for speaking these open up. A great deal of this work has focused on how what we are calling "talk formats" interact with cultural differences among children, resulting in many important findings of cultural congruence or dissonance with respect to classroom talk.

To Learn More:

Read about "Anthropological Research on Classroom Talk" in Appendix E.

How can teachers create Accountable Talk environments and conditions for children from many different cultures and language backgrounds all working together in a single classroom? What kinds of teacher moves and recurrent talk formats serve to support Accountable Talk practices and the acquisition of higher order thinking and speaking in a particular domain? What are the crucial characteristics of programs that manage to promote in students deep understanding, mastery, and the ability to generate knowledge beyond the given? What can teachers do, moment by moment, to support the active participation of all students, given the diversity in students' culture, home language, and previous academic preparation? The tools and strategies that we have suggested have been shown to be particularly effective in supporting students from diverse cultural backgrounds. Teacher moves such as requiring that students understand (and be able to repeat) what other students say, teaching revoicing, and the use of "wait-time" are especially helpful in classrooms where there is a great deal of linguistic diversity among the students.

Learn More About Culture and Educational Equity:

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APPENDIX A

The Principles of Learning

Organizing for Effort

An effort-based school replaces the assumption that aptitude determines what and how much students learn with the assumption that sustained and directed effort can yield high achievement for all students. Everything is organized to evoke and support this effort, to send the message that effort is expected and that tough problems yield to sustained work. High minimum standards are set and assessments are geared to the standards. All students are taught a rigorous curriculum, matched to the standards, along with as much time and expert instruction as they need to meet or exceed expectations.

Clear Expectations

If we expect all students to achieve at high levels, then we need to define explicitly what we expect students to learn. These expectations need to be communicated clearly in ways that get them “into the heads” of school professionals, parents, the community, and, above all, students themselves. Descriptive criteria and models of work that meets standards should be publicly displayed, and students should refer to these displays to help them analyze and discuss their work. With visible accomplishment targets to aim toward at each stage of learning, students can participate in evaluating their own work and setting goals for their own effort.

Fair and Credible Evaluations

If we expect students to put forth sustained effort over time, we need to use assessments that students find fair; and that parents, community, and employers find credible. Fair evaluations are ones that students can prepare for: therefore, tests, exams and classroom assessments—as well as the curriculum—must be aligned to the standards. Fair assessment also means grading against absolute standards rather than on a curve, so students can clearly see the results of their learning efforts. Assessments that meet these criteria provide parents, colleges, and employers with credible evaluations of what individual students know and can do.

Recognition of Accomplishment

If we expect students to put forth and sustain high levels of effort, we need to motivate them by regularly recognizing their accomplishments. Clear recognition of authentic accomplishment is a hallmark of an effort-based school. This recognition can take the form of celebrations of work that meets standards or intermediate progress benchmarks en route to the standards. Progress points should be articulated so that, regardless of entering performance level, every student can meet real accomplishment criteria often enough to be recognized frequently. Recognition of accomplishment can be tied to opportunity to participate in events that matter to students and their families. Student accomplishment is also recognized when student performance on standards-based assessments is related to opportunities at work and in higher education.

Academic Rigor in a Thinking Curriculum

Thinking and problem solving will be the “new basics” of the 21st century. But the common idea that we can teach thinking without a solid foundation of knowledge must be abandoned. So must the idea that we can teach knowledge without engaging students in thinking. Knowledge and thinking are intimately joined. This implies a curriculum organized around major concepts that students are expected to know deeply. Teaching must engage students in active reasoning about these concepts. In every subject, at every grade level, instruction and learning must include commitment to a knowledge core, high thinking demand, and active use of knowledge.

Accountable Talk®

Talking with others about ideas and work is fundamental to learning. But not all talk sustains learning. For classroom talk to promote learning it must be accountable to the learning community, to accurate and appro-

priate knowledge, and to rigorous thinking. Accountable Talk® classroom discourse seriously responds to and further develops what others in the group have said. It puts forth and demands knowledge that is accurate and relevant to the issue under discussion. This academically productive talk uses evidence appropriate to the discipline (e.g., proofs in mathematics, data from investigations in science, textual details in literature, documentary sources in history) and follows established norms of good reasoning. Teachers should intentionally create Accountable Talk® norms and skills in their classrooms.

Socializing Intelligence

Intelligence is much more than an innate ability to think quickly and stockpile bits of knowledge. Intelligence is a set of problem-solving and reasoning capabilities along with the habits of mind that lead one to use those capabilities regularly. Intelligence is equally a set of beliefs about one's right and obligation to understand and make sense of the world, and one's capacity to figure things out over time. Intelligent habits of mind are learned through the daily expectations placed on the learner. By calling on students to use the skills of intelligent thinking—and by holding them responsible for doing so—educators can “teach” intelligence. This is what teachers normally do with students they expect much from; it should be standard practice with all students.

Self-Management of Learning

If students are going to be responsible for the quality of their thinking and learning, they need to develop—and regularly use—an array of self-monitoring and self-management strategies. These metacognitive skills include noticing when one doesn't understand something and taking steps to remedy the situation, as well as formulating questions and inquiries that let one explore deep levels of meaning. Students also manage their own learning by evaluating the feedback they get from others; bringing their background knowledge to bear on new learning; anticipating learning difficulties and apportioning their time accordingly; and judging their progress toward a learning goal. These are strategies that good learners use spontaneously and all students can learn through appropriate instruction and socialization. Learning environments should be designed to model and encourage the regular use of self-management strategies.

APPENDIX B

Research Pertaining to IRE

Sociolinguists have investigated the structure of classroom discourse at the level of turns, and of teacher/student exchanges. They have also studied the organization of turns into larger thematic units, the organization of these larger units into "phases," and then into entire "lessons."

Hugh (Bud) Mehan's careful analysis of Courtney Cazden's teaching, written up in Mehan's book *Learning lessons: Social organization in the classroom* (1979), identified the dominance of the IRE (Initiation, Response, Evaluation) as the core interactional pattern organizing teacher-led lessons. This work was done in the late 70s but is still the most widely cited in the field.

Initiation – teacher Response – student Evaluation – teacher

This pattern creates two slots for the teacher, one for the student. In part, this accounts for the robust finding that teachers talk 2/3 of the time: they get 2 of the 3 slots, asking the questions, doing the evaluating. In everyday conversation among equals, a question is typically followed by an answer, without a follow-up evaluation. Classrooms deviate from everyday conversation in having, overwhelmingly, a tripartite structure.

Cazden, in her book *Classroom discourse: The language of teaching and learning*, writes: "The three-part sequence of teacher initiation, student response, teacher evaluation (IRE) is the most common pattern of classroom discourse at all grade levels. ... All analyses of teacher-led classroom discourse find examples of this pattern. ... The classroom-speech event in which this IRE pattern is most obvious is the teacher-led lesson, or recitation, in which the teacher controls both the development of a topic (and what counts as relevant to it) and who gets a turn to talk" (1988, p. 30). Cazden calls this IRE sequence the unmarked, or the default pattern—what happens unless deliberate action is taken to achieve some alternative.

A great deal has been written about the socializing impact of the IRE. Edwards and Westgate (1987, p. 175), for example, see the IRE sequence as creating in students "...[a] perception of the curriculum as sets of facts to be transmitted under pressure of time, and [as having] similar consequences for the shaping of pupils' answers to questions toward predetermined and non-negotiable semantic destinations. ... Receiving knowledge—by students— involves a largely subordinate communicative role in which turns are allocated, answers evaluated, and "official" meanings formulated, at the discretion of the teacher."

Jay Lemke (1990), in studying high school science, suggests that when teachers ask questions they know the answer to, the entire lesson can be seen as an interactional transformation of a lecture. The teacher could have given the lecture herself but preferred to transform it into IRE sequences, with slots for student responses in order to keep their attention or test their knowledge.

But this work does not suggest that the sequence of moves in an IRE is in itself inherently unproductive. Edwards and Westgate point out that there are many times that "such direct instruction is necessary and appropriate and indeed unavoidable" (1987, p. 175). Newman, Griffin, and Cole (1989) even suggest that the tripartite IRE structure is particularly well suited for the collaborative construction of ideas with "a built-in repair structure in the teacher's last turn so that incorrect information can be replaced with the right answers." The

structure of the sequence allows the teacher to maintain the necessary control over the flow of information and advancement of the academic content. Both the topic of the Initiation move (the teacher's questions) and the content of the Evaluation move allow the teacher to advance the intended topic of discussion or learning. In addition, they allow her to check on the status of knowledge, awareness, and attention of students by calling on individuals and posing particular questions. Gordon Wells (1993) and others have noted that very different activities and goals can emerge from the same structural sequence.

Susan Stodolsky and her colleagues (1981) have studied the forms of discourse in math and social studies, focusing in particular on the distribution of what they call "recitation" (which makes frequent use of the IRE). Their work was done in school systems serving a socioeconomically diverse student population. They found that recitation was more common in math lessons than in social studies, and more common in schools serving lower SES students.

In spite of their finding that recitations emphasize lower mental processes— are teacher-dominated and "boring"—Stodolsky et al. call attention to the "possible positive aspects of recitation," noting that, "Children's attention is relatively high during recitations and a number of teacher purposes can be served in a recitation format. Particularly in a skill-oriented subject like fifth- grade mathematics, public practice, review, and checking work may facilitate learning as well as or better than, for example, seat-work sessions in which the teacher can only interact with a limited number of children. [It may serve particularly] for topics which are algorithmic and factual." (Quoted in Cazden, 1988, pp. 50-51). (One may of course disagree with the characterization of mathematics as "skill-oriented.")

Over the past decade—as there have been increasing calls for more authentic investigations, discussions, and sensemaking in classrooms—the IRE has gotten bad press. The known-answer or "test" question and the IRE as a format are far more rare in Japanese mathematics instruction (based on descriptive work of Stevenson and Stigler and the TIMSS study), and these types of questions are often spoken of disparagingly as closed type questions. Chikako Toma (1991) looked at Japanese elementary school classrooms in her doctoral work and interviewed many Japanese teachers. They uniformly disapproved of the IRE, saying in many different ways that a good question was one that opened up dialogue and that one right-answer questions close down the conversation. Several Japanese teachers in her study wondered aloud why any teacher would ever ask a question that had one expected correct answer.

In the end, the use of known-answer questions and the use of recitation and the IRE structure must be judged against the teacher's academic purposes and the kind of student learning that occurs.

In the literature on classroom discourse, there has been a great deal of effort put into characterizing the amount and patterning of talk (on the part of both teachers and students). But there has been less work on the ways that talk relates to participation status or intellectual positioning of students with respect to other students or the content being taught. This is one of the limitations of this body of work and the standard tools we have for doing discourse analysis. It is hard to deal with large stretches of talk where the meanings and the relationships between speakers (among students and between students and teachers) change strategically, as a given activity proceeds or over time as development occurs.

The point here is we have to have a vocabulary for linking discourse structures to academic and social purposes, rather than argue about the general value of an IRE move taken out of context or even the IRE-based recitation, teachers should consider which academic purposes they fit well and which they don't.

From work in conversation analysis, the notion of a "participant framework" has been developed and applied to talk in classrooms. It is a construct for looking at talk as a mechanism for socializing intelligence and academic identity (O'Connor & Michaels, 1993, 1996; Resnick & Nelson-Le Gall, 1999). The notion of a participant

framework was originally coined by Erving Goffman (1974, 1981) and then developed further by Marjorie Harness Goodwin (1990) in her book, *He-said-she-said: Talk as social organization among Black children*. In Goffman's formulation (1981, p. 3), "When a word is spoken, all those who happen to be in perceptual range of the event will have some sort of participation status relative to it." For Goffman, the participation framework is the amalgam of all members' participation statuses relative to the current utterance. Goodwin painstakingly demonstrates how linguistic expressions open up roles and stances with respect to the content expressed in the utterance. Participant frameworks refer both to the way participants speak to one another and about one another (by animating one another in their talk). The notion thus gives us a way of showing in great detail the way participants are positioned (and actively position each other) with respect to one another (as investigators, knowers, learners, students, etc.), vis-a-vis the teacher, as well as with respect to the content being discussed.

Work by O'Connor & Michaels (1993, 1996) and more recently by Forman (1998) suggests that this is a helpful construct for looking closely at different talk formats and assessing their impact on students' academic identities and ways of speaking. For example, the IRE sequence can be shown to create one kind of participant framework, one in which the student is positioned as learner, trying to "get" the correct answer the teacher has in mind. A different participant structure is created when the teacher "revoices" what the student says, rather than evaluating it. Here the teacher asks a question and the student responds, but then the teacher repeats or reformulates the student's contribution, in an attempt to clarify, rebroadcast it to the entire group, or compare it to someone else's contribution. For example, in response to a student's contribution, the teacher might say "So, let me see if I've got your theory right. You're saying the balance will tip to the right because there are more weights on the right, kind of a counter argument to what Jenny was just saying?" The revoicing move then opens up a fourth slot for the student to agree or disagree with what the teacher has said. In contrast to the IRE, the revoicing move puts teacher and student on equal footing (Goffman, 1981) for the moment, giving the student full credit for the content of the revoiced utterance. Moreover, in this move the student is positioned as a thinker, a theorizer, a holder of a position, not as being correct or incorrect as in the IRE.

It is possible to characterize classroom talk formats with respect to the patterning of participant frameworks. The notion of a participant framework thus gives us a way to explain, moment-to-moment, how contrasting uses of language in the classroom create different contexts for socializing thinking and students' sense of themselves as thinkers, and how teachers' moves work to align students with each other and with themselves, in building a shared world.

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APPENDIX C

Ways with Words: A Case of Ethnography of Communication

Over a ten-year period, anthropologist Shirley Brice Heath was an ethnographer in rural Black and White communities in the Piedmont Carolinas and a professor at the local teachers' college, giving in-service courses for teachers. When White teachers in her class, who were working in recently desegregated schools, complained that their Black students did not participate actively or appropriately in lessons, Heath was able to build on her own previous fieldwork on language socialization in these Black children's community. For example, her work had shown that these children at home were rarely asked "known-answer" questions oriented to labeling and describing objects and past events. The question types so familiar in White middle-class homes (e.g., "What is that? Is that a bunny? What color is the bunny?") were largely absent in the Black community Heath worked in. These children found it strange to be quizzed on things they and the questioners already knew the answers to. As one child said to Heath, "Ain't no one can talk about things bein' about themselves." In contrast, these children were often asked more highly inferential questions calling for analogies and comparisons, such as, "What's that like?"

Heath engaged the teachers of these children in systematic observation of questioning in their own homes and classrooms, and then worked with them to design new ways of interacting and asking questions at school. This collaborative work resulted in a new sequence of classroom activities:

1. Start with familiar content and familiar kinds of talk about that content.
2. Go on to new kinds of talk, still about familiar content, and provide peer modeling by children who control these discourse forms. (This talk was also made available for repeated hearings on audiocassettes.)
3. Provide opportunities for the children to practice the new kinds of talk, first out of the public arena and also on tape, and then in actual lessons.
4. Finally, talk with the children about talk itself.

In the process of working with Heath, teachers were gaining strategies for assessing the language skills their students brought from home and designing activities that served as bridges to valued school-based literacy skills.

Moreover, Heath's methods for collaborating with teachers in doing ethnography of communication research were also used with students. They proved to be powerful methods for enculturating students into school-based ways of questioning, analyzing information, and writing. Students got involved in researching the use of language in their own communities. They had to break down research report writing into particular social practices: asking questions of non-intimates where little shared background could be assumed; taking notes; having discussions and comparing notes with fellow learners; having to answer questions and defend points of view; communicating progress to the teacher and often to an absent teacher-colleague by mail; writing drafts and engaging in writing-conferences; and communicating the results, in oral presentations and in print, to others, often to community members--all the while focusing attention on language itself.

In one of the several successful demonstrations of this approach, bilingual students with low English language skills engaged in a group study of when and why Spanish and English were used in their local communities. Another project, involving special education students, involved studying all the uses of print in the local community. All the students in this latter group eventually left special education classes to succeed in mainstream classes.

Such projects involve the students in their local communities and let them draw on the resources of their own communities (for interviews and observations). At the same time, they allow students to be coached in and to practice Accountable Talk discursive talks as well as skilled expository writing and analysis.

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APPENDIX D

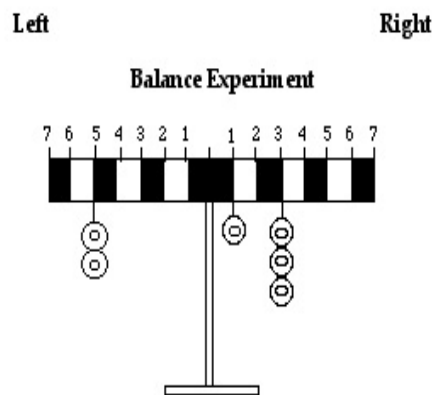
Cultural Differences: Two Cases in Point

Case 1

The first example is from Sarah Michaels' and Judith Richards' teacher/researcher collaboration in a multi-ethnic public school setting. It demonstrates quite vividly how students' home-based ways of speaking and thinking interact with school tasks and curricula, influencing how students learn and how they are evaluated.

The example comes from Richards' combined third-fourth grade, multi-ethnic classroom in Cambridge, Massachusetts. In this classroom, Michaels served as a participant observer over the past three years, and Richards was a co-investigator and observant participant throughout every phase of the work. In reporting this problematic episode, we are using it to make a point, and ignoring the multitude of successful encounters between Richards and her students. The point here is to document the complexities that exist in all, even the best classroom.

In this example, the class is doing a science activity on the topic of balance, using a balance scale with small metal weights placed at different points of the scale on both sides. In this science unit,⁴ over the course of several weeks, the students are posed a series of balance problems. The picture below is an example of one such problem.



If you hang weights on your scale as shown in the above diagram, do you think the scale will tip to the right, to the left, or balance? Why?

⁴ This unit comes from a large set of casebooks which are part of a Japanese science curriculum known as the Hypothesis, Experiment, Instruction method. The terminology and actual problems are taken from the casebooks. Developed by Japanese science educator and historian of science Kiyonobu Itakura, the method has been used by many Japanese classrooms over the past 15 years. Let us point out that we are not promoting or criticizing this method as a method for teaching science. Rather, we have used it as a research tool.

After a particular problem is posed, students are asked to predict, by a class vote, what will happen, i.e., where the weights will tip. Once the students vote for their choice, they debate or discuss their predictions with each other as a group. After the discussion, they get a chance to vote again, in case they have changed their minds on the basis of someone else's explanation or argument. Finally, the teacher demonstrates the actual experiment. Then the students go to their seats and fill out a work sheet on which they explain their reasoning in writing.

Let's take a look at what happens in the case of the particular problem reproduced above. This problem occurred six or eight weeks into the unit. The students had already been given the formula "multiply weight times distance," to help them in figuring out how the balance would behave. They have already had a lot of practice solving balance problems of this type, but there's still some confusion among the kids as to when you multiply and when you add. We want to focus on what happened during this particular group discussion.

Semhar, a fourth-grade girl, has argued that the scale will balance and demonstrates her reasoning to the group by writing on the board, where a picture of the problem is displayed. On the right side of the problem, she writes:

$$3 \times 3 = 9, 1 \times 1 = 1, 9 + 1 = 10.$$

She is multiplying the weight times the distance: The three weights on the "three point" equal nine, the single weight on the "one point" equals one, so the total force on the right side of the scale above is ten.

Semhar then points to the other side of the figure and says, "Two times five equals ten, so since they're both ten, it will balance." In other words, the two weights on the "five point" equal ten, making the left and the right side equal in force.

Neirika, another fourth-grade girl, makes reference in her explanation of this problem to a previous problem that the class had reviewed right before this. That problem was identical to this problem except that it didn't have the single weight at the "one point" on the right side, and thus did not balance, but tipped to the left.

Neirika: Well, I agree with you because—I didn't really do it all over again. Instead I remembered that it was ten on the left, and nine on the right, and then we added one on one. And one times one is one ... So I added nine plus one, so I think it would balance.

Moments later, another fourth grader, Erik, speaks:

Erik: Okay, well um ... that's ten, that's ten. Cause two times five is ten, and three times three is nine. And then you just do one times one is one, and one and nine is—balanced.

Then Elizabeth asks for a turn. Elizabeth is a native speaker of Haitian Creole and a newcomer to the classroom community. Only two months earlier, she moved to Richards' class from a transitional Haitian bilingual classroom. Erik, the previous speaker, calls on her. She says:

Elizabeth: I agree, um, with you [referring to Erik] and Neirika and Semhar because I was thinking it will tip to the um, it will um, be balance.

Teacher: And what was making you think that?

Elizabeth: Because um, I was only sitting down and I say, remember um, I think it will be balanced because I, I was thinking. And I say it will tip to the, I say ... I think, and I think it will be balance.

At this point Richards probes further to get Elizabeth to reveal some of her reasoning about her conclusion.

Teacher: So do you remember what made you think that? Were you just persuaded by, were you persuaded by what other children were able to say?⁵

Elizabeth: (shakes head no) Unh uh.

Teacher: Or were you thinking that—can you give us some words for this thinking?

Again the teacher probes for Elizabeth's reasoning, the reasoning that got her to the right answer. But Elizabeth, on the face of it, doesn't seem to have any reasons.

Elizabeth: I think um, well, I was sitting down like this, and I was thinking and I, in my head, I think it will tip to the right, but after I been thinking a lot I think it will balance.

At this point, the teacher asks Elizabeth if she would like to bring the next speaker into the conversation. After more discussion, with more children giving mathematical reasoning, they hold a second vote. Then the teacher demonstrates with the apparatus, which shows that the scale does in fact balance. The teacher then asks the children to return to their seats and to put down in writing their reasoning for why it balanced. Elizabeth returns to her seat and writes the following:

"Because I was tinkering it have to be balance, and I vote for balance." [sic]⁶

With the video camera still running, Michaels, a participant observer in this classroom, mentioned to Richards that she was puzzled by Elizabeth's answer and wanted to ask her a few follow-up questions. Richards too felt that her "why" question might not have been clear to Elizabeth. Thinking that perhaps there was some language interference going on, Richards suggested that Michaels ask Elizabeth to answer first in Creole. Michaels did this. Sitting on the floor in the meeting area with Elizabeth, she asked her a series of questions. Each time Michaels asked a question, Elizabeth would first answer in Creole and then say, "Here's what I just said," and proceed to translate into English.

Michaels: Can you tell me why you thought it would balance or why you now think it would balance?

Elizabeth: [first answers in Creole, then says] I say because I was thinking in my brain. And my brain think it will be balance, and it's ... I say that.

Michaels: Okay. Now I'm gonna ask you another question. Why? Say more about why.

Elizabeth looks puzzled, and says, "Say more about why?" Groping now, Michaels says, "Why do you think it will be balanced? What did your brain think to get you to think it would be balanced?" Elizabeth, with a grin, says, "I don't know because I didn't ask my brain." Michaels says, "Ask your brain about the weights and where they are and why you think it would be balanced or why you think it did balance."

This goes on a few more times with Elizabeth actually putting the weights on the right places, and saying, "Because you know after I think it would be balanced, I tried it... and it's right! Ta da!" Finally, Michaels says, "Okay, I'm gonna still keep pushing you on this. This is very helpful. But why does it have to balance? Why doesn't it tip to the right or to the left?"

Elizabeth, with a look of amused impatience and a "how dumb can you get" tone of voice, says—"Because I make multiplication in my head!" Without a single hesitation, she walks Michaels right through the problem in Creole and in English. "I say trois par trois, c'est neuf..., (note, this is transliterated into French; the spelling in Creole is different.) Here it's two, and this five, two times five here and three time three is nine." Elizabeth had clearly known the "reasoning" associated with her answer all along.

A few moments later Michaels asked her why she didn't tell her "all that multiplication stuff" in the first place when she asked her why it would balance. Elizabeth looked down and said quietly, "I didn't understand your question."

5 *The bolding indicates a slight increase in emphasis. Richard's comments that she did not intend to challenge of question Elizabeth's knowledge, and indeed the tone is a gentle probing one.*

6 *It is worth noting that on the same page, by the diagram of the balance scale she has drawn lines connecting the two weights on the 3 point and the one weight on the 1 point (on the left hand side) as well as a line from the two weights on the 5 point (on the right hand side). These two lines meet in the middle of the page, indicating multiplicative and additive procedures.*

The problem that Elizabeth has here is not in her ability to reason, or in her control of the requisite skills. She knows her multiplication facts cold and knows how to apply them in reasoning through this problem. Rather, she does not control the discourse of school science. A reasonable way to make sense of her contributions is that she interpreted Michaels' and the teacher's "why questions" as asking her about the status of her knowledge and how she came by it—did she guess, was she persuaded by her classmates, or did she figure it out for herself? In as many different ways as she could, perhaps, Elizabeth was trying to explain that she had figured it out for herself. However, in the discourse of school science, in order to count as having figured something out, you have to make the reasoning explicit. You have to give the proof, the theory, the model, or mathematical reasoning that explains the phenomenon in question. This is something that seems so obvious to those of us who control this discourse—it was certainly obvious to the other children in the class who participated in the discussion—that it seems as if the meaning of the language is completely transparent, unproblematic. But as this example illustrates, "why?" questions can be interpreted in many different ways—as asking for explanation, asking for demonstration of one's reasoning, a motive, evidence, and so on, depending on the discourse conventions particular to a given domain. In order for Elizabeth to succeed in school science, and to be evaluated as a competent and developing thinker, she must learn the discourse norms of school science.

We do not want to be heard, however, as suggesting that all we have to do is to teach kids to talk differently, with more scientific terms, or scientific sounding explanations, and our problems will be solved. The superficial trappings of the discourse are not equivalent to deep understanding or mastery of a topic. Unfortunately, that is often what counts as learning in school—using the right vocabulary, memorizing facts, or knowing the algorithm. By teaching and assessing the superficial trappings of understanding, schools fail to serve both minority and mainstream students alike. They quite conspicuously fail to build on and extend the home and community-based discourse practices of most minority and low income children. But they fail to develop generative thinking and deep understanding in more privileged students as well. Elizabeth is one child who has good understanding of scientific reasoning in this case, but who will likely be judged to have little understanding, due to her unfamiliarity with the discourse of classroom science. What we want to illustrate with her case is that there are many aspects of talking science that we as educators may assume are transparent and obvious when, in fact, these practices are culturally specific and must be learned.

Case 2

An African-American first grader comes up in front of the class at sharing time to tell about something that happened to him. He begins by saying, "There's this woman who live down the street from me. And this woman, she don't have no sense." Uncomfortable with the child's use of dialect, the teacher interrupts and says, "Um, OK, but can you think of a different way of saying 'she don't have no sense'?" Without missing a beat, the child says, "Yeah, well I guess you could say 'she doesn't have any sense', but THIS woman, she don't have NO sense."

This last example challenges the widespread notion that the use of African-American dialect in the classroom should be corrected and nudged (or stamped) out. The use of this dialect, as shown in this example, is a communicative resource. Like all communicative resources, it is appropriate for some situations and not for others. A student's home language or dialect reflects the student's home world and community; it is a large part of who this student is. In school, we ask all students to take on new ways with words, new intellectual abilities, and new identities. But we must build these out of the knowledge and identities that students bring from home. All children in this society need to learn Standard English and know when it is expected that they will use it. But we want to expand students' linguistic capacities by adding to what they already bring to school, not diminishing or denigrating their home-based linguistic resources and what Luis Moll calls "funds of knowledge."

APPENDIX E

Anthropological Research on Classroom Talk

Native American children in the Northwest (see Phillips, 1972, 1983) do not perform well in speaking publicly in large group discussions. The use of small group or partner talk interactive format reduces the pressure to present as a solo speaker and supports these children to be more actively engaged in classroom talk and learning. Researchers in Hawaii, as part of the Kamehameha Early Education Project, have shown that part-Polynesian children perform much better in small group reading instruction if they are allowed to talk without waiting to be called on. Effective teachers allow them to overlap with one another the way they do in "talk story"—a common group story telling speech event outside of school (Au, 1980; Tharp & Gallimore, 1988).

Carol Lee has found in her research on her own teaching of predominantly African-American high school students that there are times in a lesson when the students break into talk that is highly animated—with everyone seeming to talk at once, overlapping and interrupting one another. At first glance, it would appear as if the discussion has devolved into chaos and the students are no longer being accountable to the community. However, Lee has shown that this kind of "contrapuntal conversation" (a term coined by Reisman, 1989) evidences high levels of engagement in the intellectual task at hand is highly productive in advancing the academic purposes of her lesson. She finds that the talk (if analyzed closely) is accountable to rigorous thinking and that, indeed, the students are actually hearing and building on one another's contributions. But she also acknowledges that after a while, she has to find a way to bring the conversation back to a "one speaker at a time" norm, and she does this most effectively by shifting to scribing at the board and revoicing student contributions, saying something like, "OK, let's get some of these ideas on the board. Kiana, you were arguing...OK guys, one at a time now...Kiana has the floor...So, Kiana you were saying..."

Ann Piestrup's (1973) work on early reading showed that African-American children learned to read far more successfully with what she called "Black artful teachers." These were Black and White teachers who did not correct Black dialect features during reading instruction, and allowed for culturally familiar, playful language routines oriented to the content of the stories the children were reading. Interestingly, Piestrup found that by the end of the school year the children in classrooms of Black artful teachers not only learned to read better, but actually used more Standard English than children of teachers who consistently interrupted them while they were reading to correct their use of dialect.

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