Co-researching with Students: Exploring the Value of Class Discussions

by Karen Hume

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In September, Andrew was very quiet. He was, and is, unfailingly kind and polite. He is clearly intelligent and reflective, evident not just because he's a member of my class of Grade 6 and Grade 7 gifted children, but because, like his classmates, he virtually sparkles with intelligence and humour much of the time. In September, however, Andrew was passionate and energetic only when he was telling me how much he hated, absolutely HATED, all of the talking we were doing in class.

I encourage my students to tell me how things are for them in the classroom, and I try to pay attention when they do. It is important to me that we become a close-knit community of learners, inquiring into the workings of the world and our own actions with both zest and courage. In my five years as a teacher researcher, I have become familiar with the exhilaration, the pure rush of adrenalin that overtakes me, when I feel myself creating new knowledge and taking new actions in my work based on a close examination of collected data and stimulating conversations with like-minded colleagues. I want my kids to feel that same pleasure, to be aware of their intelligence, of their power to create. It's likely unsurprising, therefore, that much of my work with my students centers around the development of a knowledge building community within the classroom.

Knowledge building is a term that's meant to suggest a particular stance in my classroom - a focus by all participants on knowledge as an object that is both constructed and continually improved through the multiple perspectives and competing viewpoints that we bring to a question. As various perspectives are raised, students marshal evidence to support their views and to contribute to the building of our collective understanding. Knowledge building, therefore, like almost all classroom activity, relies on oral and written discourse. Andrew's second day criticism - "The only thing I don't really like is how you kind of let the class talk so much and so long, making (it) kind of boring for the people who don't really like to share thoughts, like me" - was therefore both worrisome and at the same time inconsequential. I worried because I knew we were in the very early days of a year full of talk. I was at the same time completely unconcerned. I couldn't even conceive of learning without talk and, after all, Andrew was the only one who had expressed a concern. The couple of others who'd written about talk in that second day's "How's it Going?" letter expressed a view that was much more in line with my own feelings. "I love the little 'talks' we have in the middle of the classroom," Deb wrote. And Amanda said, "I really like the way we have full class conversations. It makes school much more enjoyable no matter what we are talking about." I hoped that Andrew's concern was simply 'his problem', perhaps representative of his learning style or personality, but certainly something that he would

need and want to overcome in view of the sheer mass of fascinating conversations that our class would be enjoying! I wrote a "Hang in there; let's wait and see how it goes" response to Andrew, and hoped for the best.

A week later, I received this letter from Andrew:

It's going okay. I'm still very annoyed with all our talks.... I feel kind of like we're not getting a lot of work done and we're learning nothing but math, music, french, gym, and how to talk, not things that I think are really productive. Please try to fit some other things in other than talking. I can't stress that enough. I'm really serious about it. That's it.

I met with him and asked him to say more. Visibly distressed and in a rush of speech, Andrew reported that he's not very good at talking, that he's shy, that he doesn't like to talk, and that you don't learn anything from talk. My rejoinder that I thought he was very good indeed at talking, that he had important things to say and made good sense in saying them, just seemed to upset him further.

We were at a crossroads. I was unhappy that Andrew was so unhappy, and I believed that his passionately felt concerns needed to be taken seriously, but I was unwilling to stop or even significantly lessen the whole class talk. The best solution seemed to be to ask Andrew if he'd be willing to co-research the issue with me, to look together at the question of the role of talk in our classroom. Could we try together to determine if, when and how talk might make a difference to our learning?

I imagine I was a picture of calm, confident assurance for the fraction of a minute that it took Andrew to give me a firm, clear "Yes", but inside I was in turmoil. I had always wanted to co-research with students, to involve them well beyond the level of video camera operator and general gopher, but I had never done it. It made good sense, given my philosophy, to make action research one of the structures for engaging students in both knowledge construction and community development, but it had taken me years to learn to focus on data and draw useful information from it. Who was I to even suggest that I could help Andrew, or any other child, acquire those skills? And what were my motives for proposing this research? I know that learning occurs in the talk. Was I just going to go through the motions with Andrew, burying him in a mountain of transcripts and baffling him with my pronouncements from the research literature until he eventually admitted defeat and claimed to 'know' it too?

Weeks passed while, with Andrew's ready agreement ringing in my mind, I continued to panic. How should we look at the transcripts? Should we try to define learning? Should I be providing some sort of instruction in discourse analysis? And above all, what could I possibly do to make this true co-research as opposed to an academic exercise for an unsuspecting student? I searched the literature for models, ideas, reassurance. Wells (1994) provided encouragement, but I couldn't find anyone who'd actually tried it. Even the limited literature on participatory research (e.g. Maguire, 1987; Whyte, 1991) discussed only cases of adults in work situations, usually where the researcher was someone from outside the organization. I began to wish for that 'outsider' status. If you really made a mess of things your professional career might suffer, but you wouldn't have to live with your mistakes day in and day out!

Finally, concern about disappointing Andrew overwhelmed my uncertainty about how to proceed. I asked Andrew if he'd like to get started, and if he'd like to involve anyone else. The answer was 'Yes' to both questions so, at his request, I told our class about Andrew's concern and asked if anyone else would like to join us in researching the question. Four boys immediately offered - Joel, David, and Eddie from Grade 6, and Paul from Grade 7. (The all male composition of the group shouldn't be seen as unusual since seventeen of my twenty four students are male.)

This article is an account of the work of our co-research group over its first year. It has been a time filled with surprises, not the least of which is that we are still going strong, and that this report is therefore necessarily interim and tentative. Almost immediately, the value of co-research as an educational activity became apparent to me. Less obvious has been how to describe this experience so that others might have a sense both of its power AND of the interrelated aspects of participation, discourse of knowledge construction, and focus on action that, I suspect, create this power. Describing the complexity of a single moment in time is perhaps impossible. Discussing that complexity across even the three meetings that I've chosen for analysis means dealing with four hundred utterances, six participants, and the historical and social context of my classroom. And so, not because it is ideal, but because it is at least manageable, in this article I pull our meetings apart, considering each of the three aspects of knowledge construction, participation and action in turn, before attempting to put them back together again in a tentative, preliminary explanation of how and why it all works.

The Setting

We meet in our empty portable after everyone has eaten their lunch and the others have gone outside to play. As portables go, it's a good one. It is clean, comfortable, and fairly spacious. Its spaciousness is partly due to the fact that it houses only twenty-six bodies (24 kids, a teacher, and a classroom volunteer) as opposed to the usual thirty-three; partly because we have desks in six clusters of four around the outside of the room and a couple of tables and a big open space in the centre for our Class Council meetings and our whole class conversations, and partly because as a class we are reasonably tidy and organized.

We think our classroom is both attractive and interesting. Since I was new to the school in September, as well as new to teaching gifted kids, we all met for a day in August to get to know each other and to set up our room. I should correct that. I got to know the kids and they, me. Most of them have known each other, and have been in a class together, for anywhere from one to four years. Still, it was a new experience for everyone to have a say in setting up a room, and the results reflect our wide-ranging interests. We have lots of books, a few science toys, a blue glass head, a miniature greenhouse complete with cacti and a grapefruit tree, half a dozen plush monkeys and apes hanging from a rope ladder, and posters of the Chicago Bulls basketball team, Dungeons and Dragons, and "Everything I wanted to know about life I learned from Star Trek".

The Data

We come to the meetings prepared, having read, and usually made notes on, both the previous meeting's transcript (all co-research meetings are tape recorded) and on a transcript of whole

class talk (selected sessions are taped, with selection based on either a 'feeling' that something interesting may happen, or simply on time availability to set up the recording equipment!)

It was my decision to use transcripts as a data source; a decision consistent with my belief that the complexity of talk can only be analysed through faithful review of a full transcript. My research partners don't question the use of transcripts, but express a flash of concern about my workload. Eddie thinks that if one of us were to learn shorthand or if we were to hire a secretary, the transcription burden could be lifted from my shoulders, but we decide that until that day I'm the one who is the "amazing typer" as Joel puts it, so I type and photocopy the transcripts that the group has decided to analyse, and deliver them faithfully a couple of days before the meeting.

Previous experiences of showing adolescents and pre-adolescents transcripts of their talk had me convinced that I'd have to suffer through hours of obsessive counting of numbers of comments made by each speaker and recountings of agonies of embarrassment over saying 'stupid things' before we could even begin to look at the transcript as a data source. However, this wasn't an issue with this group. For the most part, their fascination with the transcripts is a fascination with how speech and actions are recorded in print. In fact, this fascination has served a very useful purpose. It can be difficult to encourage students to question sources, to approach written information as problematic and tentative when they so often assume anything in print to be fixed and authoritative. Transcript analysis seems to be one way around this dilemma. My co-researchers point out when they think I have missed a word, shortened an interchange, or attributed a comment to the wrong speaker. They recognize that the transcribing of speech into print is an act of 'interpretation':

Andrew: I'm always really wondering what this transcript is going to look like and how you interpret things (my emphasis). I don't know if other people are thinking this. Maybe it's just me. I'm always thinking - Oh, two people are talking at the same time. What's that going to look like? I'm always wondering about that.

Like researchers everywhere, we deliberate about what conventions we need to observe in order to render our transcripts as useful to our purposes as possible. We have talked about: using asterisks to indicate indecipherable words (Paul); the recording of simultaneous speech (Andrew); the need for providing contextual notes prior to the first utterance of the transcript (Andrew); the inadequacy of a transcript in providing information about people's actions - i.e. how many and who had their hands raised during a particular interchange (Andrew), and the importance of retaining speech hesitancies because "we should keep what we actually said" (David), "we'd sound pretty funny if we didn't have speech hesitancies" (Paul), and "we might be able to ... notice any changes. So that towards the end of the research, we might not have as much hesitancy" (David).

I had marked an utterance in an early September whole class transcript with a question mark because I couldn't distinguish the speaker. Our group's brief discussion of this is an excellent example of how thoroughly and actively the members read the transcripts, and how they are able to go beyond the data in logically defensible ways:

Eddie: You were talking about how it's better to study something where you can get more than just that subject, like out of it, and then Dallas asks "Will we be going to a golf course to play?" and it completely changed the subject, and then movies completely changed the subject, and then I asked about cartooning which didn't really change the subject because-

Karen: -it's related to the movies.

Eddie: Yeah.

Andrew: And I noticed that, just from remembering the talks, golf comes up on the top of the second page, and then it completely disappears and comes back like ten comments later, and I was thinking that the person, the question mark person, might have been Dallas.

Paul: It was.

Andrew: Because then Dallas brought it up again. I think he might have liked it a lot.

Karen: Good point.

Andrew: I was also wondering if he had his hand up the whole time, and then you picked him, and was that why golf just kind of came back up.

Karen: Cause that was totally his focus at the time you're thinking?

Andrew: Yeah.

Knowledge Building

I was intent from the beginning that the methodologies we used in our work should emerge from my students' close reading of the data, not be imposed by me as the 'right way' to analyse a transcript. I didn't want my own biases about talk to colour the way we examined the data, and I didn't want my greater 'expertise' in analysis to establish roles within our group. However, at the same time that I was adopting an attitude of 'benign neglect', this was an area of great personal concern. I knew, from bitter experience in graduate school and teacher research groups, that if we didn't stay close to the data from the outset our initial ideas could quickly turn into entrenched, unsupportable positions. This would be catastrophic, not only in possibly furthering beliefs about the uselessness of talk - ones that I could not accept - but in negating the significance of the requirements for evidence and support that we had in place in the knowledge building work we'd been doing in science and history.

I viewed our first meeting as a time when we would put our initial thoughts about talk on record, and felt temporarily released from this concern with data sources and evidence. Perhaps if I stalled long enough, I would come up with some way to protect the integrity of our research while still ensuring that my student colleagues took the lead. Partway through that first meeting, when it seems that everyone has decided that the learning potential of talk is directly related to interest in the subject, I ask, "How do you think we can use the talk to help us learn if it was a

subject that, let's say, EVERYBODY in the class was interested in? How does the talk make a difference in the learning?" Andrew replies that in talking with people you gradually recognize other points of view. Paul extends Andrew's comment by offering an example from a recent science class:

Like, when I was doing a progress report, I was saying something about molecules and how they compared to matter. Lloyd and Eren pointed out something that possibly could not be true, so I fixed it, and it's a lot better now. I'm glad I did.

Joel chimes in with a phrase that we'd consciously adopted in a couple of our September whole class conversations, and then offers his own example:

I can connect with Paul (my emphasis) because when we were doing the knowledge building for the light unit, when me and Matt were doing our thing, we had an argument over whether atoms or electrons is the thing that photons get, like, sucked into. And like Matt explained his point of view and I explained mine, through like talk, and we also drew little diagrams to help show each other what we're talking about, and then we finally resolved it. But it was electrons. I didn't get my way (fake pout).

I am amazed, and tremendously relieved. Even before we have recourse to transcripts, my co-researchers are supporting their statements with evidence drawn from personal experience, and they are making connections to each other using phrases we have adopted in class. I am beginning to realize that knowledge construction in action research is like knowledge construction in any other area of study. Many conditions need to be in place if it is to be successful, but special training in discourse analysis doesn't seem to be one of them.

This perception holds true through the next two meetings as students use their knowledge building skills to make some fascinating discoveries about talk. For example, on six different occasions, students connect various entries in a transcript in order to see and describe a pattern. They identify: forms of talk, subject change, points of connection in knowledge building, and patterns of interaction. This pattern seeking and identification is a tremendously important behaviour because it encourages the explicit connection of new information to the pre-existing pattern, thereby offering another support for the pattern or, if it doesn't fit, forcing a re-examination of the entire data set.

One example will demonstrate not only the awareness of pattern, but many of the other skills that we bring to bear in reviewing a transcript.

In the October meeting, we had observed that talk often goes in circles, with people restating the comments of the last speaker and adding something that's just a little bit different. Joel asks to start the November session, obviously excited about something he has discovered in that October meeting transcript:

Joel: And look at, I think this is the first one that mentions it is 23 (utterance number) and it's Paul saying .... I underlined it - "Like people would just basically say exactly what everyone else was saying, and add like a tad of their own opinion." And then I put, 'look at conversation 26'

and it says, "If you just keep going and connecting to what's above it is eventually going to peter out. Either that or it will just start to repeat something that's been said, and then it will go in circles." And then Paul says the same. It just keeps going, so that just refers to our connecting on the same thing except adding on our own opinions.

In addition to identifying the pattern and trying to explain it to us, Joel has done three important things. He has directed us to the specific spot in the transcript where we will find the evidence, a behaviour that is to be repeated, by Joel and others, eleven more times in this transcript and next. He has described the strategies that he used in reviewing the transcript - "I underlined it,...and then I put, 'look at conversation 26'". And he has demonstrated a willingness and an ability to observe and reflect on his own group's actions. Andrew supports him:

Andrew: I can connect to that because Joel showed me that in the morning and I was saying that they were talking about going in circles, and I said to Joel they're going in circles themselves by just saying the same thing over and over again and it's kind of weird.

I want to encourage the strategy of going beyond the data to make reasonable inferences and predictions, so I ask:

Karen: Why do we do that ? I mean that's a really common thing for people to do. Conversations don't tend to be everybody making these totally unique contributions. We often kind of restate things in our own words. Why do you think people do that?

Various ideas are offered, then Eddie says, "I think it might depend on making it so they can understand it more by repeating it themselves. Like when you say something, it's easier to understand it than when you like read it or something". This is a great opportunity for me to situate our questions within the larger community of professional research and I attempt to grab it:

Karen: There's this huge area, this body of research that learning really occurs through talk and that you actually have to engage in the talk for learning to take place.

My colleagues - appropriately I think - disregard this premature attempt to broaden the context of our work to include published researchers. As Bereiter (1994) reminds us, it is not important that knowledge be new to the world, but that it be seen as new to the group involved in its creation.

David takes a turn to tell us his strategies and tentative conclusions, and to remind us that he'd already mentioned the importance of engagement in the talk:

David: What I did is I just looked through it (the transcript) and then I made observations, so I wrote notes. One of them, one note, was 'Mindless repetition with just a little addition of opinion makes talk go in circles'. I think that is caused by people who say something that someone else has already said so they just change it a bit. Also, disinterested people, when they hear something they know or can connect with, they jump out and say it and argue it, even though it has already been said and argued. They want to join the conversation, so they repeat the only things they know about the subject so they can join the conversation.

Also, responding to what you just said, I- something in the October transcript. You said something about "you have to engage in the talk". I'm not sure where it is, but I said somewhere that you have to take part in the conversation.

Joel: It's number 9.

David: Number 9. "You have to contribute to the conversation, or at least ask some good questions that others can respond to."

Eddie argues:

Eddie: And beside where David said that I just wrote 'What about asking an intelligent question? Isn't that a form of input?' Because it sounded more like you had to already know something about the conversation to make input on it.I also disagreed with myself a couple of times. Like a lot of people say that if everyone's not interested in the subject then it just doesn't work as a conversation. But it doesn't really depend on what you're talking about. It depends on how you're saying it.

My students are behaving as apprentice researchers throughout this excerpt and, in fact, throughout all transcripts. They make connections to their experiences and to each other in support of their developing theories. They identify themes and patterns across data. They honour the researcher behaviour of staying close to the data, citing specifics in support of their claims. They demonstrate an ability to reflect on and critique data, even words they themselves have said ("I also disagreed with myself a couple of times," says Eddie), when evidence fails to support their earlier claims.

Perhaps most important, there is considerable talk in all meetings of the strategies we have used in our analysis. This is beneficial not only because it makes it apparent that the kids are choosing and using strategies but because, in making a strategy explicit, it is open to use and modification by others. In sharing our ideas, and our particular areas of strength and expertise, we demonstrate a dedication to collective, rather than individual, progress.

With regard to my own participation, I am delighted to discover that my most frequent contributions to knowledge building are in the suggestion of strategies for analysis, and that these suggestions are offered only at times when they might be useful to our progress. At various points I suggest that we: give an overview response and then look for evidence to support our feelings; read the transcript aloud in order to hear the language and improve our understanding; support a view by providing evidence from the transcript; and refocus on the original research question and then explore what action we can take to find out more.

My student colleagues also offer a variety of excellent strategies including: demonstrations and explanations of how to mark transcripts in useful ways (underlining, circling, highlighting, connecting statements, writing notes in the margins); using later transcripts to understand earlier ones and vice versa; visualizing, and designing a model. This last strategy, offered by David, proposes how we might diagram the connections among ideas in a way that will highlight the

most potentially generative. In his explanation, David connects the focus that he has taken in his analysis to our classroom focus on making connections (see my emphasis in the quotation):

David: When I was taking my notes (on the transcript) ... I noticed that in most things we do, especially in things like this, that connecting was a main focus. So what I did was; I thought this might help. I just numbered all my notes and connected them into this big web here ....

And then I noticed that the one that has the most, it has nine connections, out of 14 notes, is note 3 and note number 3 is "People who aren't interested, aren't biased, and therefore might provide alternative viewpoints. We can't find an answer because we're going in circles, and an unbiased viewpoint might supply an answer, or at least put us on the right track."

Participation

From my response to David's comment above, we can tell something of the participation structures at work in our group. I cannot figure out what David is saying. He has lost me completely because I am thinking that his numbered notes in some way cross reference lines from the transcript. They do not, but even with four attempts at clarification, I still miss this.

Looking back at this segment of the transcript, I laugh because my early concern about taking over the group has been so unfounded. As Andrew puts it, "Basically, you're just part of the group. You just talk when you want to talk and everything." As part of the group, I don't get any special treatment when I don't understand something. There's an attempt to explain, just as there is for anyone else, but if I still don't 'get it', the conversation moves on without me. In this particular instance, Andrew redirects the discussion by championing the usefulness of a model of talk that David has created and which Andrew is able to study visually, as well as hear about, because of his vantage point beside David.

There are many instances of this sort of supportive behaviour, particularly from Andrew, Joel and Eddie. They are quick to voice their approval of another's ideas, and equally quick to challenge. I am challenged as frequently as anyone, although perhaps a little more gently and indirectly, as in this exchange:

Andrew: Matt goes "I have the answer, not a test for it" and you say "Okay, well wait a second."

Eddie: Yeah, and he never comes back in.

Andrew: Yeah, and you say "Can you think of a test that will help you to determine it?" Were you asking him a question or were you just asking everyone?

Karen: Usually when somebody does that, I'm asking them, but I'm also opening it up to everyone so that the person doesn't feel put on the spot.

Andrew: Cause I was wondering because you asked him like three questions - if those were just telling him that no we don't want your answer right now, or were you actually wanting to ask him those questions?

Karen: I was actually trying to ask him those questions. I don't like to shut somebody down and just say "No, I don't want your answer." I was trying to get him to look at it from a different way, but at the same time I knew that in such a short span of time it's often hard for people to switch gears like that and look at things differently, so I was also kind of asking them of the class.

Andrew: So Matt probably didn't have his hand up after that, right?

Karen: No, he didn't.

I would challenge anyone to identify that dialogue as that of eleven year olds with their teacher. It is truly a conversation of researchers who are genuinely trying to understand the reasons for and the implications of, a particular action. The goal is clear - to understand more about the talk in our classroom - and all are engaged with this goal. Status in the classroom is not an issue; ideas are protected, not personalities or roles.

I had been concerned about status after our first meeting. I was afraid that I'd taken my non-directive injunction too far and had basically divorced myself from the process, inadvertently creating perceptions of my place in the group as that of the observant, and possibly judgemental, teacher. In my journal I wrote, "It's only going to be CO-research if I get with it and behave as a participant, not an observer!" What changed over the course of our meetings - just my perception, or something in the way I was behaving?

To answer this question, I tried first to define my criteria for a successful co-research experience. I decided, soon after the first meeting, that the work could be considered successful only if it were co-developed, co-generative, and of equally committed participation. If it really is to be a CO-research group, I reasoned, my kids should be assuming as much ownership of the group and our work as I do, and should be as involved in the direction that the project would take. Not only would this be a standard expectation of any group of adult co-researchers, and therefore a reasonable expectation for us, but I have also always considered it a criterion of effective knowledge building work and effective inquiry in any area. Work that is meaningful is work that is both cognitively and affectively engaging. It is driven by the participants, beginning with the asking of 'real' questions and continuing through a commitment to staying with them until some personally satisfying understandings are achieved.

Working from the belief that question-response-follow up (IRE/F) is the standard form of classroom teacher-student interaction, while multiple perspectives and connecting responses are necessary for knowledge construction and inquiry, I examined the patterns of interaction across three transcripts. In the first I clearly set up an expectation that each student will be 'heard from' in response to my questions. I invite a student to "start us off", leading the next student to preface his remarks with "Okay, well I'll go now". Although the kids quickly move into a conversation in which they begin to make connections to each other's comments, I maintain control of the dialogue, going so far at the end as to invite each to make a "final comment", and thanking each speaker in turn. It is only in reviewing the transcript and realizing that my students are engaging in knowledge construction behaviours in spite of my clumsiness that I am able to relax and trust that subsequent conversations can be fruitful without being stage managed by me!

In our November and December meetings, I am still the one who asks the majority of questions (a teacher behaviour), but the questions result in a multiplicity of responses, most of the responses connecting to each other rather than to the original question, and many of them leading into interesting issues that are then explored by the group. For example, in our December meeting, Paul observes that, contrary to our statements in November, there is an instance in a whole class transcript of learning through talk that does not involve argument or disagreement. He concludes, "You don't have to argue when you're talking to learn". I make Paul's assumption obvious with my question - "So do you feel, Paul, that there is evidence of learning in this transcript?" Paul responds in the affirmative and gives his reason - "Yes, because people are being open minded and just accepting what people are saying, without really questioning it".

I pursue this:

Karen: Is that learning?

Paul: Yeah, like if they have a question, they'll ask it. But they don't have a question because they understand most of it, so I guess it's learning.

Karen: Okay....Is there any evidence in the transcript to support the idea that people are getting it and they don't have questions, and if they did have questions, they'd have asked them?

At this point the conversation moves beyond Paul and me, as each member offers his view of what was happening and why. Andrew looks for evidence of learning in comparing a student's initial question with his understanding at the end of the class:

Andrew: Well Jared was the initial question. "How come you don't get a silhouette in the mirror? And at the end, his last comment was.... Here. He's got the basic idea, but he still says "I don't really know."

We all recognize that Jared didn't really understand the conversation following his question about why you don't see yourself in a mirror as a silhouette, but instead of just claiming that learning has not occurred, we treat the situation as a problem, moving beyond the data, connecting to statements we've made in other transcripts, in order to determine why Jared didn't understand.

Andrew: (Continuing from above) And from what was before that, being uncertain of what was really asked of him. Maybe he wasn't like listening at best because that kind of explains it. Because by me reading this, I couldn't understand it fully, and with David's experiment (an experiment done to answer Jared's question) it would work. So Jared was probably not listening at his best because just two comments earlier he didn't even know what the question was.

Eddie argues that there's an alternative explanation:

Eddie: In talk you can get lost, and if you got lost in what someone was saying, you might not have got back in until Miss Hume addressed him with a question. And then he might have been

uncertain of what was being asked of him because he might have lost the conversation back when David said something.

Eddie continues, drawing on information from the transcript to support his idea.

Because he says the one thing at the start, and then he doesn't say anything and David and Miss Hume and Joel and Ian and Matt are all in there, and then suddenly he's asked a question and he's just kind of like lost it or something like that. It might not have been that he wasn't listening. It might have just been that he wasn't fully understanding what was said earlier. The conversation progressed so quickly he would have lost it.

Joel supports Eddie's claim, restating the argument in his own words, and adding another transcript reference. David takes the claim that Jared might have become lost in the talk, and offers a different explanation than simply the speed and progress of the conversation.

David: And also he might have felt confused because that's kind of connecting to Eddie and Joel. Because, um, Eddie was saying something about not being able to follow fully perhaps. But, um, do you remember back to the very first transcript, our very first meeting? I think I said something about realizing when you're in the middle of saying something that it's ridiculous or that you forget what you're about to say?

Well, I realized when I was about halfway through explaining that experiment I was giving here (point to section in whole class science transcript). I realized it was self defeating, that the only way it would prove anything; it quite obviously proves it wrong. It's impossible to prove anything.

David had realized at the time of the experiment that it simply wouldn't work but, as he says, "I think I remember that I was going to say that it didn't work, but then I think I didn't get chosen again and I didn't say that." Andrew corrects him, with reference to the transcript - "In comments 19 and 21, David kind of states that nothing would really work. Mostly in comment 19 - 'Everything would be all dark around you so you couldn't see the mirror'".

Andrew's observation that David had tried to correct his mistake and had not been heard takes us into a related, and productive, discussion of how classroom conversations might be handled so that people have the opportunity to make the statements that will be critical to progress, and why those statements, when made, are sometimes ignored by others. This harks back to an argument the boys have made from the beginning, which is that our classroom conversations are often difficult to follow. When they first said this, I didn't understand the problem. I anticipate well; I know my kids and their speech mannerisms and, with my responsibility to 'manage' the talk, I tend to follow discussions very closely. I would have said that our conversations can be very long and frustrating because everyone wants lots of opportunity to speak, but hard to understand? No.

Now, after reviewing whole class transcripts, I agree with my co-researchers. Our talk is difficult to understand. Eddie explains why:

You (meaning 'anyone') focus on the one thing and you kind of get caught in what you're thinking....when you've got your hand up when someone else is talking, you're thinking exactly about what you want to say. So when the person's talking, it's just going in one ear and coming out the other. You're not paying attention to it at all.

As a research group, we are beginning to recognize the dilemma in this. We are thinking that an effective learning conversation looks like a big web with multiple points of entry and many connections. We are pretty sure that this is going to prove superior to the easy-to-follow, but less effective in knowledge construction, linear form of conversation that is often typical of classroom discussion. However, not only is a multi-faceted conversation far more difficult to track, but it is also far more difficult for any member of that conversation to determine whether his or her contribution will be a valid one to make, and it is also going to take a lot of time, leading to "all that talking" that was part of Andrew's initial concern.

Three months into our research work, we begin to try to pinpoint the differences between the frustrating whole class talks that often consist of unrelated or tangentially related comments that take us in circles, and our satisfying and productive research group talks, which also go in circles sometimes, but still seem to lead us somewhere useful:

Eddie: I hardly ever find anything (worth noting) in the class transcripts.

Karen: How come?

Eddie: I don't know. It's just, um, harder for me to find stuff to say.

Andrew: I don't think they talk as focused on the subject.

Near the end of the meeting we pick up the thread again as my colleagues respond to a question about my role in the group:

Paul: You're asking questions and we're answering, but it's on a different level because our answers - you start with one question like "How is talk effective in learning?" - and someone answers, and that leads to another question and so on and so on, until we stand where we are right now. So it's kind of like student and teacher; on a different level though. Our answers are usually making up other questions, unless we start going in circles.

Eddie adds that asking questions of the answers takes everyone into "more and more depth, (so) we come to have a better understanding of it (the question) than when we started". He makes the link, as he did back in October, that a resource is key:

Eddie: The transcripts are a means of like practising, of seeing if our testing- if our theories are actually correct on the transcripts, cause if what we say works in the transcripts and it works in a couple of transcripts...then I think we can pretty much say it's a pretty sound theory, whereas if we have a good theory but when we try to back it up it doesn't work, then we have another, we can say 'Well, that didn't work, but at least we tried.'

Both the content of the discourse and its dialogic form highlight the progressive nature of our work together. In Eddie's comment above, there are echoes of David, Joel, Andrew, Paul, and myself. Ideas surge and resurge through the pages of the transcripts, initiated by one member, but then picked up and modified by another and another until it feels wrong to attribute any idea to a single speaker and, instead, we can conclude that this is something we have constructed together.

That is not to say that participation in the group is equal. Construction of a frequency table shows me that it clearly is not, but all that really says is that frequency of contribution is not a very useful indicator when you are engaged in the construction of knowledge. In any group, even one dedicated to collective progress, there must be a recognition that different members will likely make different kinds of contributions based on their interests and areas of expertise. While I think it's too constricting to suggest that we play roles in a group, perhaps something can be learned from examining the kinds of contributions made by individual members.

Action

A defining characteristic of action research is that it consists of cycles of inquiry where understanding informs practice, and the new practice leads to new understanding (Wells, 1994). I noticed that comments in co-research meetings became increasingly focused on suggestions for action. These action suggestions are of five basic types:

- Class Activity; Frequency=12; Examples: Talk about subjects or do units of interest to most and observe for level of involvement; Split into small groups so people have a chance to say what they want and to argue; Let the class read photocopies of transcripts; Have teacher explain concepts to class more thoroughly
- Presentation by Our Research Group; Frequency=10; Examples: Make a video; Present to small groups; Put questions in video for people to answer; Modify video based on rest of class response and contributions
- Experimentation; Frequency=7; Examples: Transcribe more tapes so we have a large body of data from which to work; Produce a false conversation based on false premises and see what happens; Videotape class during topic of interest and observe for fidgeting, eye contact, body language.
- Our Group's Meetings; Frequency=3; Examples: Change subject when the talk stops being useful; Go back to our original questions when we start to go in circles; Look at more transcripts.
- Transcript Preparation; Frequency=2; Examples: Provide contextual information at beginning of transcript; Learn shorthand.

Andrew makes far more suggestions than anyone else, twice as many as the next most frequent person (David), and four times as many as any of the rest of us. His suggestions cohere around a central issue. He wants more individual ownership, more say over where a conversation is going, more opportunity for everyone to say what they'd like to say and not be disappointed by having someone else say it before them. Andrew believes this can happen if conversations are held in small groups rather than large, so he proposes that both classroom conversations and our ultimate research group presentation be conducted in small groups before any work is done with the whole class. He uses an instance from the end of September science transcript where the

conversation is limited to a few people to support this view. Interestingly, this is one of the few instances of referral to a transcript for support of a recommended action. Initially surprising, it seems less so when we realize that action research decisions are based on the researcher's theory which is in turn related to a buildup of evidence, a development of ideas over time, rather than to specific isolated events. This is certainly true for Andrew, whose ideas are so internally consistent that I believe he is working from a theoretical framework.

The same is true of David, although David adopts a more strongly experimental approach, consistent with his approach to all subjects. David's language is a language of research - "We could watch what people do and how they get involved". "Let's look at our work as multiple drafts, modifying after each response from others." As with Andrew, there is tremendous internal consistency in David's responses, suggesting that he is also working from theory rather than simply responding to specific events.

Joel, Eddie, Paul, and I have made far fewer action suggestions so far, making it difficult to discuss our frameworks, or the kinds of contributions we offer, with any degree of certainty. I should note, however, that there are suggestions of actions to be taken that will further our research, and there are also actions that we take that demonstrate our commitment to the group and our ownership of the process. In this latter category, all members have played an active role. It still amazes me that everyone meets willingly at lunch time, with advance work done and in hand. If only that were the case for all action research groups! It impresses me that our language is that of a collective. Any one of us might say, "We need to meet soon". And finally, it thrills me that involvement in the research is, at the group's initiative, seeping beyond the boundaries of our group and our meetings. From the time in November when Eddie came to our meeting with his copy of the transcript marked 'Eddie and Company' and nonchalantly informed us that he and his mom "read it together, and I think she might have wrote down some of the stuff that is in here", through Andrew's mom confessing that she'd read a meeting transcript because Andrew asked her to, but then couldn't put it down, to the two hour presentation that we gave to one hundred student teachers, the interest of others in our work has been most gratifying.

But, while we enjoy the approval of others, and we feel the awareness of our "own intelligence, our power to create" that I had hoped for at the beginning of the year, as a teacher researcher I am left with the big question - Why? Why is this co-research activity working so well? And perhaps more importantly, what will this work mean to anyone else in the world, or even to our class in the months ahead?

I initially viewed the activity of co-research as likely to be important for the achievement of two of my classroom goals: building community by stressing the involvement of all in defining and solving classroom problems, and engaging my students in an activity of theorizing and evidence seeking that would reinforce and justify our use of these skills in other subject areas. As a teacher I expected new learnings about my students by engaging in this process, but not new learnings about talk or the strategies of action research and knowledge construction. However, early as it is in the process, I believe there have already been some significant learnings about how co-research of a classroom issue can contribute to the development of any classroom knowledge building activity.

Interim Conclusions

Prior to this experience with my co-researchers, I had viewed knowledge building as a particularly effective way to acquaint students with the discourse practices and knowledge requirements of the various disciplines. That was why I originally panicked and felt that perhaps I should teach the standards of action research before we could begin to examine transcripts. And because my prior knowledge building experiences had been in two distinctly different disciplines, each with its own particular set of discourse and evidentiary requirements, I had assumed that knowledge building around an action research issue would be unique; that there would be no cross-pollination of ideas or processes from other subject areas or other experiences in my students' lives.

What I have found is that my early attitude of 'benign neglect', born of not knowing how to set up or manage the actions of our group, combined with the fact that this was a new experience for all members, has allowed us a virtually unfettered experience of knowledge building, in some ways quite unlike our earlier experiences in history and science. Our co-research group has created useful research processes that are resulting in our making substantial progress in addressing the issues with which we are concerned. These processes have not been created in a vacuum. Instead, my students have done what we always hope students will do. They have taken the knowledge construction skills that we developed in other areas of the curriculum, and they have appropriated these for use in our action research work, transforming and creating as necessary to the new situation. For the first time, I see the potential of knowledge building as an act of creative transformation of practice rather than strictly one of socialization into our cultural heritage. The 'power' of knowledge building that I alluded to earlier is that it fulfills both functions extremely well, and often simultaneously.

One of the difficulties of knowledge building in the classroom is that of finding the questions that students really want to answer. So often we think we've found them, as do our students, but they end up not having the mass appeal, the generativity, or the longevity that we had hoped. Action research questions are different. They are about who we are, how we live together, and how we learn. Addressing these questions is deeply satisfying because we are the only ones who can address them. We can create knowledge that is genuinely new, particular to us, and of great fascination. At the same time, we can take action and in the process change both ourselves and our environment. We can see ourselves grow.

In co-researching the value of class discussions, my student colleagues and I have learned a great deal that will allow us to take action and become different. We have recognized the difficulty of tracking and maintaining conversations that encourage multiple points of entry and a wide variety of perspectives, while at the same time we've seen evidence of learning and stronger individual interest in the topic when we have such conversations. We've decided that some problems that occur in class conversation aren't always a result of 'not listening' - as teachers tend to tell students - but rather that it's easy to get lost in the talk if you don't have lots of opportunity to 'say' in order to learn and in order to feel part of the interactional dynamics of the classroom.

Our 'interim conclusions' provide us with wonderful opportunities to take action. This year we're going to try more small group conversations prior to those with the whole class, and in our small

group conversations we're going to deliberately ask questions of the answers and comments that are given to see if we can develop more focus on the topic at hand and greater depth in our talk about it. Like researchers everywhere, we're approaching our work this year in a spirit of inquiry. We'll test out our predictions in the daily life of our classroom, stay close to the data in analysing what's really happening, and begin additional cycles of predicting and testing as a result of our analysis.

When students become involved in knowledge building around action research issues they have the opportunity, likely for the first time, to experience the connection between knowledge and development, both individual and collective. I think that this cannot help but change their understanding of the nature of knowledge, helping them to recognize it as an object that can be continually improved through their active participation. When groups of students have this experience, the possibility exists for the creation of vital knowledge building communities which may, by example, transform the way we think about teaching, learning, and school.

Until that time comes, I predict that my class will continue to profit, at a very local level, from our own particular research findings and that we will continue to develop and refine a model of co-research that works for us and that may, ultimately, be appropriated and transformed by others. Into this process we invite the voices of people beyond the walls of our classroom. in particular, we hope that readers of this article will enter into the conversation with us, contributing their experiences, their questions, comments, and disagreements. We welcome your perspectives and invite you to join us, not simply in continuing, but in enriching the process of collective knowledge building.

References

1. Bereiter, Carl (1994) Implications of Postmodernism for Science, or Science as Progressive Discourse. Educational Psychologist 29(1):3-12.
2. Maguire, Patricia (1987) Doing Participatory Research: A Feminist Approach. Amherst, Massachusetts: The Center for International Education, University of Massachusetts.
3. Wells, Gordon (1994) Introduction: Teacher Research and Educational Change. In Gordon Wells et al. Changing Schools from Within. Toronto: OISE Press/ Portsmouth, NH: Heinemann, pp. 1-35.
4. Whyte, William Foote, ed. (1991) Participatory Action Research. London: Sage Publications.