

Arthur + Morris (researchers), Bella and Cassie (teachers)

- C: My voice, I didn't think I was so good as that. Like modulating, stopping and pausing. That was better than I thought it was, I was just gonna talk. There was a whole lot of that kind. So I was impressed with that. It was really neat with the videotape, to be able to see how there are things happening in the classroom that I can't see, that I don't know that they are happening, and that's what we talked about the other day, about walking around the classroom more, you know that was kind of, that had already twigged on that, and I really noticed that no that I watched the tape, yeah, there is not enough teacher movement when I am not using the board, to get away from the board, so that was one thing that I was struck with.
- A: You were saying that you were surprised to find your pacing, pausing, and stuff like that to be so good, so you are saying that when you watch yourself in the classroom, you are not who you thought you were?
- C: Yeah, it was different. I thought I was more boring to look at, and I thought I was quite, interesting 12:46, I was interested in looking at myself in a positive way, because it was me, but I thought no, that was someone that would attract your attention, and you'd want to look at. That was more than I thought.
- B: That is interesting that you should pick that out because that's one thing that I picked up from you, is that animation, 'cause I know that in my own teaching I tend to be sort of monotone in my voice more than you are
- C: well I noticed that ???
- B: I noticed I am starting to use the hands and the face, and to slow down, I've learned that from you for sure, 'cause sometimes=
- A: =So you found the same thing
- B: Yes definitely
- A: So you watched yourself on tape, and you found that you were a different person than you thought
- B: yes, yes, very much so. I used my eyes a lot more than I thought to, and I think sometimes i don't stop and figure out whether the kids have heard what I said before I go on
- C: I am not, that is harder than
- B: and not attuned with the kids as much I think you are, just being able to see in their faces if they got it and then if they don't, ask them more questions around it 12:47 it helps, because of having an agenda about the content
- C: well I think I even said that about myself last night, so may be that is something that we are always doing as teachers, that you don't feel like you are giving, because I know this morning, I really did that well; because I noticed it on the tape last night that there was one time when I was so into my agenda in giving my directions that I didn't notice what was going on around the class. So, I guess when you notice it, you are into it more and then you kind of shift away from it again until you notice it again. I was really impressed with how you learned the names really fast, because it was right in the beginning, and you knew every kids' name, and it was really helpful, like I used to kind of complement them for what I taught them which is eyes on me and the hands still and that kind of thing, but you've always, you are always good, like when someone is sitting, I know it sounds really

stupid 12:48 but that's sentence has been helpful to me more than once, this, and you brought that into my vocabulary; I wouldn't ever have used it unless somebody else had come into the classroom and said that, and I know that over time, you just have helped me with words like that, and Bella another thing that I was so impressed with how you, and I told you that many times, how you extend the ideas. I mean that thing, the good questions that Bella thinks about and asks; it is phenomenal, it is like blew me right at the head

B: yeah, I think a lot of it has to do with being really familiar with the content, and knowing what they can do and being comfortable with that, and I have learned that only with experience with this unit. I didn't used to have that.

C: Well,

B: "Cause I used to sort of say, OK, like Daniel (DD) today, I learned something from you about that

C: yeah, that's true, that's interesting wasn't it, that was really an interesting encounter

B: the situation

M: Can you elaborate on that? 12:49 Because Arthur and I haven't been there

C: So bridges were being built, a tooth pick bridge was built, a straight bar of tooth picks, popsicle sticks, straight across about this wide (20 cm) with a couple of braces taped around it, more than one layer of popsicle sticks, it spanned a gap about this big. One made it in about 5 minutes. Somewhat low achieving, well really low achieving, he is going to another center with 5 kids for one teacher, for about 3 months, on Monday. He made this thing, and what Bella and I have been working together on is to try to ask questions to pull out more, from the kids; you always wind up pull out more; I just write something down to talk about later; so he was, Bella had asked him some questions and he had changed something underneath to make it stronger and I sort of came in and didn't know what she had talked about, and she was trying to get him to think about building a top on the bridge, and, because I knew the kid better than Bella did, I wanted to stop, because I thought this was enough for that kid 12:50, I thought he had done this magnificent thing, I didn't think he should do another thing to it, he is really proud of it, it carried weight that's what we asked them to make it to do; and it just needed to stop then, and I probably could judge that way quicker because I know the kid so much better than you do. But on the other hand, what we 've been trying so hard to do is to extend that thinking, and it is hard to draw a fine line between extending the thinking and putting them down almost because, you are this powerful person you are the authority figure, and if you say that it's not, I saw it in my face on the video, you know like, so, what are you gonna do next? Or, it's just really, I call it teutonic excuse me, we are both German,

B: what does that mean?

C: It's kind of overbearing and it's kind of, it's very powerful, and it's only a stance 12:51, and it's not a word spoken, it's not even a facial impression, but that's not good enough; without saying a word. And I think I have to be really careful and that's another thin I noticed on the video last night that I did at one point, it was with the tower that Tyler and Serge and Adam are building, I used that horrible sort of stature at that time, and I thought about that today, is this what we are doing, are we being this power figure that is saying that is not OK. So it's just such a fine line.

- B: well was interesting for me out of this situation, I have been working really hard at my question
- C: bringing out the questioning
- B: but I think sometimes, I am taking it too far, in other words,
- C: not often though
- B: just stopping and making a balance, between he had used a number of wonderful techniques in this bridge; and just because he had built it quickly, you know
- C: you felt that you needed more
- B: why does it have to be more? I guess I was trying to feel out whether he was interested in it, 'cause sometimes they are interested and just not sure
- C: Yeah, if I had hadn't come 12:52 you probably would have done the same thing, just quickly
- B: yeah, that's right
- C: and I sort of barged in and did it
- B: I really feel that it is important not to force it; if they really don't want to build a bigger or whatever, that's fine; what I learned from you is that sometimes I did have too high of an expectation about where to take it. you know, like sometimes, especially for kid like Daniel that you did know is struggling you know in some other areas, being really in tune with that, and celebrating the small successes they have made, like the successes he's made might be different than someone else in the class
- C: exactly
- B: and he did have a cantilever in that bridge
- C: amazing
- B: which is a rare concept that not a lot of kids get
- C: and the braces, not the braces underneath, but the braces sideways, I mean, it was a lot of thought
- B: and when I questioned him about which part he thought would go first if it was tested, he was right on, like he knew that those foundations on the side would give out first, so I asked, how might you prevent that from happening so we can make it longer? 12:53 But he wasn't really interested in doing that at that point. You know, you said you would say to him he would have another opportunity to do another bridge rather than to modify that one
- C: and he really took off with that too
- B: and he was really excited, oh and he didn't want to have any other materials he loved the picks and tape
- M: he chose different materials, didn't he (SCRATCHING HIS HEAD)
- C: straws, but he still used the tape, cause the tape was what he liked, he said, 'I love this tape'
- A: isn't that interesting, I know lots of kids who love tape, they just love tape (SCRATCHING HIS HEAD, the same way)
- C: isn't that funny, neat
- A: a couple of kids I taught a few summers ago, I mean, give 'em a roll of tape and they used to be happy for hours, they would just ... and wrap, you know
- C: isn't that funny, and Daniel W. I remember he got right into the tape, and I said no, sorry dear, you gonna have to use a little less tape than that 12:54 he's a kid that I

find, and it is interesting because his father is very strange and very powerful, and uses his temper and so on, but I noticed he just shrinks when I have that pose that I was talking about, that sort of powerful, Teutonic

A: Teutonic?

M: Teutonic

C: German, you know it's kind of

M: t e u t o n i c, Teutonic, it is a German tribe, and it is sort of the word stands for meaning overbearing, because they were

C: overbearing, yeah

A: oppressing

C: not oppressive, more overbearing, not violent, more verbally, and

A: do you recognize, if you saw what Cassie would call 12:55 Teutonic, would you recognize it?

B: sure, yeah, I think I would, for sure, and I know I do it too in some ways, may be in a different way that you do

C: that's right

B: that's mostly when I am really excited, and I have my own agenda about what I want, it is this, like you come around like with this big presence, I've seen this in Ontario, when I watched myself being videotaped questioning a little child, he was a grade 2 child, and he was really quiet, I was like you are brainstorming, and I was like, yeah that's great, and I was yelling in his ear, and I physically saw this little kid to have withdrawing

C: it makes a kid withdraw

B: and I this big person

C: it makes shrink, they don't yeah, and I saw it with Daniel W. today, I was making him shrink, I did it like 3 or 4 times, he did things wrong, he deserved to shrink, he hadn't done what I had asked at certain points, but then it carried over, then at one time when I wasn't, we had finished with my shrinking of him so that he did what he did, he continued to shrink when I talked to him.

C: that was really interesting for me, this morning with DW, you have now idea 12:56 of, because you were not in the class for it, it mostly happened between recess and lunch; it was fascinating. and it happened with Serge, with Adam in that picture at that time; and

M: but did you feel today you were aware of it because you looked at yourself yesterday?

C: yeah

A: where does that come from. To me it is fascinating idea, you look at yourself on videotape, and I am the same way when I look at myself on videotape, and I find I am not the person I think I was, I mean despite all of the articulated reasons, theories, pedagogical perspectives and so on that I think I carry with me, right, all of that intellectual stuff

C: it is not an intellectual kind of thing 12:57, I think it is kind of an energy aura, I mean you may not be aware, but I think it is a non-visible non-tangible

A: non-articulated. Where does it come from? Like? Even such things as Teutonic

C: from my family, you know overbearing, I want things to go my way, that's me; and things go my way, because

- B: I think we all have some kind of, we all have a presence, and we impact on others, whether or not we are overbearing or not
- C: I don't think I am overbearing, it's just something, I am just a little wee tiny bit that I noticed and that I know about myself
- B: that's right, we change our presence with different people, and part of it is that we impact on someone, so students, even in different ways, overbearing might be one way, but another way might be the opposite of that, like allowing 12:58 a child sort of take over you, they negotiate with you
- C: yeah exactly especially those kids, those kids they just come at you, they are so keen, you have 6 of them at you at once, and you really have to draw that line
- B: and some of it is a set up, as the teacher in the classroom, seen as sort of the, you know, an authority figure, some of that might be the traditional set up, what a teacher is
- C: in their minds, before they even come into contact with you, just the one teacher
- B: how the parents talk about a teacher, how others, how they see it on TV, they have an idea of that, oh you are supposed to do what the teacher says
- A: so the general sociological influences
- C: definitely
- A: and that come not just from you, and you are saying that perhaps others perception shape you
- B: yeah, yeah; not necessarily shape you, but they affect the way a student would react with you 12:59; like you are automatically put in a role whether or not you want to be put in that role
- C: and they see you through their eyes at that role
- B: I don't know, I am just brainstorming about it
- C: yeah, no, I am sure
- A: the influence of your family and so on
- C: there are so many
- B: is this the way
- A: have you spoken about how you influenced each other
- C: oh, unbelievably, I thought it was neat today, the kids were going, Bella, Bella, see they like her questioning better than mine, they are asking her all the quest; and this is neat, because you just hear, Bella, Bella, come over here
- M: the funny things was, Daniel D comes to me and says, Bella, Bella, ahhh (having addressed me as Bella)
- A: were you Bella at that point, too.
- M: ahm, not usually, I sort,
- C: at that point
- M: not at that point 1:00 when I worked elsewhere, I actually asked kids, but here, I really
- C: you sort of separated, and did not do that
- M: I already did that kind of camera work before, but what I wanted to do is more, look at it
- C: yeah, you have to separate yourself

- M: instead of getting involved by asking kids, or asking kids only if there was some piece of information I needed. But I haven't done the kind of work that you have done
- C: No, because it is such different stuff, because he has to separate himself, to see the whole picture kind of, and then look at the individual pictures on the video, later on, and get individual things from us, but that way he does see the whole picture, because if he was focusing on these little interactions, he wouldn't be, I feel he wouldn't get as much of the whole picture.
- M: I would like to understand what's happening from the child's perspective, if I start asking questions, if I engage in the teaching (1:01) situation, then I feel I am too much in the teaching, and I can't make that step back to see the world with the kids' eyes. At the same time, I would like to understand it from Cassie's and Bella's perspective, as I am trying to listen to them, rather than trying to focus on
- C: what you think
- M: being, interacting on a pedagogical level with the kids. And I only can do that if I
- C: You really actually physically stand back, he really moves back, because it is so different, Morris was in my classroom in the spring, I mean he jumped in and with the kids, and it was so different interactions, he was with the kids, interested in the kids, the kids were interested in what he was doing in the class, and, you know, he was a welcome member, no he is not... well he is seen as a welcome member because of the video and the interest with the camera, but certainly not in any kind of pedagogical sense, whereas last year, it was quite different
- M: before I came into this class (1:02) to videotape, I became a member of the class in some sense, by coming in on Tuesdays
- C: as a member, there is no question about that
- M: and participating actively in their drama activities, in Marylin's class, so I was sitting there, and I told my part of the story, and I did my activities, and I had a partner,
- C: Oh yeah, so part of the class, there is no question about that
- M: so thinking about what's going on, I removed myself a little bit, which is a pity as a teacher, I want to mug about, but
- C: yeah, just kind of
- B: yeah, I struggled with that too, my first inclination was to go there, and 'cause, because especially because I am familiar with the content a lot, and I think that the kids come to me about the content,
- C: you know what I say sometimes, I realize that, I say, 'ask Bella'
- B: yeah, I am the same
- C: 'cause, I have never done it before (1:03), it's not common, I am not as good in it, and usually I have an answer, I just go fine, and sometimes I wonder what she would say about that, I am interested to know and I say, go ask her
- B: it's part how we set that up, we've been often, you have asked me in front of the kids about some concepts, so there is an atmosphere in and around the content, but I do think that they have adopted us both in different ways
- C: that is true

- B: you know that a lot of the cooperative skills that they need in order to make a structure work they come to you for, you know, I can't work this out, like Brittany and Melissa, they know
- C: Oh yeah, probably they don't go to you for that
- B: no, nothing related to what do you call that
- M: group skills
- B: yeah group skills, collaborative skills
- A: social skills
- B: yeah, like something is wrong, (1:04) and needing empathy and sympathy and that sort of thing
- C: yeah, I wouldn't see that
- B: we have taken different roles, with it which in some ways is a bit artificial and Morris and I were talking about this how you know if I wasn't in that classroom, you would answer those questions, and you would do it in your own ways
- C: that's right
- B: as you would
- C: we were talking about that too, I don't know if it was with you (BW) or the two teachers, really 3 teachers were watching today, but 2 of them we talked when we talked at the end, it is very artificial, there are two teachers in that classroom at all times that we are doing that science, and what has come out of that, grown out of that is so phenomenal first of all because, I was saying to Morris that morning I wanted to make sure that you heard, Morris said you were the one who showed the structures unit as a good starting point and I can't reiterate that enough, so did you suggest Morris that this was a good one to use, 'cause it just extends the thinking in such an incredible, I have never seen a science unit that extends the (1:05) kids thinking and I think part of it is that Bella is in the room helping me do it, and I think part of it is the unit is just so, so multi-faceted so, I thought that was neat that you put those, I thought that was a
- A: I think that was a joint decision
- C: yeah, that was neat, it was such a quality,, 'cause you could have come in like Cynthia did it when I was doing the bridges, and you wouldn't have half, a quarter a tenth of the information that you have now, 'cause Cynthia's filming during the whole bridges thing, it was, it was I don't know, it was kind of here (low) and this is way up here (over the head), as far as divergent thinking skills, exploring more things, problem solving, you know (1:06) that whole loom synthesis, evaluation, reformulating ideas, and that kind of thing, I guess when you go on, you probably pick other things that are like that too, you know, instead of biology which I tended to do in the past because it is my interest, you know, but it is very limiting, in thought, you cannot do more than create a new animal, you know, that is not a whole lot, you are looking at things, and doing a lot of sciencing skills, but you are not extending the thinking in such an incredible way as this unit does, so I am in heaven, I am thrilled that it all have landed
- B: I wanted to add to that that a lot of success we found in your classroom has to do with your approach with the kids, the cooperative group stuff for one, I have seen the same unit and taught it myself (1:07), where that wasn't in place as much as in your classroom, and it hasn't hardly been anyone fighting or not getting along, they

- C: 10:45, Brittany and Shannon, it's my turn, it's my turn, and Jordan comes out, I know it's her turn, and someone else comes out, you should have just seen it, it was wild, I just sat and watched, i was so dumbfounded, it as so amazing, can you guys separate, I don't know what to say
- M: you were talking about the different roles that you play, but also how you interact, and it struck me, may be it hasn't looked at
- C: at that part of it
- M: on the two of you working, how you interact, but the two teachers, Nancy and Janice who were here this morning, this was one of the first thing they said (1:08), how you
- C: because they are elementary teachers, they know what goes on in the classroom
- M: how you have the visual, how you checked with Bella, you say something and you checked visually with Bella, and Bella does something with the class, and then visually checks with you if it is OK,
- C: we didn't know we did that, right
- B: I know, I know
- M: like the two teachers, both of them
- C: noticed it
- M: noticed it
- B: yeah, I thought that was really neat, well this morning when we were questioning, did you notice how I asked the kids to answer and then you were, I noticed this we were standing next to each other, and were looking out of the corner of our eyes, and we just sort of knew to alternated like that without having spoken about it
- C: well, we are just lucky, Bella and I, because we've just clicked, it has just been a perfect click, it has been nice, it has been so rewarding
- B: so wonderful, getting back to cooperative skills though, I think that is something that you do really well, in that classroom and it is, stopping like, for example, yesterday afternoon we tried to do that gym activity we (1:09) were trying to do a neat activity that I have never tried before but I've wanted to do it, and Cassie was keen to try it, and it is putting the kids through stations in the gym from the book what it feels like to be a building, I don't know i you know it, it feels like squashed to be a column, it feels like drooped to be a korbel, it feels like stretched to be a beam, etcetera, so they had to go around and put their bodies in these shapes, and we had the pictures up but 5 minutes into it, the kids were really high, and they weren't being safe, and if I've had been alone with it, I might have forced it more than you did, but you just called them together and said, look I am not comfortable going on in this way and the kids knew, you know, but it was drawing that line, and
- C: we stopped, so I gave it another chance actually, I gave it some time, and I said let's think about it, and some of them were still fooling around, and I (1:10), and I talked, but they weren't even listening, there is no way, so we just left the gym and finished the PE period here
- B: but it's those kind of teaching skills that are critical to this, you know
- C: but I think most teacher's would
- B: well, I think may be you might take it for granted, because in my own teaching I don't often do that, may be some other teachers who have taught more than I have, they would have those sorts of things down more, I really notice how, if you don't,



if you don't know when to stop, or when to talk to them about it encouraging participation, or the other thing, I was thinking that is really important, how you draw out from the kids, to compliment each other, rather than you always being the one, be the one complimenting the kids, you've let go of that, and the kids ask each other question, they complement each other, they talk about the techniques, rather than I always, I have often played the role of being the one to pull that out, but they can do that for each other, and I think that is what you are really good at doing

- C: and that's true (1:11), I never thought about that
- B: the modeling happen, where kids will model your questions
- C: wasn't that great with Meaghan, yesterday, it was great
- A: what was that?
- M: We have a number of instances where the kids ask Bella's or Cassie's questions
- C: but good questions, this is not just how did you do that, this is what
- S: what was your problem
- C: these are 4th level thinking questions, what was the very most difficult part of this, how could you do this differently, I mean really thoughtful questions
- M: what did you do when you had this problem?
- C: this problem
- B: how did you solve this,
- C: Meaghan
- B: what was it that she said
- S: what was your problem?
- C: what was the most difficult thing you did and how did you solve it?
- B: we see it from her and from Salfi
- C: Salfi, wasn't that go, that was 2 weeks ago, and Persia today, wasn't she different today, or was it just me that I haven't noticed this in the past
- B: no, I noticed this too, she was a lot more verbal, and ?
- C: you know what she was like this, in the beginning, and I always do my little look around, and that is one thing I do well, I wait for the kids to answer question, like I give lots of time, and I take another look around the classroom, and then I look at the one that has the hand like this (tentative), and Persia was that one, and so then when she answered one question quite well, she missed out part of it but somebody filled it in, and then she had her hand up for every single question, and I swear, she answers question, her concept of herself, she had no idea, that this was a real difference today, because when I talked to her about it, oh, isn't that what I am always like? She had no (1:13) concept that it was quite different, so that's why asked you guys, did you noticed it too, or was it just me
- B: no I did notice it, 'cause I looked at the kids that seemingly slip through
- C: the 2 teachers in the class today, there was real gender stuff that came out today, they noticed who the smart boys were, and I asked who are the smart girls, I know they didn't answer any question, and I know, I draw girls out to answer questions, I know I do, and
- B: so what you are saying is that they knew who the smart boys were, but they didn't know who the smart girls were? interesting
- C: and they said, like then I was, that the boys always answered the questions, that was their perception of what happened, though I would say if we looked at it, when you

- look at it later, it is probably 50:50, i would say, but I'd be interested (1:14) to know if it wasn't, I'd really know that, actually, 'cause if my perception is that I was doing it 50:50, and I am still not, I'd like to know that, but
- B: I'd like to know that from today, I looked at other videotape, with that question in mind, and I don't know if you read in my notes, I did struggle in a couple of instances, where I did ask more boys
- M: you guys did have a conversation remember, a long time ago, I had counted, just counted, 5 boys before there was a girl, and there was a lot, and Bella and I had talked about, and it is not to put her down, but Bella had talked about gender being an issue, and she is a person, a teacher who is aware of that,
- C: aware, and she made me aware
- M: and yet it doesn't happen
- B: but I did struggle, because a lot of kids who put their hands up first are Travis, Jordan, Tyler
- C: but you know, I did make a point (1:15) in my mind, I never ask the person who puts the hand up first, unless you know sometimes i do, there is, but I really try not to, that is something I don't do
- B: and I had to consciously do that as well
- C: but I do a conscious effort, isn't that amazing,
- B: but you know the thing, I have struggled with that, was a teacher, when I do ask a girl, OK, when there are 5 boys with their hands up, and they are real keeners, pick me, pick me, and the girls have like have their hands out,
- C: like Persia, Persia had her hand up like this
- B: or Robin
- C: Robin
- B: she waved,
- S: today she was like that
- C: she waved, I saw that, and I called on her, it got my attention, she waved, and this girl did not put her hand up and does not speak in front of the group
- A: I know I know what you are talking about
- C: and the mother was very concerned about her having to work in cooperative situation, because she knew that her child found it difficult and was very concerned and hoped that she wouldn't have to much problem
- B: Is that right, and that's probably (1:16)
- C: well she was worried for her daughter, you know, because she saw it as a difficulty for her, and instead of taking that parenting role as she really should, how can we overcome this, she was like
- B: I think that
- A: is that the girl (hunches), what's her name again
- C: Robyn, she is blond, short little bangs
- B: she is very bright
- C: very very bright, extraordinary reader,
- A: and she wants to say things, but she can
- C: you should see her body language, she wants to say something, (hhhhhhhh) (gets up and imitates)
- M: you know

- S: like that (imitates)
- C: and it is just horrendous
- M: we were transcribing a tape, and I didn't know who was the next person, and I heard hhhhh, and I said, Robyn, and in a second Robyn comes into the picture, and you already see her, and we talked about it, remember the one day, Robyn sits there, and noone noticed her
- C: but today she waved
- B: did you talk to her about that
- M: no, I didn't
- B: so this waving didn't come out of anyone
- C: No, I talked to her
- B: So this is the question I have, I have felt uncomfortable in a whole class setting when there are 5 boys with their hands up, consciously asking girls, and you know that I do that, right, Cara what do you think about that
- C: she is the girl that never gets her hand up
- B: I know, but you know, my struggle is there is something going on with me about relating to that girl, I feel uncomfortable, I have a real hard time with my wait time, I have to consciously count to 5
- C: sure, I consciously do my 3 circles around the classroom, one's visual circle, 2 visual circle, that's what I do, 3 visual circles,
- B: but I guess my question is, is it right to put girls on the spot in front of the class like that, or are there other ways to draw them out that they are more comfortable being drawn out in, like, part of it (1:18) is what we are talking about is what we value in our teaching, we value kids that have their hands up, and
- C: well we value kids' ideas, have you ever asked a girl and she didn't have an answer?
- B: yeah
- C: and then what did she say?
- B: I asked another question, usually, to pull her out and this is what I find myself doing, with the girls, more than I do it with the boys, and I think it has to do with I was like a Robyn when I was in class, I was very quiet, I hated speaking in front of a large group, much more I hated presenting in front of a large group, and I don't know, I guess I am just asking a question as a teacher, i want them to be able to feel comfortable doing that, but I also, that we can learn in all those different learning styles is important, but it's, may be the boys are more comfortable speaking in front of a group than the girls, I don't know
- C: do you feel like you are disabling the girls by doing that, like you must feel that when you were a kid that you were made fun of, or (1:19) you were put down, or you were made to feel badly, because you didn't talk, and I really don't feel that you or I do that, because I think that we watch the kids enough, like I don't think we put Robyn on the spot, like when we do that, I don't think she has a bigger hhhhhh than before, you know, that's my general gut reaction, but I don't know, may be I am kind of using blinders, and we are just terribly hurting some little girl's feelings by calling on her, especially like Cara and
- B: no, I don't think so I think it is probably my own issue
- C: I don't think so either

- B: I do relate to that little girl, and I feel uncomfortable and I do jump in to help her more probably than I do
- C: than you would a boy
- B: yeah, like I would may be not, I guess what I am saying is it is more difficult with her then it would be with Jordan, for example, I feel a lot more comfortable giving him 5 seconds to respond, then with Robyn, like I can see her uncomfortableness (1:20) sort of squirming, and Cara is another one, that I have watched
- C: yeah, Cara
- B: and I feel really nervous too, you know
- C: I, you are right, I noticed it on the tape that I watched last night, Robyn was working with Meaghan, quite an easy speaking girl, Robyn started the explanation, they were sharing something, we weren't complimenting we were just sharing a technique or something they have done; I can't remember what it was, but she went with Meaghan, anyways, Robyn did one sentence, and my comment was, would you like to help her out, Meaghan? or you know, I got her off the hook really fast, and I, remember when I did that, when I watched that last night, it went through my mind like, what would have been the best thing to do in that case, would have it been good to let her go on, and really struggle, and get it out, or would it have been, was it good to jump in for the efficacy (1:21) I don't know what word you take for the flow, you know, the flow, to keep a class going, the other person to respond, you are always under that time constraint, I don't know
- B: you know when you do put them into small groups, I tested out a couple of ideas, one is the having a small group of all girls together and questioning that group, and I find the girls are more likely to speak up there,
- C: in front of
- B: in a small group with the same sex, like when you just have the three girls, Cara, Jacqueline, and who was the other one, Katy, they were, like you couldn't shut them up, mostly Katie, but Jacqueline as well, and Cara more so, and she would speak, oh no, one-on-one, when you speak to Robyn, it's no problem, like she speaks
- C: beautiful language,
- B: yeah, she is
- C: she is articulate,
- B: yeah. so, and I don't know how to answer to this
- C: and remember, it wasn't Robyn speaking in front of the class about her being, she was very (1:22), articulate, she was very comfortable, so
- B: may be it was because she had something to say, though,
- C: yeah, it was
- B: she chose to go up there and say something, whereas when we ask a question, she might not, may be it has to do with risk, you know, like if the question is really risky for her, she doesn't that she is going to be right, I don't know
- M: in that situation where she was sort of where she might have felt on the spot was, there was one of the presentations, may be it was the presentation with the tower, and it was the first day of the tower,
- C: Meaghan?

- M: yeah, with Meaghan, and you asked her, Robyn you hadn't made a positive comment yet (
- C: did I say that?
- B: a compliment
- M: or compliment
- C: but I might call it a positive comment,
- M: and so, then she went, hhhmm (1:23) and it was along time, and then she thought of something, I was thinking what might she have felt now, did she not from her position,
- C: yeah, and being a teacher, I would just do it without even thinking about that, without you know, that situation occurred once, and 5 minutes had gone by, and without knowing how she felt, so what was your feeling
- M: I can't say you know, because as a teacher that I know I want to address students, and ask them to contribute, but I find that even in my graduate courses, there are some people who don't like it, there are some graduate students who don't want to speak up in a large group as soon as they get together with 4 5 others, and me coming in there, they talk like
- C: it got to be the safeness, though, 'cause when I think of myself, in university in any course that I took, i would have never spoken out loud in a large group (1:24), and probably in a small group I wouldn't have said much, and it's only when that confidence level starts to really grow you open your mouth, and I think you know, we are trying to make a classroom that just encourages positive comments all the time, I mean, who was it, that made some weird comment today, Daniel D or something? And just instantly that was it, you shut up kid, and I told him so, in no unclear words, you don't say those kind of things in our class, so I think that is a kind of positive classroom atmosphere, that most teachers try and make that, they can, feel save then to respond, that's probably why we see, Robyn responding more than at the beginning of the year, 'cause she knows that nobody is jumping at her for stupidity or
- B: that's a good point, that she's grown in that
- C: she has, a lot
- A: I was wondering if there is anything that we can watch (1:25) you said that you were something
- M: is there something that you thought, we have that thing that goes through really quickly
- C: at home it went really slowly, I had to do the dishes waiting for it to get through, well there is I don't know, do you (BW) have any thoughts on that, well, what is the purpose of you wanting to watch it
- A: I was just thinking that the conversation here is really rich, and I just would love to see some other things that you were talking about
- B: because you hadn't been involved as much in the classroom
- C: yeah, well, you probably might just see something where you're panning the camera around, the kids working on their things, and us going around, I don't know
- A: we talking about so many things, but for example, you mentioned where you recognized that you picked things up from each other, it would be interesting to see some of those things (1:26)

- B: do we have those tapes
- M: I have one tape here, I know, ...
- C: we come in here at 9 o'clock in the morning, we had sort of like 10 minute phone call what we are going to do, and we just whipped sort of through the morning, and they always go extremely well, and it is amazing, I mean, OK, you are doing this part, I do this part, I mean this morning I said you are gonna do that, Bella said 'yeah', and I ended up doing it, I mean, it just kind of happened, it is just amazing, I don't know, I think it is better than Marilyn and me, when Marilyn and I where in the room together, like the first 2 or 3 days of school Marilyn and I were in the room together, and may be it's, and may be it's that our ways we really complement each other, you kind of and I Marilyn and I are a lot like that, because we have to be with what we do as a teacher, (1:27) she is better at record keeping, I am better at the cuddly warm sweet mommy, you know, I am the one they come to for that kind, we have our strengths, it is interesting when we are in the classroom together, we seem to have established some sort of a really good working relationship, it's not just kind of your average one, and I'd say, yeah, it is probably better than with Marilyn, and we've worked together for 5 years, and we worked really well together,
- B: well, I find that too, that there is often a time we don't have to speak about, we just know what's really going to happen, which is really odd for me, because I usually have to do a lot more
- C: yeah, that's really true
- B: like last night, for example, or whatever night it was we were talking about the bridges, and we were saying, you had asked the kids to, you told the kids before we were going to, we had talked about pairing the kids up, choosing partners, and on the phone we both decided very quickly that that wasn't really a good thing (1:28)
- C: we had told the kids that they were doing to be paired up for their next assignment, and so I felt very strongly that I'd like to do what I say, but on the other hand, I thought I'd I felt uncomfortable inside, because I knew the bridges was the most difficult, one of the most difficult things and I didn't think comfortable putting them into groups for it, because everything in the class has worked so well when they had chosen their own partners, so we just like within seconds, within a minute had clarified each other's thinking and we just knew exactly what we were doing, it was really need, because i had that quandary inside me, and I would have gone to school the next morning and still have the quandary inside me, and it was like a one minute and it was over
- B: and we both have similar styles, too, like we both felt uncomfortable with that idea, where if one of us had felt really strongly, if I had felt really strongly that we should be consistent with what we had told the kids, it would have been more difficult, but we haven't really had (1:29) situations like that
- C: no
- B: except one good example is that day, when I was really set on doing that problem with the straws, remember,
- C: I was not going to do it
- B: I have that activity

- C: I wasn't going to do it, it is because i had that in the workshop, with you, up at SFU and I had this one, go ahead
- B: you know it is that activity where there is a right answer, it is the only one in that unit where there is a right answer, and I have been struggling with that activity for a while, changing it in various ways, because I couldn't figure out what, you know why, everyone has trouble with it, teachers kids
- A: which one is that?
- B: with the straws
- C: stabilize the shape
- B: put pin joints in the four corners and you have to and you look at it and wiggle it around and it's unstable, and then the question is, using the minimum of straw, how do you make the square, 2-dimensional square stable
- M: you have an n-gon and you stabilize it with n-3 straws
- C: that's the
- B: yeah, so the idea is
- C: yeah, and they have to come up with that exact thing, and I had it at the workshop, and I am a reasonably bright person when it comes to these kind of stuff, I got good visual ability, good spatial ability (1:30), and I was pissed off with the exercise after a minute, I thought what is this doing for me, because I didn't think of the n-3 I thought of putting one in each corner, and so, for me a perfectly reasonable
- M: a reasonable solution
- C: but I mean I didn't need the 15 minutes or whatever, to do it, so go ahead then what happened between the two of us
- B: I was still struggling with this one, I guess I wanted them to play
- C: it to be in there
- B: I knew there is problems with it, but I didn't know what the problem was with it, so anyway, I have since this exercise in the class, I have taken it out of the workshop, and what we have done in the workshop now is just play in 2 dimensions and stabilize that thing, and play in 3 dimensions and stabilize things, and it's used to be a lot better (1:31) and to be honest with you, I had this belief that to be a good teacher I had to try and teach to a bunch of different learning styles, which I still belief
- C: oh, yeah
- B: and i thought that this was getting at some other kinds of learners, not the kind of learner that I am, but the kind of learner that some other kids are. And I have seen it with adults in teacher workshops where they have to have an end product, it has to be more close-ended, they are not as comfortable with the open-endedness, and I thought the activity was fulfilling that need, because there was a right answer, it was looking for a pattern, and it was using, the key here is using the minimum number of straws, but when Cassie and I were talking about it we were uncomfortable with it, she was uncomfortable with it, and I was too, but I really wanted to try it as a whole group exercise, because I needed to sort of see it one more time that the kids were getting frustrated with it
- M: but see you could imagine taking this straw and cutting it up into 4 small straws and do Cassie's solution,
- A: yeah, cut it

- M: and you still use the same amount of material
- B: that's true, it is a good point
- C: that's why the unit is so incredible, there are very few units of work where you are presented as a teacher to give to children that have so many exercises that aren't like this, I mean, you know, 90% of the stuff we give kids is like this, so
- B: so well what happened is that the kids struggled with it, and only one kid was interested in it, and that was Adam,
- C: that's right
- B: he tends to be a child that likes to please the teacher
- C: please the teacher
- M: that is interesting that you say that because it appears so
- B: so I think what I learned from that is that there are other ways to teach
- C: towards that, what kind of a learner?
- B: I was thinking more like a type 2 learner, likes to take notes, and I don't know how to say this (1:33)
- C: I don't know, I am a different one
- B: I don't know lot either about it just the kind of learner that really excels when I was in school, like in physics class the one that got the answers right, and when they felt they could find the patterns quite quickly, and I guess it is part of my own struggles as a teacher right now, dealing with, I was taught as a teacher to be fairly open-ended, like teach whole language, integrate your subjects throughout the day, don't necessarily tell the kids facts, you know, and I think that the kids are missing out something in my teaching, and i am struggling with what that is, like just to, that there comes a place where we have to show them that there are patterns (1:34), I am not describing this very well
- C: yeah, you are saying it really well, because I tend to gravitate more towards those activities that are more open-ended, and I don't feel that I am a purveyor of information, because information is so transient, it changes so much, that information is not so important a deal, I am really into process, I am really into solving problems and that kind of thing, and I know one of my weaknesses as a teacher is that I don't give enough information, and I don't present enough information, like I don't teach kids how to read, like this is what you do, this is what you do, this is what you do, and I think through you, and through the questioning again, it comes back to the questioning, but with the engineering, and just going back to those engineering techniques, and going back, what it what is this, this is an example of a pin joint, can you tell me where we used this before, this is an example of a cantilever (1:35), you know, all that terminology that goes with that, you know, there is a whole lot of knowledge that is important that comes out of this unit, that I would have glanced over, and the unit would not have gone as well, it is so, and I think your point is really valid, and if you want to have a classroom more, you'd find you'd find a really happy balance, because you are outside, that you can't see the happy medium that you achieve
- B: yes, that is true, it is been interesting
- C: and you are always (rassed?) with that I know I am always, and Marilyn is the opposite, so we really complement each other



- B: that's neat that's been a big learning for me, you know, I'd say over the last three years, really big
- C: there is a place for knowledge, you know
- B: yeah, just because I've seen activities like this turn kids on in a big way, but just end at being turned on by the fun of it, and that they don't take away some of the really great science that is happening in it (1:36)
- C: that is what I hoped the engineers log book would do a bit more, I am a little bit disappointed, may be they'd have to do an engineer's glossary or something
- B: Hm, that would be neat, and their own definitions of that, like I've looked somewhere to define brace or stable
- C: I wonder, you have to make an engineer's glossary of 20 words
- B: you know what was neat, the 2 teachers who were in the classroom this morning, said, I couldn't believe how many words you gave those kids they
- C: they weren't in
- B: thought we had given the kids those words that they were talking about today, like reinforce, brace, bundling, those ideas came from the kids, through the questioning
- A: you know what would be fun? You know we were talking about the possibility of going out to this
- C: yeah we are going, aren't we?
- A: I got his phone number, his name is John Oliver, yeah, Bowen Island, if the kids (1:37) made these glossaries but part of the purpose was that they find out how John Oliver thought about the bridge that he made, they would try to use their vocabulary to get at the
- B: ham,
- C: wow, wonderful
- A: that would be fun
- B: that would be neat, the kids would ask those questions
- A: that's sort of their private agenda, they don't tell John that they would be doing that, but they want to use their vocabulary
- C: so he, they would have to make interview questions up before, I mean I am just doing the logistics,
- A: we might go
- C: it could work in such a way that they would have interview questions, like each child might have one question that they are going to ask him
- A: we might go let's say with the glossaries, and when we get there, the kids have some time to look at the bridge in groups, or whatever, and then they have time to write some questions right there
- C: there, (1:38) that's neat,
- A: and then he is available to talk with us
- C: and in the previous stuff they'd have done their glossaries, they'll have a lot of questions, they'll gonna have really, I think that's neat,
- B: wouldn't that be fun
- C: I wonder if we could do that before Christmas yet
- A: Yeah, I'll phone tonight
- B: maybe you should give Cassie his number as well, after you call him, if they wanna get in touch

C: why don't you give it to me, if you have it here now,

A: I don't have it here now

C: I give you my phone number

(phone # exchange)

B: (1:39) another example of that connecting was, remember when we tried to do that classification, of the joints, I, we tried to have the kids classify the joints into different groups

C: I don't remember

B: I was conducting it from the joint construction center, and the kids where not getting it, and you even helped me out, and you said, I said classifying, and you said groupings

C: now I remember

B: and it just was not working, like they weren't getting it at all

C: and I just was going like write this thing

B: and luckily Cassie knew instantly that we had to stop it, we said this is not working, that was an example, and we have that on video (1:40), I transcribed it, I think it was the 21st, oh no, it was the 22nd, we have the tape here, 9:04 on the 22nd

B: there is just a small clip of our attempt to classify and I would be interested in your observations here

A: I think it would be fun to watch something together