

Collaborative Action Research Transcripts

Identifying the Problem

Teacher 1: We got together as the team and talked about what kind of things were troubling us in the classroom, what we wanted to learn more about. And we looked at patterning and algebra, because a lot of us, we were doing typical patterning A-B-A-B, Red-Blue-Red-Blue, and that's all we did, so we wanted to learn about that, to expand our content knowledge. And we also wanted to learning about asking questions, and working through problem solving model, but we want the content area so we were learning as well.

Teacher 2: Well we knew we wanted to work with problem solving because that's an area of weakness we perceived in the junior division and so that's where our project started. Then this past year grew from what we did the first year in that we got the kids so that they had more confidence in solving the problems, but they weren't very good in sharing their information when we did our bandsho.

Teacher 3: We've been working together for 5 years, and we started out by looking at math congress, and then we spent a year looking at bandsho, and we were noticing that during the bandsho, children didn't really know how to ask good questions, so we decided to delve into that so we could teach them how to explicitly ask good questions.

Teacher 4: And questions that addressed the math concepts that were there. Sometimes the questions were very simplistic and they also didn't get at the math learning we were hoping they would, and so there was a certain amount of frustration we felt and we weren't quite sure how to address that, so when this opportunity came along, we knew that that was a perfect way to address what we perceived to be a difficulty or a lack of understanding for the children, but then we expanded it to address our own...

Teacher 3: Right because we were figuring that we actually didn't know what a good, deeper level thinking question was.

Researcher: So then it was kind of a parallel thing, you were working with students and you were working with...

Teacher 4: Very much so... and how could they possibly know how to ask deeper questions if we weren't modeling it ourselves for them? So we knew we had a certain amount of learning we had to do ourselves.

Planning Together

The researchers assisted teams in planning intervention strategies designed to address the problem they identified, and to plan data collection strategies suited to gathering evidence of teacher and/or student growth (often pre and post). This process was assisted by use of a template that teams filled out throughout the day

The template provided opportunities for teams to record:

- their problem statement;
- their research question;
- a description of their intervention strategy;
- a description of their data collection strategy (teacher and student data);
- relevant literature and resources; and,
- next steps.

By completing this template on the first day, teams essentially left the first planning session with a comprehensive action research plan in place – that could easily be adjusted as needed.

In our research program overall, we have observed the success of teacher teams who follow a cyclical structure of co-planning/ co-teaching/ implementation/ debriefing with enactments (practice) in between team meetings, and so we expected to see this pattern repeat itself (and it did). One of the advantages of a cyclical structure is that regular and consistent meeting times are built in to the process, reducing the risk of disengagement resulting from passage of time or other pressures in teaching.

Teacher 1: The first year, the question was dealing with perseverance and academic achievement and confidence in a problem solving, differentiated classroom environment. In our second year, we thought that we did a pretty good job on implementing the problem-solving model in our classrooms and we thought we did the, sort of, the initiators really good and we did the minds on really good, that was all really good, completely sometimes forgetting that there was a third part to the three part problem solving method, so we thought are deficit was basically the consolidation. So that's where we wanted to move. We wanted to see, first of all, get the consolidation in there, secondly we wanted to see what a variety of consolidation methods would have and what impact those would have, which was the strongest, which was the one they liked best, which got the best results.

Implementing Plan of Action

Teacher 1: This is a rectangle that Mrs. LeGuard made earlier. If I put this over Aiden's blue squares, is it the same just about? Pretty close to the same size?

Student: Cool!

Teacher 1: Is that the same pretty much? Now, is it the same size again?

Students: Yeah

Teacher 1: Now, let us put it over to Mackenzie's. Did Mackenzie trick us? Is it the same or different?

Students: Different!

Teacher1: Lets see what happens when I do this. (students chatter) What should I do with this one? Aiden what should I do?

Student: They both take up 8 squares.

Teacher 1: Hey, Conner's already figured out they take up 8 squares, lets just check their counting, I can't imagine that's true 'cause do they look the same?

Students: No

Teacher 1: No, OK, let's check. I think these guys have forgotten how to count. Right? Have you forgotten how to count? *Laughter* You always know how to count. Let's see, OK, ready? 1, 2, 3, 4, 5, 6, 7, 8... Conner was correct. Ok Aiden, let's see if you remembered how to count. 1, 2, 3, 4, 5, 6, 7, 8...

Student 1: There's 10 right there...(students counts peers shapes 1-13) that one has the most.

Teacher 2: I'd like you to take a minute, and just from your seats, walk around and look at everyone's patterns – same rule, position number times 5, same rule, different pattern.

Evaluating the Interventions

Teacher 1: One of the things that I learned that was interesting, sometimes with what we've been doing for our school improvement plans and that sort of thing, the expectation is to sort of collect data for the whole class, and I think that it was effective the way we did it looking at the high, medium, and low students and three students in most cases to focus on, I think that was enough data to look at and I think it was representative of what happened with all the kids. I think the other thing that was kind of neat about the pre and post for me, was that how many times I heard people say "that's not my strongest student" and being surprised by the results, the outcome, which reinforced to me why its important to collect that kind of data.

Researcher: Why were they selected?

Teacher 2: Based on their lack of engagement.

Teacher 3: We were looking at students from the three different – high, mid, low academic...

Researcher: So combined with a range of ability levels?

Teacher 4: So this year we sort of went into gallery walk and we wanted to talk about the questions. How does focusing on question in math affect student and teacher abilities to ask good questions during problem tasks? So we started out with teaching a lesson four times. We did the gallery walk and collected the questions then went through the process of sorting and analyzing the questions.

Teacher 5: The second one, the richest learning happened during the consolidation when teachers and students saw each others work and made comparisons and connections... when students had the opportunity, did they... there was cooperative learning that was taking place during the task?

Teacher 4: Ya, we would do it different ways, so solve problems as a group, sometimes it was...

Teacher 5: So at the tail end when you brought everybody back together and you were doing a bandsho or something similar to that strategy, its during that sharing time that you found students were most engaged and at that time there was...

Teacher 4: Oh yeah, because then they get to showcase their work first of all, and they're like "my turn, my turn", and they were referred to constantly, because when your looking at the different strategies, "Oh did somebody else use that strategy to?" so they were very attentive because they never knew, it wasn't just a show and tell, it was a back and forth.

Teacher 6: Our findings - and they're all here - we didn't find a huge difference actually. So for 1, mostly students preferred, I don't know if they preferred it, but they chose written communication, and student who had communication needs like I said, chose the oral and that was through the younger and older grades. And when given the option to use computers, students seem to prefer bitstrips or graphic organizers, none of them just wanted to type with out the structure, they might as well, I think if they felt that confident they might well just used a pen. The high achieving students tended to stick to something they knew they could develop, which was written communication, and the one learning disabled student tended to select oral. The part that we highlighted here assumptions we began with which was under the impact of our findings. We thought that choice would automatically lead to greater achievement because they would have more opportunities to pick an area where they would succeed or excel and that wasn't necessarily the case. If I had a level two student, it turned out that they can't articulate their learning in writing, they can't necessarily articulate their learning orally, and not necessarily because of the method but maybe because they don't have the background knowledge and vocabulary to use them.

Data Collection and Analysis

[Teachers discuss/analyze video of student performing assessment tasks at the end of the project and compare with baseline data, then evaluate on a scoring scale (similar to moderated marking).]

Teacher 1: Too easy...

Teacher 2: Just the fact that he could count both at the same time, I would say, I mean he didn't manipulate anything else, he didn't really extend it, but gosh he's awfully close...

Teacher 1: So why did she get 'extended' ... what did she do that...

Teacher 2: It was the same wasn't it? Oh remember because she moved one herself, she said it would be like the stairs, she actually moved it herself.

Teacher 1: So he's still consolidating.

Teacher 2: Slash extending? Because he's almost there...

Teacher 1: Just consolidating.

Teacher 3: And when we go to look at the video, it gives us a really great insight. Ya know you remember part of it, you don't remember all of it, so you hear those little pieces you missed the first time. And it gives you that extra information and you can go back and look at it, where pictures, we're having to remember or record what they've said. So the video is asset when they get used to it I'm sure. And most students were pretty comfortable with it. We had a few students who either performed really well or not so well because of the video, but I think most, it probably balances a fair bit.

Teacher 4: The perspective you get from the eye of the video camera is different from your own as well. Right from the other side of the class I was looking at kids who I wasn't looking at when I was in that teaching situation. So its interesting to see how engaged different students look during it and of course there's things that you forget, things you forget you've said that all of a sudden come back to light, I think that its such an effective tool for helping you hone your own teaching skills that your looking at yourself now perhaps through a more critical eye.

[Team from Limestone DSB analyze student work samples and negotiate their scoring criteria.]

Teacher 5: Why do you guys say 9?

Teacher 6: Because it takes 9 tables to get ready to eat.

Teacher 5: OK

Teacher 6: And she was in the model group, so that's why she's building.

Teacher 5: She's a... is this guessing and checking?

Teacher 6: This is trial and error.

Teacher 5: Yeah.

[inaudible discussion]

Teacher 7: Do it artistically

Teacher 6: So you draw pictures, numbers, words, images right, so they didn't necessarily need to write anything on the magic board, that was the nice thing about

that thing because the kids could actually draw it, they didn't physically need, so when your talking about precise math language when it comes to measuring order...

Teacher 5: Well you could say precise images.

Teacher 6: Images, so that why we maybe need to tweak a little bit because they are...and I agree that you can see that this is all trial and error...

Teacher 5: If your writing in words a response in a journal, your not going to list all your incorrect attempts.

[Brockville team summarize their results in a database, and determine what these numbers say about student growth as a result of their interventions.]

Teacher 8: They went drastically from not connected and low.

Teacher 9: So you think it would be worth while just, it wouldn't take long. We could...

Teacher 8: Maybe later if we're interested, I don't think we need to for our study but just for interest to tease those two parts out, because we've got...

Teacher 9: The numbers would basically be 42 and 15

Teacher 8: Yeah lets start with just comparing that.

Teacher 9: And down here we've got 20, so that 31...

Collaboration

Teacher 1: It was a great experience to allow me to reflect on my own learning, but also for us to collaborate together and chat about our school's direction. And so it's a unified direction that everybody is working towards and a unified goal that every one's working towards, and I think with that, that helped to feed into the success of the project but also the successes of students. It's just that collaboration, it's the rich discussion really allows and creates value within the classroom, within the school.

Teacher 2: The collaboration it was really neat because what happened was, was that, because we got comfortable talking with each other, that brings out a confidence level in you right? So you talk to each other and then you can go out and do all sorts of other things with the rest of your staff and you've had such a positive experience with the collaboration that you think "Great! Everybody's going to react this way" and usually they do, but it's such a positive, positive atmosphere in that whole collaboration business.

Teacher 3: I'm less defensive about my teaching or I'm more welcoming of people in my room or videotaping myself because I've gone through that and, sort of, that stigma of that's been removed. But I'm more focused on the bigger things in teaching and maybe not as wrapped up in the day-to-day stresses that can get you down sometimes I guess.

Teacher 4: The support is huge too, that we have someone who's on the same spot and journey that we are, someone to bounce it off, someone to talk to...

Teacher 5: And stumble through things together. We recognize some difficulties along the way that we saw in each other's classroom, in all four of us actually in our

group, and so there is comfort in knowing that, you know, others and struggling with the same issues.

Teacher 4: Yeah and I think that's huge, I think a lot of teach with our doors closed and we don't really know what goes on in other people's classroom's. So getting the chance to go in and co-teach or watch someone else do a lesson, is phenomenal in that you can learn a lot about maybe mistakes your making yourself and great ideas from each other too.