

Using Collaborative Teacher Inquiry to Support Students with LDs in Math

Narrator – With the right supports and accommodations in place, all students with learning disabilities can succeed in the classroom, including in the area of mathematics. Learning disabilities take different forms and have varying impacts on students learning in mathematics depending on the student's areas of strengths and needs. LDs may affect students' abilities with estimating quantities, memorizing number facts and understanding visual-spatial relationships in mathematics. This group of educators engaged in a collaborative inquiry in order to better support students with LDs learning in mathematics.

Nicole Simpson – Well, what about our students that struggle with perceptual reasoning difficulties? How are we going to be able to support this lesson so that it's accessible to them, not expecting them to be able to use their perceptual reasoning but a different support for that?

Narrator – A collaborative teacher inquiry is a form of professional learning where teachers integrate new knowledge and understanding of student learning and classroom instruction into their existing knowledge of professional practice. A focus on student learning drives the inquiry, engaging teachers as learners refining assessment, planning, and instructional approaches to achieve greater personalization and precision in student learning.

Natalie Bullock – They are looking for a particular result so they talk about what changes they could make in their practice. And they try to implement them and look at the student work and see if they're getting the results they're looking for. If they do, they continue. If not, they stand back and rephrase the question or look at some other resources and tweak their practice again.

Narrator – Natalie and Nicole facilitated the inquiry. The combination of their special education and mathematics backgrounds brought a well-rounded approach.

Nicole Simpson – One of the biggest changes that we've made in a collaborative inquiry practice is the inclusion of all teachers, in particular our special-education teachers. So we would work with classroom teachers looking at pedagogical practices. And then, from the special-education standpoint, how does it affect our students living with special education needs?

What you did requires a lot of visual perceptual reasoning. So if you had a student with perceptual reasoning difficulties, how would you suggest to them a way to tackle this problem?



Natalie Bullock – We are helping teachers to create a toolbox of strategies that we can use with students so that they can do the regular classroom program with a few tweaks or accommodations to help them access the mathematics.

Narrator – Collaborative teacher inquiry is successful when educators work together to identify opportunities for student improvement. Consciously investigate the area of practice and strategize specific modifications. Implement changes and are flexible to adapt to situations on a case-by-case basis. And create a toolbox of strategies suited to individual student needs.

The group started by researching and investigating learning disabilities, in particular the impact on learning in mathematics. They discovered early on that there are numerous types of learning disabilities and each student experiences them differently. An accommodation for one student may not necessarily work for another.

Jacque Campbell – That was a new learning for me as an educator because we've been using the same supports and thinking that we're addressing those students needs when, in fact, we're not. One student could be struggling in this area where another student is quite fine in that area but struggling in a different area.

Narrator – They started formulating strategies to support students with LDs learning in mathematics. They use the student's individual education plans or IEPs to inform their strategy.

Natalie Bullock – They are thinking about, you know, what specific strategies can I use with student A or Johnny or Susie so that they can understand the math so that they can do the math so that they can explain their thinking and see themselves as mathematicians.

Narrator – Jacque chose to add math manipulatives to her lessons. Her learning in the inquiry so far, led her to believe that these manipulatives would help students with LDs.

Jacque Campbell – One of the things that I've learned from our collaborative inquiry is new ways to use manipulatives, new ways to incorporate them in student learning, which I've found very beneficial because sometimes even a student can show me a new way to use a manipulative to demonstrate their learning, which is amazing. I am learning from them sometimes more than they're learning from me.

Narrator – She recorded her observations and brought evidence of student work back to the CI group.



Jacque Campbell – They've understood very complex operations and concepts using these manipulatives that have been taught to them. One thing the students said to me was, "Next year, I'm going to bring-- I'm going to use these manipulatives to help me understand the math in secondary school."

Nicole Simpson – So when you bring those observations back to the table, you're able to look at it all together and being able to identify where a student's strengths are showing up or where their needs are showing up. Through those recorded observations we are able to then make informed decisions about what our next steps are.

Narrator – When it comes to learning disabilities and CI, it's important to know your students and understand that each have their own unique way of learning. Review students' individual education plans to uncover what strategies are already in place. Be observant of behaviour, especially when it comes to identifying students' strengths and weaknesses. And to be open to new strategies and learning plans.

Jacque Campbell – I was wondering if, you know, what if a student, you know, chooses this task but then realizes-- you can see that they're going off track. And they are struggling with this, getting frustrated. Could we then redirect them to, you know, one of these tasks?

Narrator – Adding math manipulatives was just one change in practice implemented as a result of the inquiry. The group noticed increased engagement for students of learning disabilities as well as greater confidence and a shift in math mindsets.

Jacque Campbell – I have seen them participate more, raise their hand and, you know, want to come to the board and share their answer, their ideas instead of being very negative and I can't do this. I see more, I can do this.

Nicole Simpson – Another positive effect that I've seen come from this project is teacher confidence. Teacher confidence in exploring math content. Teacher confidence in exploring student learning and being able to tailor their instructional practices to meet the needs of all learners.

Narrator – This inquiry not only led to better strategies for supporting students with learning disabilities but also sparked a change in these educators' big picture thinking.

Natalie Bullock – The majority of our students with learning disabilities do take applied level mathematics, but our learning in this inquiry has really led us to believe that if we equip our students with learning disabilities to know what they need to support their own learning in mathematics. They should be able to be successful at the academic level too.



Jacque Campbell – One of the things that I've learned through this collaborative inquiry is to really know your students. And really understand students with learning disabilities, what they need in place to support them. Even though these are necessary accommodations or modifications for certain students, they'll benefit all students.

Narrator – Benefits of collaborative inquiry include increased engagement and student success. Greater teacher and student confidence. A positive shift in mathematical mindsets. And an increase in student voice and self-advocacy.

For more information about supporting students with learning disabilities through collaborative teacher inquiry, visit LDatSchool.ca.

