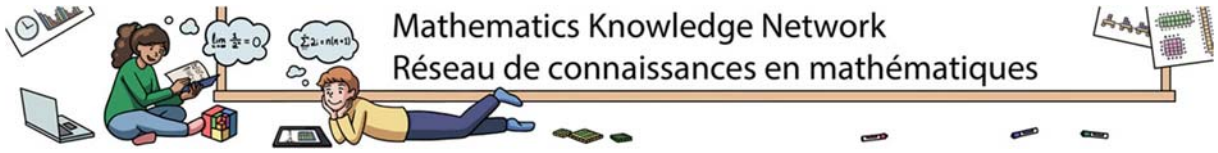

Why Do Schools Need Collaborative Inquiry? A Perspective from a District Researcher

By Brandy Doan, HWDSB

> Why do teachers decide to carry out classroom-based research? How do teachers feel about doing research? Why do teachers choose to further develop or neglect their skills in undertaking classroom-based research? (Worral, 2004, p. 138)

When I first learned about collaborative inquiry (CI), I immediately felt connected to it. I saw it as a way in which to engage school educators in research-like thinking or uncovering the wisdom behind the practice—asking educators to think about *why* they are doing something, as opposed to *how*. I also saw it as a way of doing education research without having to be a trained researcher. In this article I will discuss why CI is my preferred tool for teacher and school reform, and describe what CI is and what it is not. Next, I will share my experiences with CI in three school districts and provide readers with an actual example of a CI.

What is CI?

Collaborative inquiry is known as a method for developing teacher pedagogy and practice with a focus toward improving educational outcomes for students, based on teacher interest or system priorities (DeLuca et al., 2015). CI can positively influence school improvement planning by both developing relationships among staff and equipping administration with teacher-led direction about where to focus improvement. CI allows a deep investigation into the unknown process of what within a lesson encourages student understanding and engagement with the material, by separating "performance" from actual learning. CI connects student learning needs with teacher learning needs for targeted improvement while leveraging the power of data-informed assessment. CI makes reflection a joint, observable, and iterative process by inviting others to share in discovery collectively. CI highlights the use and importance of assessment in curriculum delivery and lesson design which is also an iterative and fluid progression. Most importantly, the argument to use CI can be made by the method's flexibility. It can be used to explore any problem of practice, thus in my view, it is a powerful change management tool that can increase trust and autonomy among staff to transform school culture.

CI creates a professional learning community that in turn builds collective efficacy (Voelkel & Chrispeels, 2017). Collective efficacy of members of a school team or members of a group working together, is the belief that they have the capability to organize and work through a plan focused on improving student learning and performance (Goddard, Hoy, & Woolfolk Hoy, 2004). Collective efficacy has been shown to be one of the most powerful ways in which educators can improve student learning (Hattie, 2015). The Ministry of Education in Ontario has adopted and promoted a five-stage iterative CI model intended to promote professional learning, critical reflection and dialogue about teaching practices that influence student outcomes (Ontario Ministry of Education, 2014). Thus, given the support in the literature for CI as a tool for developing staff collective efficacy and the support of CI from a provincial lens, there is no doubt CI is a vital method to be deployed by schools and districts. The question becomes, why isn't CI used more?

There are several contextual conditions that need to be in place for CI to take hold. *First*, the educators who want to engage in the CI process need to feel they have the support and buy-in of administration. The school culture must be such that educators feel empowered and supported by principals and colleagues with trying something new. The school culture should honour teacher autonomy and exercise patience with exploration.

> Collective efficacy has been shown to be one of the most powerful ways in which educators can improve student learning. (Hattie, 2015)

Second, CI can seem overwhelming, so it is recommended to start small and find another team either in the school or in the district to communicate the journey with. Dialogue and sharing create a safe space for the work. Administrators will need to have some dedicated release time available for teachers to meet, possibly off-site so they can engage in the necessary planning, learning and working through the framework.

Third, the teams need to follow some of the norms and protocols of the CI process to keep the work from getting too big and unmanageable, and retain connections between inquiry question and analysis of impact. In the beginning stages of CI, there is typically a misalignment between the data collected and the inquiry question, or there are too much data collected in an attempt to measure everything. This tension is natural and must be worked through. The dialogue and discovery process are essential for the critical peer-review process that takes place. Decisions, data and assessments will need to be examined collectively to avoid possible bias and assumptions in order to achieve clarity about alignment. This critical dialogue is the currency of CI, because it promotes credibility and moves learning in a professional learning community from cooperation to truly collaboration. True collaboration means challenging and pushing each other's learning as opposed to blanket agreement.

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Fourth, CI works best with a train-the-trainer model to ensure that capacity is built differentially across different groups and to ensure fidelity with the CI framework and structure. According to Donohoo and Velasco (2016) and my observations, it takes on average three iterations of CI to feel confident in the process and begin to see the impacts on students. There should be some efforts to document the Cis, so the outcomes and reflections can be seen and understood from a system level allowing the impact of the work to be connected back to school and district improvement efforts.

> A crucial aspect of this public credibility is negotiating the tension between one's own practice and the more public understanding of that practice. (Clarke & Erickson, 2003, p. 4)

What CI Isn't

CI is not Action Research, nor is CI a scientific experimental paradigm. Action Research (AR) is, "a disciplined process of inquiry conducted by and for those taking the action. The primary reason for engaging in AR is to assist the 'actor' in improving and/or refining his or her actions" (Sagor, 2000, p. 3). AR can be undertaken in a group or *individually*, whereas the whole purpose of CI is to build collective capacity. The purpose of AR is to build a reflective practitioner, to make progress on school-wide priorities and to build professional learning culture. On the surface, it may seem similar to CI, but the literature describes AR as a more prescriptive scientific research model. Sagor discusses why AR will "professionalize teaching," which hints that the opposite occurs without it. Furthermore, AR is known to "enhance the motivation and efficacy of a weary faculty," again, making assumptions about why a group would engage in this kind of professional learning. Next, Sagor states that AR is used to "meet the needs of an increasingly diverse student body" (p.9). What AR does not seem to do, is reach beyond classroom-level inquiry. Comparatively, much of the power of CI is seen in cross-school inquiry. CI does not assume that system or school initiatives are the focus, possibly sidestepping the powerful influence of teacher discovery of finding the connection between what they want to learn about (empowerment) to how their learning affects the students' learning experience

AR is more prescriptive using scientific language and methodology (Manfra, 2009). It is a seven-step process consisting of selecting a focus, clarifying theories, identifying research questions, collecting data, analyzing data, reporting results, and taking informed action. While AR presupposes a linear process, CI is iterative between all stages. Most notably, AR does not account for the unpacking of assumptions and biases, or promote a "peer-review" process for credibility around assessment of impact. In contrast to CI, AR does not provide a method to procedurally chain theories of action with the inquiry question, student-teacher learning needs and the analysis of impact. In my experience, without this structure, educators could easily be led astray.

> Put simply, action research— the way it is articulated in Sagor (2000)—at one time may have served as a bridge between educational research and CI.

The last difference between AR and CI is that within the AR model, data collection methods are described in quantitative terms and language. CI is flexible including qualitative or mixed methods.

Experience with CI—Technology Enabled Learning and Teaching

In 2012, equipped with an undergraduate and a Master's degree in experimental psychology which focused heavily on the quantitative application of scientific method, I got employed as a contract research officer at Dufferin-Peel Catholic District School Board (DPCDSB). At head office, I had a cubicle among the academic consultants and by proximity I began to develop relationships with the teacher-leaders at the board. This is how I entered the world of K-12 education! The consultants were amazingly welcoming and quickly brought me into some of their projects with the schools. One particular project I was invited into was a CI occurring in one family of schools. It involved a high school and several elementary schools whose teachers were interested in the relationship between learning skills and achievement. The energy and effort that the educators and administrators put into this work was transformational for me to witness. It was a true collective efficacy and reform in action! I became part of the professional learning community and supported them with co-developing some

assessment tools and collecting data for their inquiry. Based on this experience, I soon became an advocate of the power of CI. This inspired me to pursue a doctorate in Education and I left DPCDSB to begin my studies. Once my residency was complete, I obtained my second school board research position at Halton Catholic District School Board (HCDSB). Due to my experiences and networking from DPCDSB, I was invited into the CI led by the Technology Enabled Learning and Teaching (TELT) consultant with the board. The Technology and Learning Funding from the Ministry of Education in 2015 came with an evaluation component to ensure that the work had a system-level impact. I began my work with the TELT as a research officer intended to evaluate impact, but over time, I began to see the research I was familiar with and CI as overlapping processes.

The TELT at HCDSB introduced a CI model developed by Donohoo and Velasco (2016). During two iterations of the CI work, the TELT consultant and I began to work more and more collaboratively. I presented to the CI teacher groups ideas regarding qualitative and quantitative data collection and consulted with each of the groups to help them align their inquiry questions to their theory of actions, and then to their data collection efforts. I was invited to schools and to team meetings. We presented at the Ministry sessions and attracted some attention from the Ministry and some other school boards. What was different about these inquiries at HCDSB from those conducted at DPCDSB, was the scale of this work across the school district in terms of depth, spread, teacher ownership, and the level of innovation. The HCDSB collaborative inquiries ranged from Kindergarten to Secondary levels and spanned all areas of curriculum. The organization of the system training, support and rollout was managed extremely well by the TELT consultant. Her leadership and willingness to include me in all elements of the initiative was a unique experience and I am forever grateful for her vision, flexibility and responsiveness.

In 2017, I was offered a permanent leadership position as the Manager of Research and Analytics at Hamilton-Wentworth District School Board (HWDSB). Within weeks of being on the job, I was asked to provide research support with the district's digital learning initiative. The Board of Trustees wanted to see some direct evidence that using iPads in classrooms had some kind of direct effect on student achievement. Attaching student achievement directly to teacher practice is a large and complex endeavor in the best of circumstances with large teams of researchers. Given the significant constraints to answer this question I wondered if CI could be an appropriate method to connect teacher pedagogy with student achievement.

The CI is philosophically based on a continual pursuit of greater precision, personalization, and innovation of instructional practice to address student learning. Thus, CI is an excellent model for introducing change in teacher practice such as new digital tools or paradigms. If the central premise of HWDSB's digital learning initiative focused toward influencing system change in teaching and learning, CI seemed as an ideal method to use. Based on my experiences in two school districts, I wondered, could CI as a professional learning process be applied in a research paradigm? I presented the following hypothesis to the senior leadership team; *If evidence-based pedagogy, accelerated by digital tools is utilized, then there will be increases in teacher and student engagement, student achievement and well-being, which will result in positive changes in teacher practice on student outcomes.* In attempting to explore what works in influencing student learning and achievement, the best way to discern whether or not a program or process can have an effect on an outcome is to study it with the most scientific design possible. I designed a quasi-experiment to test this very question. The expected outcomes using CI as a professional learning model were to a) support teacher pedagogy with using iPads or other HWDSB-approved technological tools and applications, b) provide opportunities for educators to learn more about digital citizenship, c) build capacity with inquiry-based learning techniques, d) learn about technological resources available within the board, e) access existing 21st century learning supports and

networks, f) learn about and apply various methods to use data (qualitative and quantitative) for assessment, g) build efficacy and confidence around pedagogical experimentation, h) work effectively in collaborative groups, and, g) learn more about how to align curricula outcomes with student need while using technology. The project was approved by the Superintendent of Learning Services with the support of several academic consultants.

In beginning to design the year-long initiative, I had learned that some of the academic consultants at HWDSB were previously involved with some CIs led by the Ministry and Dr. Donohoo, but did not feel comfortable independently leading CIs. I found myself in the lead position of designing and delivering the three in-class sessions with the 60 educators who had signed up for the CIs across the district. In designing and implementing the CIs, I replicated the HCDSB model with the HWDSB consultants and teachers.

I was astounded to yet again, see the transformational effect CI had on these diverse groups of educators!

I was astounded to, yet again, see the transformational effect CI had on these diverse groups of educators! I qualitatively analyzed the data from the CIs that were rolled out over the 2017-18 academic year consisting of three in-service sessions and two release days. Groups self-organized from the first day and learned about the CI process. To capture true learning and growth in a collaborative learning framework, such as CI, a more direct and qualitative method was employed by using reflective notes.

Educator reflections were collected throughout the process in a blended learning model (i.e., HWDSB virtual classroom, The HUB). During the last meeting, educators were asked to present their inquiry findings back to the larger group. In addition, within their respective groups, the educators were asked to complete a group reflection based on four questions to identify differences in their practice as a function of participating in the CI. Educators were asked to discuss and document what went well, what was a challenge, what elements of the CI did they incorporate into their practice, and what permanent changes in their practice resulted.

In terms of differences in their daily practice, educators reported the increased focus on student engagement with technology, increased reflection on their daily practice, clearer understanding of student needs, problem solving with their peers, and maintaining flexibility in the classroom to differentiate better, collaborating, and using the group as an opportunity to improve their practice. For example, several groups focused on learning skills. Another group stated they felt that they learned new, digital, ways to collaborate and employ "*different ways to collect data from students (anecdotal, surveys, Padlet, etc.)*."

With respect to challenges associated with this professional learning opportunity, educators commonly reported how difficult it was to manage the CI work among the other expectations they have in their roles, to find time to connect with one another to get the work done, and to collect the appropriate data for their inquiries. Educators struggled to keep their inquiries relatively simple while still building their technological skills and professional capacities. Some spoke about a genuine tension between wanting to do more to engage students with technology and being realistic with expectations. There were several large teams that had worked hard to influence change at their schools, and at times, their members felt that their innovative ideas were not always heard by colleagues, indicating the importance of school culture when engaging in CI work. While there were noted differences between what educators' expectations were and the reality of what actually occurred in practice, these learning moments served to plan for next steps. The educators held themselves to a very high standard of exploration and discovery, and they expressed regrets in not having enough time to learn more and how they would make it better next time.

Positive reflections from the last consolidation session indicated that educators were excited about discovering new ways to organize materials with digital tools, engaging in virtual field trips with their students, finding increased opportunities to leverage 'accountable talk' in science and engage students in critical discussions about science, sharing classroom leadership with their students, and re-thinking some older more traditional ways of teaching. Some mentioned the importance of revisiting classroom norms with students which facilitated clearer student voice, as well as empathy and non-judgmentalism among their colleagues. Educators stated that the focus on using technology also invited conversations around global and digital citizenship. One educator discussed the importance of allowing their students to "*see that even teachers learn and continue to learn*." Innovation mindset was evident among the reflections, where educators felt efficacious with their CI work and use of different ways to express learning. They learned that collaboration is a learnable skill, and it must be both taught explicitly and continually worked on.

The group reflections revealed the ways in which this learning and experience changed their practice. There was a host of digital applications and tools that educators reported now being able to confidently use. They saw the value of tracking student learning through data and that changed their thinking. Sharing the learning with their students also influenced assessment practices. Freedom to experiment and make mistakes was seen as an uplifting experience and understanding importance of teacher motivation for change was a particularly appreciated lesson. Managing their own expectations as well as what they expect from students with respect to using and employing technology was seen as valuable, and one group wrote, "*We have learned that we can't assume that because children are so immersed in technology, that they are responsible digital citizens who know how to engage with technology in an education context*." Another group stated that their practice was now permanently changed and they will be using technology as a tool to collaborate with other teachers, use it to support and extend student learning and thinking in the classroom, and to capture student learning for assessment purposes.

In conclusion, the CIs were well received by the participating educators and the quality of the consolidation presentations during the last session were a clear representation that the technology was implemented in practice. The reflections data and consolidation presentations contained evidence of iterative thinking, open-mindedness, and responsive planning. The CI provided the right conditions for the transformation of teacher learning and leading around using technology in their practice. The qualitative data from the TLE-CI positively indicated a high degree of fidelity in introducing CI to this first group of educators. As such, CI was a good methodology for professional development that espouses and supports teacher planning, collaboration, time management, intentional data collection and most importantly, managing expectations in learning to use technology.

> Teacher inquiry, which emerged in the late 1980ˢ (Cochran-Smith & Lytle, 1999), can be seen both as a way to improve day-to-day teaching in the classroom and as professional development for teachers. Clarke and Erickson (2003) define teacher inquiry as a set of research practices by which teachers examine their practice and its effects on students' learning, in order to enhance their professional knowledge and improve their practice. … Teachers have typically conducted their investigations either individually, or in small local groups. We need a teacher inquiry method that is initiated by a top-down change but encompasses the practice of many teachers. This will help to shift inquiry away from a focus on individual practice and towards a more collaborative approach, aggregating the findings of multiple inquiries into a robust body of knowledge. (Mor, Ferguson, & Wasson, 2015, p. 222)

Mathematics CI Example Contrasted with a Research Paradigm

Consider the problem: In School A students struggle to clearly and explicitly communicate and demonstrate their thinking and understanding during mathematical problem solving. Teachers would like to know if the use of Accountable Talk in their junior division will help their students in this matter and consequently increase mathematics achievement. A researcher would approach the problem using formal, technical and generally prescribed methods, whereas in CI, the problem can be explored from the inside—by the educators as the investigators themselves.

> When students learn math, for example, by arguing their way toward understanding, they become better not only in math but also in other subjects such as science and literature. We and others call this form of talk "Accountable Talk."
> In Accountable Talk classrooms, students hold themselves responsible for getting the facts right, for thinking through challenges together, and for following rules that encourage participation (such as respectful listening). In other words, their talk is accountable to knowledge, to reasoning, and to community. (Resnick, Asterhan, & Clarke, 2018, p. 17)

Language and framework used in formal research methods	Language and framework used in Collaborative Inquiry
1. Research question(s) Example: "Who are the students who struggle with the teaching strategy Accountable Talk©? 2. In what manner do these students struggle with the teaching strategy Accountable Talk©?" (Dittman, 2014).	**1. Inquiry question(s)** Example: Using word-walls and spending time clearly defining and articulating language concepts in mathematics, we hope to improve our students' mathematics learning.
2. Literature Review (Arguing For the Study, Based On What Is And Is Not Known) Example: "previous research has found that…, therefore, this study will explore or demonstrate…" Rigorous search of research findings to build either a conceptual rationale for the study or link with previous theory to justify the need for the study. A logical roadmap of rationale and proposed decisions to guide the researcher for the purpose of transparency and if applicable, replication. In quantitative research, this component of the research is quite substantive and deductive. Analysis is prescribed and pre-planned. In qualitative research, the philosophical underpinnings are thoroughly explained and rationalized. More emphasis is on the open analysis. Both require extensive ethical considerations from their respective institutions.	**2. Exploring the Connection Between the Student Learning Needs and the Teacher Learning Needs** Example: We wonder if mathematics learning is hindered by the lack in literacy of the various mathematics concepts used. We don't know if the language is a barrier to the learning, so we need to test this out. We wonder, if students used more 'accountable talk' in mathematics, would they have a better understanding of what the questions are asking? If they understand the question better, they will have a better chance at arriving at the correct answer. We believe, if students have a clearer understanding of the language used for mathematics concepts and expectations, we will be able to better target mathematics gaps to increase mathematics performance.

3. Methodology (Participants and Procedures) Quantitative or mixed methods, use designs such as an experimental, quasi-experimental, repeated measures, or correlational. Each design carries specific assumptions and data collection methods. Example: Random assignment of students to two or more groups, surveys, and tests. In her mixed methods study, Dittman (2014) first conducted a survey with students to measure their attitudes towards Accountable Talk© practices. This helped her to identify students who struggle the most with this teaching strategy. Qualitative or mixed methods use case study, grounded theory, phenomenology or narrative inquiry. Example: Interviews and focus groups, observations, journals and reflections. After identifying the struggling students, Dittman (2014) conducted interviews with them.	**3. Theory of Action (Chain of If/Then Statements)** Example: 1. **If** we learn what accountable talk is and how it is implemented**, then** we can employ best practices in our classroom**.** 2. **If** we learn about accountable talk best practices from the following sources (book, consultant, course), **then** we will be able to teach our students about using mathematics language better. 3. **If** students understand the mathematics concepts demonstrated by the use of accountable talk and as evident from tasks/assignments, **then** we can test their knowledge of the math concepts. 4. **If** students demonstrate their understanding of the math concepts by using language effectively, **then** we can begin to differentiate between language and math knowledge application. 5. **If** we can differentiate student's math knowledge from possible language barriers, **then** we can target skill gaps more effectively. 6. **If** we can target skill gaps more effectively, **then** we can design lessons to address those gaps. 7. **If** we can address learning gaps effectively, **then** students will demonstrate better math learning.
4. Data Analysis Data collected and analyzed typically fit into an analytical framework prescribed by the method. Quantifying phenomena with numbers and statistical tests determine the likelihood or chance of it being a true effect observed. Qualitative approaches use thematic analyses of words, statements, behaviours, field notes, and observations or visual inspection of photos, art or performances.	**4. Assessing Impact** Data collected must fit the inquiry – data could come from descriptive feedback, series of observations, student work (e.g., a tally of the words they used), their reflections on the usefulness of instruction, or what was missing for them. Perhaps the teachers held an informal focus group and recorded the student feedback session. Perhaps they surveyed the students… In short, there is no prescribed way of determining impact of the inquiry. The only danger is in collecting too much evidence—data are used in specific ways only to inform next theory of action steps, not resolve the complexity of learning mathematics. The impact of each iteration of the inquiry leads to the next, there is no true conclusion, or right or wrong conclusion– just an honest and unbiased outcome of information that serves to guide the next steps. It is not a project with an end-date, but a flexible ongoing process. The data may lead a change in direction for the team; they may mean going deeper or more specific in the lesson planning or the assessment if the outcome is not what was expected. Data may also show clearly to the group that the process is working. The goal of the analysis of data determining impact simply means to plan for the next iteration of the collaborative inquiry.

5. Conclusions and Limitations Limitations of the study and general conclusions are laid out in a formalized research study. The author is expected to make summative clear statements about the analysis and how it supports answer to research questions, as well as demonstrate how their research supports the building of knowledge in the field of education. If the study cannot connect to the big picture, it is unlikely it will get published, and the work is filed away in a drawer. Researchers outline all the possible limitations to the study and suggest clear next steps for further research. They may or may not engage in this line of inquiry again. If the author does not wish to continue with building on this research, it is published and left up to other researchers to pick up and build on. Through the peer-review process, other researchers determine if the study is worthy to be shared based on the fidelity of the work, the quality of the writing in presenting the study, and how well the researcher adhered to the rules and expectations of the methods in their field of expertise.	**5. Sharing and Knowledge Mobilization** The journey and experience need to be communicated and shared with other educators. This will likely encourage further sharing of experiences and growing of the inquiries. Teams of educators may decide what and how to scale up with other classes, divisions, or schools. They connect with other similar collaborative inquiry groups, and refine the inquiry and theory of action. This step can move as fast or slow as desired. It is shared organically with others. It builds trust within the school, demonstrates responsive teaching, and an authentic learning opportunities for collaborative inquiry members who have taken control over their own professional learning. Teachers, administrators and other staff members involved are the owners of the process, results and sharing.

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The MKN is funded by the Ontario Ministry of Education. The MKN is a KNAER Project, hosted by the Fields Institute for Research in Mathematical Sciences. The views expressed in this document belong to the author and do not necessarily reflect the opinions of the Ministry of Education nor the Ontario government.