





COLLABORATIVE INQUIRY

A Facilitator's Guide



LEARNING FORWARD ONTARIO

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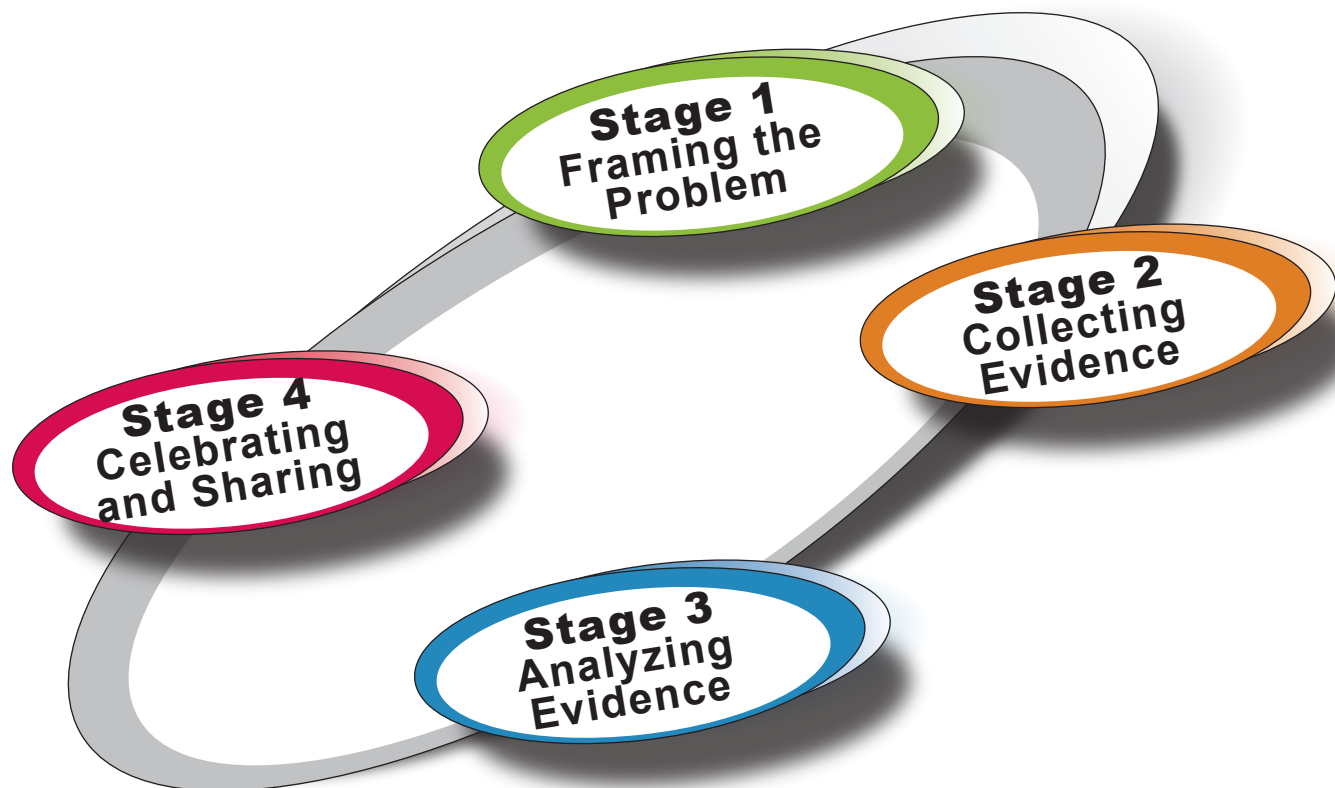
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Table of Contents



Introduction	i
Stage One - Framing the Problem	1
Determining a Meaningful Focus	1
Determining a Shared Vision	3
Sphere of Concern versus Sphere of Influence	5
Writing a Purpose Statement	6
Developing an Inquiry Question	9
Formulating a Theory of Action	11
Identifying Underlying Assumptions	15
Stage Two - Collecting Evidence	19
Identifying Types of Data for School Improvement	19
Where to Collect Evidence	22
How to Collect Evidence	24
When to Collect Evidence	28
Stage Three - Analyzing Evidence	29
Organizing the Data	30
Reading the Data	30
Describing the Data	30
Classifying the Data	31
Interpreting the Data	32
Stage Four - Celebrating and Sharing	33
Preparing to Write	33
Writing the Report	34
References	37

COLLABORATIVE INQUIRY

A Facilitator's Guide

What is Collaborative Inquiry?

Collaborative inquiry is a process in which participants come together to examine their own educational practice systematically and carefully using techniques of research. It may include as few as two educators or a group of several educators interested in addressing a school, department, division, or classroom issue driven by the consideration of student learning needs. Teams work together to narrow the question, gather and analyze evidence, determine action steps, and share their findings and recommendations.

Why Collaborative Inquiry?

Collaborative inquiry is a powerful design for professional learning as it recognizes the role of teachers in ongoing school improvement. This self-directed approach to professional growth is well documented as a rewarding professional learning experience for those who engage in the process. Introducing collaborative inquiry into the work of professional learning communities will help in establishing a culture of inquiry and reflection. Collaborative inquiry results in thoughtful action aimed at improving practice based on the careful examination of evidence.

Leaders in educational change continue to promote collaborative inquiry as a strategy for strengthening teaching and learning. Reeves (2010), encourages teachers to take an active role in expressing and testing hypotheses. Katz, Earl, and Ben Jaafar (2009) include collaborative inquiry that 'challenges thinking and practice' as a key component in their theory of action for enabling impactful Professional Learning Communities. Stoll (2010) describes collaborative inquiry as a means in which learning communities "deconstruct knowledge through joint reflection and analysis, reconstructing it through collaborative action, and co-constructing it through collective learning from their experiences" (p. 474).

"Schools implementing collaborative inquiry not only improved student achievement on state tests and other local measures, they changed their school culture by increasing collaboration and reflection on practice among teachers"
(Love, N., 2009, p. 7).

In my own experience facilitating inquiry teams, I have found the approach offers participants a systematic way to explore issues and determine resolutions through shared inquiry, reflection, and dialogue. It enables educators to make better informed, evidence-based decisions about issues that are directly related to improving the learning for the students in their schools. Rather than being merely consumers of research and the professional knowledge that accompanies it, those who participate in collaborative inquiry become producers and disseminators of knowledge.

About This Resource

This resource has been designed for use by school teams interested in engaging in a formal process of inquiry. Contained in this Facilitator’s Guide is a four-stage model for collaborative inquiry.

Stage 1 – Problem Framing

During this stage, the team determines a shared vision, develops an inquiry about a particular link between professional practices and student results, and formulates a theory of action.

Stage 2 – Collecting Evidence

In the second stage, collaborative inquiry teams determine what type of data to collect, how to collect the data, and where to collect it.

Stage 3 – Analyzing Evidence

Teams learn how to make meaning of data by identifying patterns and themes and formulating conclusions.

Stage 4 – Celebrating and Sharing

During this final stage, teams come together to celebrate and share their new understandings.

Through this process, participants create and share knowledge that can be used to help others improve their practice. Reeves (2010) backs the notion that collaborative inquiry can have a profound impact on the professional practices of participants’ colleagues in part because it demonstrates that research conducted by outsiders is relevant and effective in local contexts (p. 74). In other words, it can help bridge the gap between theory and practice.

Forming a Collaborative Inquiry Team

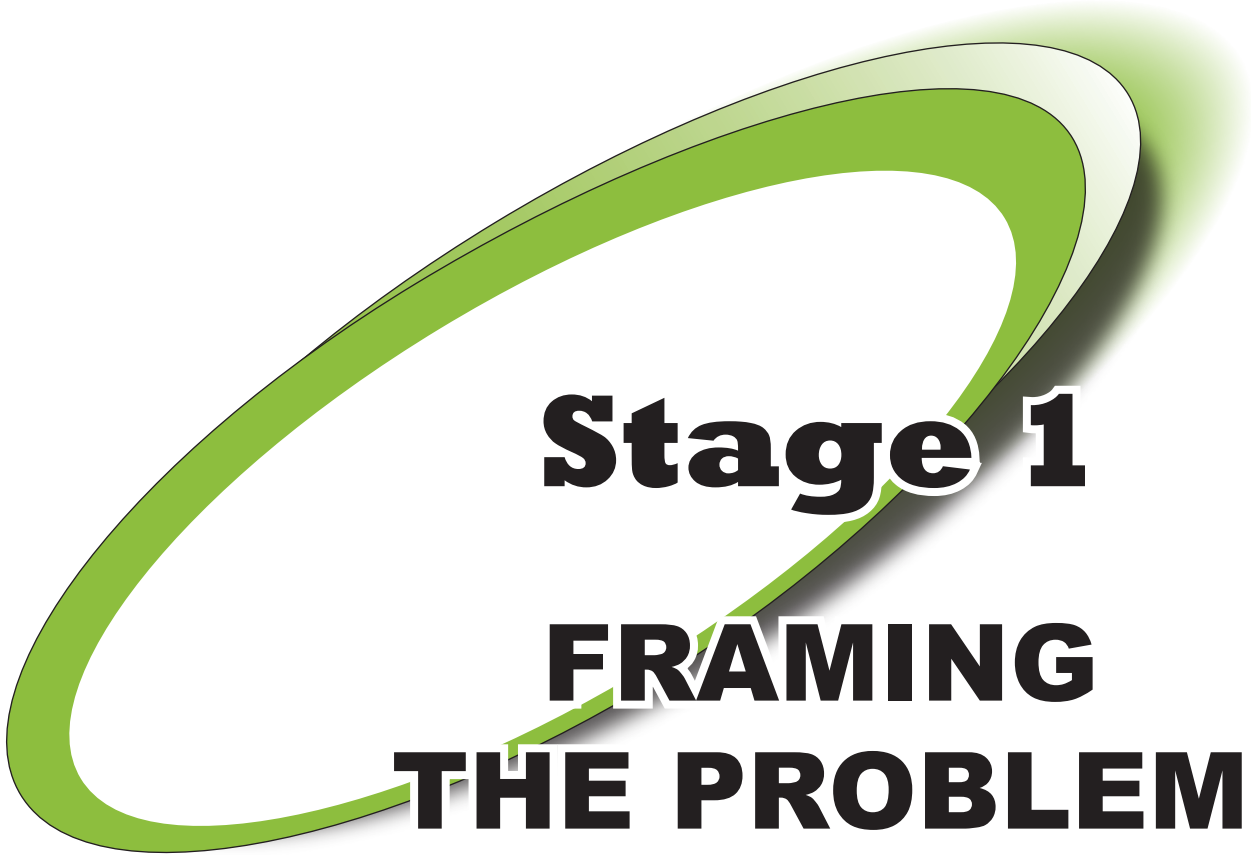
Katz et al., (2009) suggest that formal leaders “distribute leadership, identifying those teacher leaders who are in the position to lead in a focus area because of their expertise” (p. 75). Identifying informal leaders who are open to sharing their practice and have the ability to engage and motivate other staff is important. Additionally, the collaborative inquiry team should consist of individuals who are able to take action and willing to out the inquiry in their schools, departments, divisions, or classrooms. Team members should be made aware of the commitment of time and energy that will be required through out the process.

Team work and individual contributions are very important, and it may be that tensions arise as the team works through the inquiry process. When these obstacles are overcome, there will be a sense of ownership and accomplishment in what results from the team’s efforts.

Dr. Jennifer Donohoo

“Learning is powerful when teachers and administrators work to understand how a school can improve learning for all children, identify strategies, collect and analyze data from student work and teacher practice. More powerful designs require learners to take specific action which may include trying a new technique and reflecting on what was learned. When people do things together, their experience is enriched.”
(Easton, 2004; p. 4).

“Collaborative inquiry relies on every teacher becoming a change agent.”
(Love, N. 2009, p. 9).



Stage 1

**FRAMING
THE PROBLEM**

STAGE ONE

Framing the Problem

During this stage your team will frame a problem, develop an inquiry question, and formulate a theory of action.

Contained in this section are activities designed to scaffold participants through each of these processes.



PROBLEM FRAMING CRITERIA

Conducting collaborative inquiry has proven to be both rewarding and productive for educators, if the focus of the inquiry meets certain criteria. It must:

- be based on identified and current student learning needs, be authentic, relevant to your work, and worth the investment
- connect to a shared vision – something the team wants to make better
- address an issue that you can do something about
- be manageable – you must have the time necessary to investigate the issue

The activities in this section are designed to help your group find a meaningful focus for your collaborative inquiry, establish a shared vision, and ensure your inquiry is within your team's sphere of influence.

ACTIVITY #1

DETERMINING A MEANINGFUL FOCUS

The purpose of this activity is to ensure that the focus for your team's inquiry is based on current student learning needs. It is meant to ensure that the issues identified are authentic, relevant, and worth the investment of time and energy that will be required to investigate the issue.



Materials Needed: Sticky Notes
Pen
Blank Chart Paper

a) Identify Student Learning Needs

Provide each team member with sticky notes. Ask individuals to identify student learning needs.

What are some key student learning needs? Request that participants write one idea in response per sticky note. Instruct them to work silently on their own.



Possible Prompts: What is it that your students struggle with the most? What do many of your students experience difficulty doing?

Next, ask individuals to reflect on each need identified and provide evidence that verifies the need. Record the evidence on the same sticky note.

STAGE ONE

Framing the Problem



Possible Prompts: Review the needs you identified. How do you know these are needs? What is the evidence? What is it about students that caused you to believe the issues identified are needs?

Need: Students experience difficulty forming and supporting an opinion.
Evidence: Most students provide a reason for their position but they do not always provide support for their reason.

Need: Students experience difficulty comprehending while reading.
Evidence: They have the ability to regurgitate, but when asked to explain what something means, they can't do it.

Need: Students need better problem-solving skills in mathematics.
Evidence: Students require a lot of assistance in understanding problems and often can not generalize their learning to new situations.

Need: Students lack the ability to provide quality, descriptive feedback to their peers.
Evidence: Peer assessment forms and conversations during peer feedback conferencing.

b) Identify Common Issues

In silence place all the sticky notes on a piece of blank chart paper. Reminding participants to remain silent, ask them to organize ideas by natural categories.



Possible Prompts: Which ideas go together? Without talking, move your sticky notes and the notes of others so that the identified student learning needs are organized by category.

Once the team has settled on the categories, have them place the sticky notes in neat columns on the chart paper. Ask them to discuss the categories and determine a label for each category.

c) Prioritize

Next, have an open discussion using questions such as the following to help your team prioritize and narrow the focus of the inquiry.

STAGE ONE

Framing the Problem



Possible Prompts: What additional evidence do we need to consider that will help inform our decision?

Based on the identified student learning needs, what are the priorities our team should be working on collaboratively?

Which of the priorities is the most important to us? Why?

Which of the priorities is broad enough to involve most of the staff?

Which of the priorities has the potential for wide impact?

After your team has narrowed down its priorities, revisit the first prompt and ask again: What additional evidence do we need to consider that will help inform our decision?

ACTIVITY #2

DETERMINING A SHARED VISION

Holding a clear vision of success is important for your collaborative inquiry team. It will help your team determine where they want to go and how to get there.

The purpose of this activity is to ensure your team shares a clear vision of what success looks like and sounds like.



Materials Needed: Journals
Pens

Earl (2003) shared the work of an Australian researcher who identified three categories of futures for education.

Possible Futures:

- things that could happen, although many of them are unlikely
- things that probably will happen, unless something is done to turn events around
- things that you prefer to have happen and/or that you would like to happen

Share the following example: A team of junior teachers at Anderdon Public School want their students to become more proficient problem-solvers in mathematics. They described their preferred future this way:

*“If you want to build a ship,
don’t drum up people to
collect wood and don’t assign
them tasks and
work, but rather teach them
to long for the endless
immensity of the sea.”*
– Antoine de Saint-Exupery

*“It is possible to take
deliberate actions to
maximize the chance of
achieving preferred futures
– for young people, for the
teaching profession, for
schools, and for societies.”*
(Earl, 2003, p. 4)

STAGE ONE

Framing the Problem

"We want to see our students become proficient problem-solvers. It isn't enough for them to gain procedural understanding; we also want them to gain conceptual understanding so that they can transfer skills from one situation to another. We want our students to have a number of strategies at their disposal and confidence in their ability to select and implement appropriate solution strategies. We want them to understand the value of approaching problems in a systematic manner and persevere when faced with difficult problems."

Guide team members in developing a shared vision of a preferred future by having them consider the top priority identified in the first activity.

Pose the question: If the team was to meet with success, what would the results be? In other words, what is the team's preferred future?

*"We each need to take the time to decide what it is that we believe education is for; not because someone tells us, or the rules dictate, but because we believe it is right and just. Once we have an image of the future we prefer, getting there is possible. It may be difficult; we may have to change, to learn, to live in dissonance, and to stand firm in our beliefs. But it is possible."
(Earl, 2003, p. 4)*



Possible Prompts: Imagine that it is two years from today's date. Our team has succeeded in creating its most desirable outcomes. What would that look like? Sound like?

Describe it as if you were able to see it, realistically around you.

When imagining your preferred future be sure to:

- draw on the beliefs of the organization
- describe what you want to see in the future
- be specific, positive and inspiring
- the sky is the limit - do not assume that current structures will stay in place
- be open to dramatic modifications

Ask the team to record their preferred future in their journals.



Note: *You might ask teams to include this with their final report.*

Next, have the team consider the following questions:

Where are we right now in relation to our preferred future?

What have we tried so far to support our vision?

What factors or obstacles have prevented us from achieving the level of success described in our preferred future?

What is our team's role in creating this vision of the future?

What do we know (that we need to know)?

What don't we know (that we need to know)?

What don't we know, period?

STAGE ONE

Framing the Problem

ACTIVITY #3

SPHERE OF CONCERN VERSUS SPHERE OF INFLUENCE*

The purpose of this activity is to examine your team's sphere of concern and ensure that action is within the team's sphere of influence. In other words, you are trying to determine if the team has direct influence over its concerns and priorities.



Materials Needed:

A copy of the Sphere of Concern and Influence Graphic
Sticky notes

Ask your team to place themselves in the smallest, center circle and imagine success lies outside all of the circles. List in the outer ring (in the Sphere of Concern) all the things your team is concerned about regarding the student learning needs and priorities identified. Make sure the list is exhaustive – list all of the team's concerns.

Next, determine which issues from the outer ring your team has influence over. List these 'Spheres of Influence' in the middle ring. Think carefully and critically about what you place in this middle circle.

By considering what your team placed within the sphere of influence you should now have a well framed problem for inquiry.

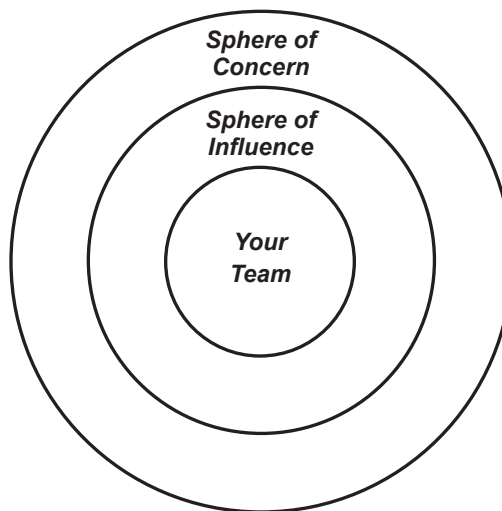
What do you see? What is significant?

What differences do you notice between the two outer circles?

What does it mean for your team's work?

Facilitator Notes: As you work to make changes in your sphere of influence, this sphere gets larger. You will begin to have more influence to affect change in your sphere of concern.

Sphere of Concern and Influence



* This activity was adapted from the National School Reform Faculty.
See http://www.nsrffharmony.org/protocol/a_z.html#O

STAGE ONE

Framing the Problem

PROBLEM FRAMING – CHECKING CRITERIA

As stated earlier, conducting collaborative inquiry will be both rewarding and productive for your team *if* the focus of the inquiry meets the criteria listed below.

Check your team's identified priority against the criteria. How did your team do?

Your team's focus should:

- be based on identified and current student learning needs, be authentic, relevant to your work, and worth the investment
- connect to a shared vision – something the team wants to make better
- address an issue that you can do something about
- be manageable – you must have the time necessary to investigate the issue

PROBLEM FRAMING – DEVELOPING AN INQUIRY QUESTION CRITERIA

The question your team formulates will determine the action required, evidence needed to make decisions, sources of data collection, and the data collection.

The inquiry question must meet certain criteria. It must:

- contain neutral exploratory language
- begin with words how or what
- specify the focus for your team's inquiry

The activities in this section are designed to help your group develop an inquiry question that meets these criteria.

ACTIVITY #4 WRITING A PURPOSE STATEMENT

The purpose statement describes succinctly the overall intent of the inquiry. It sets the direction for data collection and reporting (Creswell, 2002).



Materials Needed: Journals
Pens
Examples of Purpose Statements (page 7)

Collaborative inquiry is often associated with qualitative designs. Qualitative designs use broad questions and explore central phenomena. The formula, provided in this guide, for developing a purpose statement lends itself to a qualitative design.

STAGE ONE

Framing the Problem

a) Sharing Examples

Share the 'Examples of Purpose Statements' with team members. Note that each purpose statement was developed based on a problem framed based on an identified student learning need. Provide time for members to read each example then ask the team to assess each purpose statement based on the following:

Qualitative Purpose Statements:

- state the issue to be explored
- use words that convey intent about the exploration of the issue such as 'discover', 'understand', 'explore', or 'describe'
- mention the participants in the inquiry

Facilitator Notes: Examples #1-4 contain the suggested information. Examples #5-8 are missing key ideas and/or contain wording that would lend itself to a quantitative inquiry rather than a qualitative design. You might ask participants how examples #5-8 could be improved to better reflect the formula provided.

Examples of Purpose Statements:

Example #1

Student Learning Need: Students focus on numeric scores and tuck their work away once it's been graded. They don't appreciate the learning that could have taken place if they had used assessment information to revise and improve their work.

Problem Framed: As school administrators, it is important to assist teachers in developing strategies to support assessment for learning in our school.

Purpose Statement: The purpose of this inquiry is to explore how to better help teachers understand how to use assessment for learning to improve the learning of their students.

Example #2

Student Learning Need: Students enrolled in applied level classes need additional support in order to succeed in passing the Ontario Secondary School Literacy Test and to close the gap in achievement between students enrolled in applied courses and students enrolled in academic courses.

Problem Framed: Closing the achievement gap between students studying at the applied and academic levels in 3 secondary schools.

Purpose Statement: The purpose of this inquiry is to explore how to close the gap in literacy achievement between students studying at the applied and academic courses.

STAGE ONE

Framing the Problem

Example #3

Student Learning Need: Students have difficulty making connections between what is taught and the real world.

Problem Framed: Students often fail to see the relevance or purpose in content being presented in classrooms.

Purpose Statement: The purpose of this inquiry is to discover how to establish relevance and purpose so that students make better connections between what they are learning in school and the world around them.

Example #4

Student Learning Need: Students experience difficulty summarizing material and identifying important information for note-taking purposes.

Problem Framed: Students lack the skills necessary to extract main points from printed text and classroom lectures.

Purpose Statement: The purpose of this inquiry is to understand how to best support students in gaining skills needed to summarize materials in history classes.

Example #5

The purpose of this inquiry is to explore what results from implementing the Ontario Comprehension Assessment (OCA).

Example #6

The purpose of this inquiry is to describe student work when providing multiple opportunities to demonstrate knowledge and skills in a variety of ways.

Example #7

The purpose of this inquiry is to compare intermediate students' ability to self-regulate before and after the introduction of a self-regulating tool.

Example #8

The purpose of this inquiry is to determine if noise level affects time on task.

b) Writing the Statement

Provide the following formula for writing a purpose statement:

The purpose of this inquiry is to (explore? discover? describe? understand?) (the issue) for (participants).

Guide your team in using the formula to write a purpose statement.



Note: You might ask teams to include their purpose statement in their final report.

STAGE ONE

Framing the Problem

ACTIVITY #5 DEVELOPING AN INQUIRY QUESTION

As mentioned earlier, the inquiry question must meet certain criteria:

When formulating the question:

- use neutral exploratory language
- begin with words how or what
- specify the focus for your team's inquiry



Materials Needed: Inquiry Questions - Examples - Strong and Weak
Inquiry Questions - Answer Key

In preparation, photocopy and cut out the examples of strong and weak questions contained on the handout 'Inquiry Questions - Examples - Strong and Weak'. Share the criteria for formulating a question with your team. Ask the team (in groups of 2-3) to determine which questions are strong and which are weak by sorting them into categories 'strong' and 'weak'.



Possible Prompts: The examples on the strips of paper illustrate both strong and weak inquiry questions. Remember that well developed questions use neutral exploratory language, begin with the words how or what, and specify the focus for the team's inquiry. Read each question and sort it according to the categories 'strong' and 'weak'.

INQUIRY QUESTIONS – EXAMPLES – STRONG AND WEAK

1. How can we implement more effective note-taking strategies?
2. What are the results if we do not deduct marks for late assignments?
3. What is the impact of using exit cards with my students?
4. What is the result of training teachers in moderation of student work?
5. What can we do to improve students' peer assessment skills?
6. How can we work with teachers to help students achieve success in their written work through student led conferences?
7. How can we support intermediate teachers in implementing individual goal setting strategies in their classroom to improve student learning?
8. What support do administrators need to help promote teachers' understanding of assessment as learning?
9. How does an elimination of number grades throughout the year (with the exception of end of term/semester grades) impact student attitude toward learning?
10. How can 'Self Assessment Matrixes' be used to improve the self regulation skills of adolescents?
11. Does a sense of belonging affect academic achievement?
12. Will listening to students give me a better understanding of their needs?
13. Will the use of metacognitive strategies increase students' ability to self-regulate?

STAGE ONE

Framing the Problem

14. Does increased collaboration lead to increased student achievement?
15. Can we promote student self assessment through guided reading instruction and independent reading opportunities?
16. What is the relationship between asking essential questions and student motivation?
17. Has student achievement increased as the result of technology being integrated into the classroom?
18. Can reality-based programming be used to motivate students and parents to engage in the learning process thereby favourably affecting levels of achievement?

ANSWER KEY – EXAMPLES OF STRONG QUESTIONS

1. How can we implement more effective note-taking strategies?
2. What are the results if we do not deduct marks for late assignments?
3. What is the impact of using exit cards with my students?
4. What is the result of training teachers in moderation of student work?
5. What can we do to improve students' peer assessment skills?
6. How can we work with teachers to help students achieve success in their written work through student led conferences?
7. How can we support intermediate teachers in implementing individual goal setting strategies in their classroom to improve student learning?
8. What support do administrators need to help promote teachers' understanding of assessment as learning?
9. How does an elimination of number grades throughout the year (with the exception of end of term/semester grades) impact student attitude toward learning?
10. How can 'Self Assessment Matrixes' be used to improve the self regulation skills of adolescents?

ANSWER KEY – EXAMPLES OF WEAK QUESTIONS

11. Does a sense of belonging affect academic achievement?
12. Will listening to students give me a better understanding of their needs?
13. Will the use of metacognitive strategies increase students' ability to self-regulate?
14. Does increased collaboration lead to increased student achievement?
15. Can we promote student self assessment through guided reading instruction and independent reading opportunities?
16. What is the relationship between asking essential questions and student motivation?
17. Has student achievement increased as the result of technology being integrated into the classroom?
18. Can reality-based programming be used to motivate students and parents to engage in the learning process thereby favourably affecting levels of achievement?

Facilitator Notes: If you feel your team needs to further their understanding around developing a strong inquiry question, you might consider asking them to revise the examples of weak questions. How could the weak questions be re-worded to make them stronger and better reflective of the criteria?

Take the time to develop your inquiry question.



DEVELOPING AN INQUIRY QUESTION – CHECKING CRITERIA

Check your question against the criteria. How did your team do?

Does your inquiry question:

- contain neutral exploratory language?
- begin with the words how or what?
- specify the focus of your team’s inquiry?



FORMULATING A THEORY OF ACTION CRITERIA

Your team’s theory of action will help your team to align the intended theory with the enacted theory through reflection and dialogue.

In order to do so, it must:

- be committed to in writing
- contain statements of causal relationships
- contain statements that can be disproved

ACTIVITY #6

FORMULATING A THEORY OF ACTION

The purpose of this activity is to formulate causal connections (in the form of ‘if-then’ statements) to serve as a story line that will connect your team’s preferred future with the more specific strategies used to improve teaching and learning. Your team’s theory of action will be helpful in creating your data collection plan (stage 2 of the collaborative inquiry process).



Materials Needed: Journal
Pens
Theory of Action Cards
Theory of Action T-Chart

“A theory of action can be thought of as a story line that makes a vision and a strategy concrete. It gives the leader a line of narrative that leads people through the daily complexity and distractions that compete with the main work of the instructional core. It provides the map that carries the vision through the organization. And it provides a way of testing the assumptions and suppositions of the vision against the unfolding realities of the work in an actual organization with actual people.”
(City, Elmore, Fairman, & Teitel, 2009, p. 40)

“Probably the two greatest failures of leaders are indecisiveness in times of urgent need for action and dead certainty that they are right in times of complexity.”
(Fullan, 2008, p. 6)

STAGE ONE

Framing the Problem

Killion (2008) described a theory of action as “a comprehensive representation of how the program is intended to work” (p. 41) and suggested that program designers develop theories to assist them in articulating the various components of the program and to provide an explanation of how the change is expected to occur. Killion suggested that these theories help program evaluators “determine those aspects of the program on which to focus the evaluation’s data collection” (p. 43).

City, Elmore, Fiarman, and Teitel (2009) describe a theory of action as “the story line that makes a vision and a strategy concrete” (p. 40) and suggested that it was important “for individuals to commit to a theory of action in written form” (p. 44) as they “provide the opportunity to test our presuppositions about what we think will work against the evidence of what actually works” (p. 56).

Provide your team with the following theory of action cards. In preparation, photocopy and cut out the individual cards. The first set of cards should be printed on a different colour paper than the second set of cards. Ask team members to organize cards in a chronological order they feel makes sense.

Theory of Action Cards

Set 1

Administrators and grade 9 and 10 content area teachers are invited to attend a professional development session to learn more about non-fiction writing.

Administrators vocally, visibly, and actively support teachers’ implementation of non-fiction writing.

Teachers meet regularly to share successes and challenges of implementing non-fiction writing in their content area classrooms.

Teachers work with the instructional coaches in their schools.

Teachers implement effective teaching and learning strategies for non-fiction writing.

Set 2

Administrators and teachers will gain a better understanding of the purpose of non-fiction writing.

Teachers will feel supported and will be more likely to implement the knowledge and skills gained from the initial professional learning session.

Teachers will feel the support of their colleagues and learn additional strategies for supporting students. Teachers will also appreciate the benefits.

Teachers will develop additional effective teaching and learning strategies and will be more likely to implement these strategies.

Student learning will increase.

STAGE ONE

Framing the Problem

Answer Key

If ...	Then...
Administrators and grade 9 & 10 content area teachers are invited to attend a professional development session to learn more about non-fiction writing.	Administrators and teachers will gain a better understanding of the purpose of non-fiction writing.
Administrators vocally, visibly, and actively support teachers' implementation of non-fiction writing.	Teachers will feel supported and will be more likely to implement the knowledge and skills gained from the initial professional learning session.
Teachers meet regularly to share successes and challenges of implementing non-fiction writing in their content area classrooms.	Teachers will feel the support of their colleagues and learn additional strategies for supporting students. Teachers will also appreciate the benefits.
Teachers work with the instructional coaches in their schools.	Teachers will develop additional effective teaching and learning strategies and will be more likely to implement these strategies.
Teachers implement effective teaching and learning strategies for non-fiction writing.	Student learning will increase.

Once the team has had an opportunity to construct a sample theory of action using the theory of action cards, provide the answer key and ask team members to compare their chronological organization with the answer key.

Fullan (2008) cautions educators about adopting theories developed out of context and employing actions without reflection. He also reminds leaders of the need to remain fluid in their thinking when formulating and reformulating theories. Due to the complex nature of the world in which we live, there will be a need to reconstruct theories when new evidence that can inform our thinking and direct our actions is uncovered.

Use the Theory of Action T-Chart to develop a theory of action based on your preferred future, purpose statement, and inquiry question.

*"One skill clear leaders possess is that they know what their theories of action are (their beliefs about how to accomplish something) and can explain them in simple, direct ways to the people they work with."
(Bushe, 2011, p. 12)*

STAGE ONE

Framing the Problem

When considering your team's preferred future, what are three to four things that could be done to make it happen? What might be the outcome for each action described?

Theory of Action T-Chart

If...	Then....

STAGE ONE

Framing the Problem

Once your team has developed its theory of action ask them to consider the following:

Are all key stakeholders represented in the theory of action?

Are the actions key stakeholders need to take clearly articulated?

Is the theory organized chronologically?

Is the end result an increase in student achievement?

Ask the team to revise the theory accordingly based on the discussion.

Patton (1997) describes a theory of action as “a straightforward articulation of what is supposed to happen in the process that is intended to achieve desired outcomes” (p. 223).

ACTIVITY #7

IDENTIFYING UNDERLYING ASSUMPTIONS

The most important component of a theory of action is identifying the underlying assumptions upon which the theory is based.

Consider the following about your team’s theory of action:

Based on the statements in your theory of action,
what do you assume to be true?

How have these assumptions influenced
your thinking about the problem framed?

Ask you team to consider the following example.

Problem Framed: There are a number of barriers that prevent the delivery of effective reading instruction in content-areas in secondary schools. One barrier is that teachers have not been properly trained to address students’ literacy needs and do not feel equipped.

Purpose Statement: The purpose of this inquiry is to explore what results from implementing specific explicit reading instruction in science, history, and geography classrooms in 3 secondary schools.

*“The best theories at their core are solidly grounded in action.”
(Fullan, 2008, p. 1)*

“I recommend traveling with a good theory because theories never assume absolute certainty and are humble in the face of the future. Good leaders are thoughtful managers who use their theory of action to govern what they do while being open to surprises or new data that direct future action.” (Fullan, 2008, p. 8)

*“The world has become too complex for any theory to have certainty.”
(Fullan, 2008, p. 5)*

STAGE ONE

Framing the Problem

Theory of Action – Explicit Reading Instruction in Secondary Science, History, and Geography Classrooms

If (Action)

Then (Outcome)

Administrators and content area teachers have access to classroom materials required to assess students' current level of reading ability.

Teachers will be better equipped to address individual student learning needs.

Administrators and content area teachers attend a professional development session to learn about explicit reading strategies and skills instruction.

Administrators and teachers will gain a better understanding of how to integrate explicit reading instruction within their curriculum.

Administrators vocally, visibly, and actively support the initiative.

Teachers feel supported and are more likely to use the information to address students' learning needs.

Teachers attend monthly meetings to learn about research-based strategies and share successes and challenges.

Teachers feel the support of their colleagues as they rehearse strategies in the meetings and in their classrooms.

Teachers work with the instructional coach a minimum of six times during the three months following the initial training session.

Teachers put into practice the research-based strategies they learned while attending the professional development session.

Coaches debrief lessons with content area teachers – considering what went well and what could be improved upon.

Teachers engage in deep reflection on their practice.

Teachers implement and monitor how the strategies they use affect student learning.

Teachers recognize how strategies can improve student learning and are motivated to continue implementing, monitoring, and evaluating various strategies in their classrooms.

Teachers debrief strategy instruction with their students – explicitly sharing information about how particular strategies will help facilitate performance – and when – why and how to use them.

Students will gain a better understanding of their own cognition and come to appreciate how strategies help them learn. They will also know how, when, and why to use various strategies.

Teachers employ methods that promote generalization and transfer of strategies.

Students become more strategic learners.

STAGE ONE

Framing the Problem

The theory depicted above is based on the following assumptions:

- teachers' understanding of various instructional strategies precedes their use of them
- in order to use new instructional strategies, teachers have the appropriate material, human, and time resources
- success builds with an increase in practice and support
- classroom-based coaching is the best way to support teachers as they apply new practices
- deep reflection of practice leads to re-construction of existing practices
- consistency and accuracy in implementation of new practices come over time
- student achievement comes from consistently applied, research-based instructional practices, delivered by teachers who have in-depth understanding of content and content-specific instructional strategies

“Good theories are critical because they give you a handle on the underlying reason (really the underlying thinking) behind actions and their consequences. Without a good theory, all you can do is acquire techniques – surface manifestations of the real McCoy.”

Identify the assumptions upon which your team's theory of action is based.



Possible Prompts: Based on the causal statements in your theory of action, what do you assume to be true? How have these assumptions influenced your thinking about the problem framed?



FORMULATING A THEORY OF ACTION - CHECKING CRITERIA

Check your theory of action against the criteria. How did your team do?

Is/Does your team's theory:

- committed to in writing?
- contain statements of causal relationships?
- contain statements that can be disproved?



Note: You might ask teams to include their theory of action with their final report.



Stage 2

**COLLECTING
EVIDENCE**

WHAT EVIDENCE IS GOING TO BE COLLECTED AND FROM WHERE?

ACTIVITY #8

IDENTIFYING TYPES OF DATA FOR SCHOOL IMPROVEMENT

Now that your collaborative inquiry team has a well defined inquiry question, they can start to consider what types of data to collect in order to answer it.

The purpose of this activity is to introduce participants to different types of data that can be used for school improvement planning and have the team begin to determine what evidence to consider in relation to their inquiry question.



Materials Needed: Handout - Types of Data for School Improvement (page 19)
Types of Data and Sources chart (page 20)

“Teachers increased the frequency with which they used multiple data sources and engaged in data-driven dialogue, and they made improvements in their teaching in response to the data.” (Love, N., 2009, p. 7)

TYPES OF DATA FOR SCHOOL IMPROVEMENT

Bernhardt (2002) identified four types of data that could be used for school improvement.

1. **Student Learning Data:** Student learning data help schools see the results they are getting now. These data tell schools which students are succeeding academically and which are not. They also guide planning, leadership, partnership, and professional development efforts. While large scale provincial assessments provide a source for student learning data so do the classroom assessments carried out day to day by educators.
2. **Demographic Data:** Demographic data are needed to describe the school context. These data provide the over-arching context for everything that the school does with respect to school improvement. These contextual data show who the students, staff, and community are and how they have changed over time. Some examples include enrollment, attendance, and language proficiency.
3. **Perceptual Data:** Perceptual data can tell us about student, parent, and staff satisfaction with the work of the school. Perceptual data can also help the school understand what is possible in the big picture of school improvement and what has been done internally to meet school improvement goals. Perceptual data can be gathered in a variety of ways, such as questionnaires, interviews, and observations.

STAGE TWO

Collecting Evidence

- School Process Data:** School process data provide staff with information about their current approaches to teaching and learning, programs, and the learning organization. It is these processes that will need to change to achieve different results. Bernhardt (2000) noted that “this is the measure that seems to be the hardest for teachers to describe, yet it is the one type of data that’s most readily available to document. To collect school process data, educators must systematically examine their practice and student achievement, making sure both are aligned with specifically defined, desired student outcomes.”

Facilitator Notes: Within each category a range of possible data sources exist. For example ‘Student Learning Data’ can be informed by report card grades, student work, and so on. Ask your team to brainstorm the different data sources that speak to the particular type of data. Use the chart below to record the team’s ideas. Keep in mind that much data already exists in schools. Some of the most frequently used and easily obtainable sources of data can make planning the collection data process much easier. Ask participants to first consider the information that is readily available in schools.



Possible Prompts: The chart below lists the four types of data that we just read about. Let’s brainstorm different sources for each type of data. As we think about sources, let’s consider first what information is already available in our Board and schools. In other words, what information do we already have that we don’t need to gather? (e.g., ‘Demographic Data’ - attendance records). Secondly, consider sources in which you might have to gather information (e.g., ‘Perceptual Data - survey). Record your ideas in the chart. Don’t limit your ideas based on your team’s inquiry. The purpose of this exercise is to brainstorm a list of possible sources for each category.

TYPES OF DATA AND SOURCES

STUDENT LEARNING DATA	DEMOGRAPHIC DATA	PERCEPTUAL DATA	SCHOOL PROCESS DATA

One category of data by itself gives useful information but by considering multiple sources, teams can gain a more vivid picture of what is happening in connection to the problem framed during the first stage of the collaborative inquiry process. The choice of data sources depends on the inquiry question, time and resources, and the availability of individuals. Consider the following examples:

STAGE TWO

Collecting Evidence

PROBLEM FRAMED	PURPOSE STATEMENT	INQUIRY QUESTION	TYPE OF DATA AND SOURCE
As school administrators, it is important to assist teachers in developing strategies to support assessment <i>for</i> learning in our school.	The purpose of this inquiry is to explore how to better help teachers understand how to use assessment <i>for</i> learning to improve the learning of their students.	How can administrators best support teachers in using assessment <i>for</i> learning strategies to improve student achievement?	School Process Data (e.g., assessment for learning strategies) Student Learning Data (e.g., daily work) Perceptual Data (e.g., teachers' perceptions)

PROBLEM FRAMED	PURPOSE STATEMENT	INQUIRY QUESTION	TYPE OF DATA AND SOURCE
Closing the achievement gap between students studying at the applied and academic levels in 3 secondary schools.	The purpose of this inquiry is to explore how to close the gap in literacy achievement between students studying at the applied and academic courses.	What can be done to close the gap in achievement between students studying at the applied and academic levels?	School Process Data (e.g., instructional and assessment practices) Student Learning Data (e.g., report card grades, OSSLT results, daily classroom assessments) Perceptual Data (e.g., students and teachers' perceptions)

Facilitator Notes: Ask team members to refer to the chart they completed 'Types of Data and Sources' and identify at least two types of data and a possible source for each question posed below:

What strategies will best support students who are English Language Learners (ELL) in problem solving in mathematics?

How can we best support reluctant male readers to help promote better reading comprehension?

How can we differentiate instruction in order to better meet the needs of our at-risk students?

How does the elimination of number grades impact student attitudes toward revising and editing written work?

“Collectively and interactively, these data begin to inform schools of the impact of current programs and processes on their students – so they can decide what to change to get different results. These data can also assist schools in understanding the root causes of problems as opposed to just focusing on symptoms.”
(Bernhardt, 2002, p. 47)

STAGE TWO

Collecting Evidence

ACTIVITY #9 WHERE TO COLLECT EVIDENCE

The purpose of this activity is to ensure evidence is triangulated when determining the sources for data collection for your inquiry question.

Triangulation: Triangulation is the process of corroborating evidence from different individuals (e.g., students and teachers), types of data (e.g., student learning data and school process data), or techniques of data collection (e.g., documents and interviews) in descriptions and themes in qualitative research.



Materials Needed:

- Data Collection Plan –
- Triangulation Matrix (page 21)

Distribute a copy of the Data Collection Plan to team members. Record the inquiry question in the space provided. Recording the question on the Data Collection Plan will help to focus the team on selecting evidence that is both valid and reliable.

“The more sources used and the more triangulation among them, the more you will be able to understand the problem and develop viable action plans.” (Creswell, 2002, p. 618)

“If teachers were part of the research team rather than mere recipients of research conducted by others, it is possible that the subsequent large-scale implementation of educational reforms could have been more successful.” (Reeves, 2008, p. 86)

DATA COLLECTION PLAN – TRIANGULATION MATRIX

Inquiry Question: _____

WHAT EVIDENCE IS GOING TO BE COLLECTED?	HOW IS THE EVIDENCE GOING TO BE COLLECTED?	WHEN IS THE EVIDENCE GOING TO BE COLLECTED? BY WHOM?
Data Source 1		
Data Source 2		
Data Source 3		

STAGE TWO

Collecting Evidence

Facilitator Notes: Ask the team to determine three sources of data that upon interpretation might inform the team's inquiry.



Possible Prompts: What data do we already have? What data do we need to gather? What is the best way to determine if any changes have occurred? What will we accept as evidence? What or who is the best source of information about the intended change?

Record each source in column 1 on the chart.

Facilitator Notes: During this process, the facilitator should keep referring team members back to the inquiry question.

For *each source* identified, ask the team:

How will this measure help us to understand our inquiry question?

Are we measuring what we *think* we're measuring?

How much confidence do we have in this data source?

In considering all *three sources* ask the team:

Are different types of data represented or do they all come from the same category (e.g., Student Learning Data)?

Are we gathering evidence from different groups/key stakeholders or is all the data coming from one group (students, teachers, etc.)?

Is this data going to be too difficult to collect or can we do so given current resources and time?

Provide the team time to revise column one based on the discussion.

"Validity refers to accuracy of interpretation and use of the data and answers the following questions: How well does the data measure what we are trying to understand? Does the interpretation of the data lead to appropriate conclusions and consequences?" (Earl, L. & Katz, S., 2006, p. 57)

"Reliability addresses the following questions: How sure are we? How confident are we that these data provide enough consistent and stable information to allow us to make statements about it with certainty?" (Earl, L. & Katz, S., 2006, p. 57)

"Using data is not a mechanistic process. It is a skill and an art and a way of thinking that includes an understanding of the nature of evidence, from its definition and collection to its interpretation and presentation." (Earl, L. & Katz, S., 2006, p. 7)

STAGE TWO

Collecting Evidence

ACTIVITY #10 HOW IS THE EVIDENCE GOING TO BE COLLECTED?

The purpose of this activity is to introduce participants to various techniques for collecting data so that they can determine the best data collection technique for their inquiry.



Materials Needed: Data Collection Plan – Triangulation Matrix (page 22)
Case Study (page 25)

There are many vehicles for the collection of data.

Conducting a survey
Administering questionnaires
Focus group interviews
One-on-one interviews
Observation
Video recordings

As mentioned earlier, teams may consider unobtrusive data collection techniques by accessing information that is already available.

Tests
Description of tasks assigned to students
Report cards
Attendance records
Student work
Results from large scale assessments
Meeting logs
Minutes from Professional Learning Communities
Day books
Mark books
Lesson plans
Portfolios
Self assessments

Which technique for collecting data makes the most sense for your team? In order to help the team select the technique that would work best for them, share the following Case Study.

CASE STUDY

Background Information: In reviewing this year's results from the Ontario Secondary School Literacy Test (OSSLT), a school improvement team discovered that the gap in achievement between students studying at the applied and academic level continues to get wider. While 96% of the students enrolled in academic English classes were successful on the OSSLT, only 50% of students studying at the applied level succeeded. This gap has grown by 2% each year for the past three years. The team decided to take a closer look and examined students' final report card averages over the past two years. The large discrepancy in achievement was reflected in the report card averages in English, geography, and history but not in science. In science, the final report card average for applied level classes was actually larger than the average for academic classes by about 4% each term.

The team was concerned that students in applied level classes were not reaching their full potential and identified the following student learning need:

Student Learning Need: Students enrolled in applied level classes need additional support in order to succeed in passing the Ontario Secondary School Literacy Test and to close the gap in achievement between students enrolled in applied courses and students enrolled in academic courses.

The school improvement team identified the gap as a priority and developed a goal to help them monitor their progress. They also decided to engage in the process of collaborative inquiry as a means to find out more about the issue and framed the problem as follows:

Problem Framed: There is a large gap in achievement between students studying at the applied and academic levels in this school. Since we want all of our students to meet with success, we need to learn more about how to increase achievement for students enrolled in applied level classes.

Purpose Statement: The purpose of this inquiry is to explore how to increase literacy achievement for students studying at the applied level.

The following page contains a copy of the team's plan for data collection.

DATA COLLECTION PLAN – TRIANGULATION MATRIX

Inquiry Question: *What can be done to increase the achievement of students studying at the applied level in one secondary school?*

WHAT EVIDENCE IS GOING TO BE COLLECTED?	HOW IS THE EVIDENCE GOING TO BE COLLECTED?	WHEN IS THE EVIDENCE GOING TO BE COLLECTED? BY WHOM?
<p>Data Source 1 School Process Data We would like to know more about the instructional and assessment practices used by teachers in various departments.</p> <p>We will collect evidence of instructional practices and assessments used in grade 9 and 10 science, English, geography, and history in applied and academic classes where teachers agree to participate.</p>	<p>By observing each other's classrooms and recording with objectivity evidence of what students and teachers are saying and doing.</p>	<p>Observations will take place during regularly scheduled instructional rounds.</p> <p>Evidence will be gathered by teachers who are conducting the rounds.</p>
<p>Data Source 2 Student Learning Data We have report card averages and OSSLT results for students studying at both applied and academic levels over the past 5 years.</p> <p>We would like to know how students are doing within a 3-4 week period of time so we will collect grade book data from teachers.</p> <p>We will track students who are currently achieving Level 2 and closely examine their work.</p>	<p>Existing records (we can collect up-to-date averages for students in each of the participating student work classes).</p>	<p>Every 4 weeks. Submitted to Mr. Jones by teachers who are participating.</p>
<p>Data Source 3 Perceptual Data We would like to know how students are reacting to and their understanding of the instructional and assessment practices used.</p> <p>We would also like to know which practices teachers feel are most effective and why.</p>	<p>By determining key questions to ask and conducting interviews with both students and teachers.</p>	<p>The questions interviews will be conducted during the weeks of September 21st, October 22nd, and November 24th.</p> <p>Interviews will be conducted by Mrs. Banes and Mr. Kenney.</p>

STAGE TWO

Collecting Evidence

Case Study Questions:

1. Does the plan seem reasonable in regard to available resources and time?
2. Does the data collection plan include a variety of sources?
3. Do you think the sources are valid and reliable given the inquiry question?
4. What additional information might this collaborative team consider collecting?

Facilitator Notes:

Data Source 1	The team is trying to find out more about the instructional and assessment practices used in classrooms within the school. In other words, they want to know what students or teachers (or other participants) are doing. Therefore, they chose to observe each other's classrooms. If you want to know what people are doing - observation is a way to find out.
Data Source 2	The team is trying to find out how students are responding to instruction within a 3-4 week period of time. Therefore, they will access existing records such as mark book averages and examine student work. In the long term, the team will continue to examine report card averages, track student work, and results from Provincial assessments.
Data Source 3	The team is trying to find out more about how students' respond and/or react to and their understanding of instructional and assessment practices. They also want to know which practices teachers feel are most effective and why. Therefore, they are going to conduct interviews. If you want to find out how individuals are reacting to and their understanding of the action taken - interviewing is a way to find out.

Which technique for collecting data makes the most sense for your team? Review the various vehicles for the collection of data and then provide time for your team to complete column 2 - identifying techniques they will use to collect evidence for their inquiry.

CAPTURING THE NECESSARY DETAILS

Facilitator Notes: In the next stage of collaborative inquiry - Analyzing Evidence - certain details, if captured, will assist teams in making sense of and drawing themes from the data. For example, consider data source #1 (instructional and assessment practices) in the Case Study presented. Since there is no gap in achievement between students studying in the applied and academic levels in the science department (revealed through the examination of report card grades), it would be important to know which instructional and assessment practices science teachers are implementing. Therefore, it is important to record the subject-area that was being observed while collecting evidence. It is also important to know which practices are being implemented in applied classrooms and which practices are being implemented in academic classrooms. It would also be helpful

STAGE TWO

Collecting Evidence

to know the date the data was collected. Including the date may be useful later if this team is interested in documenting changes in instructional and assessment practices over time. Ask your team to think carefully about capturing necessary details. It isn't always possible to determine which details are important prior to the collection of data, but thinking about it before hand, will assist the team in making sense and drawing themes from the data during the analysis stage of the process.

ACTIVITY #11 WHEN IS THE EVIDENCE GOING TO BE COLLECTED?

The purpose of this activity is for the team to determine when the evidence that will inform their inquiry will be collected and who will collect it.

Both teachers and administrators have always collected information but we have not been great in recording and analyzing data so that they can see subtle patterns and conduct a systematic analysis. The problem your team framed determines: the action required, the evidence needed to make decisions, the source of the data collection, and the techniques involved. Data collection must also be realistic to fit into the normal work patterns of a school otherwise, the process becomes cumbersome and eventually it will be abandoned. It is important to remember that data collection is something we do naturally and search for ways to build on existing and naturally occurring data collection rather than creating complicated schemes.



Materials Needed: Data Collection Plan – Triangulation Matrix (page 22)

Ask team members to complete the final column in the Data Collection Plan – When is the evidence going to be collected? You may also decide to include the name of the person(s) who is responsible for collecting the evidence.



DEVELOPING A DATA COLLECTION PLAN – CHECKING CRITERIA

Now your team should have a well developed plan for collecting evidence that will be used to inform their next actions. Check your plan against the criteria identified.

Is/Does your plan:

- committed to in writing?
- include a variety of sources for data collection that are valid and reliable?
- outline with transparency how the data will be collected?
- indicate when the data will be collected and by whom?
- ensure a manageable process for collection - given available time and resources?



Stage 3

**ANALYZING
EVIDENCE**

STAGE THREE

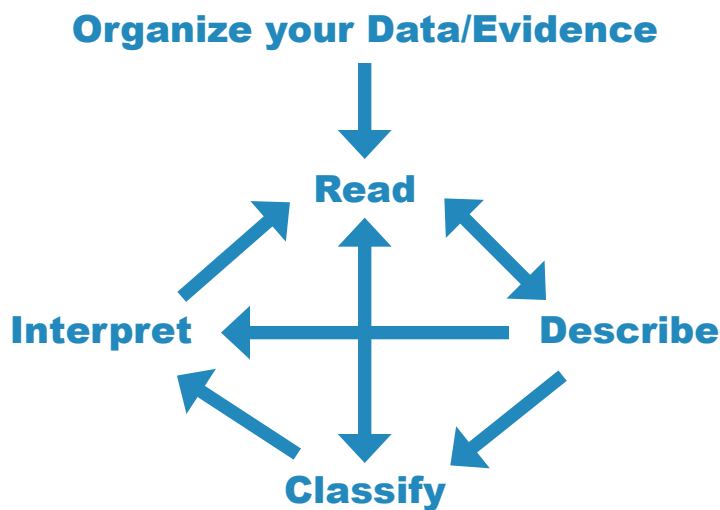
Analyzing Evidence

In the third stage, collaborative inquiry teams use a five step approach to analyzing data. The five steps include organizing, reading, describing, classifying, and interpreting.

The activities in this section are designed to assist your collaborative inquiry team in interpreting the evidence so that you can determine your next course of action.

Now that you have the data, it is time to make sense of it. Constantly searching for patterns is the essence of qualitative data analysis. What is important at this stage is that the data be examined in relation to resolving the inquiry question. Both data collection and data analysis ends when you feel you have the insights you need to address the problem posed.

To assist teams in analyzing data, a five step process is suggested. The first step involves organizing your data so they can be studied. Once the data are organized, analysis begins using four iterative steps: reading, describing, classifying, and interpreting. This cyclical process is shown below.



Facilitator Notes: The interrelationships among these steps are not necessarily linear. At the beginning of the analysis, the logical sequence of activities goes from reading to describing, to classifying, to interpreting. However, as the team begins to internalize and reflect on the evidence, the initial ordered sequence may lose its structure and become more flexible.

“Looking at data is time-consuming, but it can be fascinating. Different people will have different ideas, and conversations will be wide-ranging. Interpretation takes discipline and hard work, so the process to consider it needs to be carefully planned to give people time and support to think about and challenge their views – individually and collectively.” (Earl, L. & Katz, S., 2006, p. 65)

“Data, by themselves are benign. Meaning is brought to data through the human act of interpretation.” (Earl, L. & Katz, S., 2006, p. 63).

“Qualitative data analysis involves determining if the data supports your assertions and reducing the amount of data to a manageable amount. At some point in the process, you need to decide if you have sufficient information and insights or the process can go on forever.” (Hannay, 2008, p. 31)

STAGE THREE

Analyzing Evidence

STEP #1

ORGANIZING THE DATA

This step involves managing and organizing the data collected for your team's inquiry. Before your team can begin interpreting the data collected, they must first put it in a form that will facilitate analysis. 'Tidying up' the data may include the following: ensuring that it has been dated, ensuring it has been labeled (e.g., applied science, applied English, etc.), sequencing data, making copies so that data can be marked up, and ensuring it is legible. The facilitator should prepare data from each *data source* separately.

STEP #2

READING THE DATA



Materials Needed: Data (after it has been organized)

The team first needs to get to know its data. This entails reading it numerous times in order to identify the big themes. To begin to get familiar with what is there, ask small groups (2 - 3 people) to consider each individual *data source* and think about what it might mean. Participants may want to record notes in the margins or underline sections or issues that seem important. In addition to recording initial impressions, participants will also begin to search for recurring themes and common details.

STEP #3

DESCRIBING THE DATA

Describing addresses what is going on. During this step, your team becomes familiar with the data and identifies potential themes in it. It helps if team members bring objectivity to this step as at this point, teams aren't familiar enough with the data to move into interpretation. Ask the team to consider each *data source* separately. Ask individuals to re-read the data and compose 3 - 5 factual statements related to the evidence.



Possible Prompts: Review the evidence. What do you see? Avoid interpretation. Share factual statements only. Just the facts! If you catch yourself using ... because - therefore - it seems - however... then stop!

Facilitator Notes: To ensure that participants know and understand the difference between factual and interpretive statements, you might offer an example. Consider the following:

In reading the data collected during observations of grade 9 and 10 science, English, geography, and history classes, one team member noticed several references to the sharing of learning goals. In reading the data a second time, the team member noticed that references to learning goals were appearing frequently in the observational notes from the applied level science classes. Upon closer inspection of the data, the team member noticed that in three science classes, the teacher shared learning goals both verbally and visually in every observation log.

STAGE THREE

Collecting Evidence

A **factual statement** this team member could offer might sound like this:

In three applied level science classes, the teacher shared learning goals with students every time an observation occurred.

On the contrast, an **interpretive statement** might sound like this:

In three applied level science classes, the students knew and understood the goals of the lessons.

The first statement is objective in relating the facts. The second statement is subjective and based on an assumption. The individual making the statement is jumping to a conclusion that is not founded in the evidence.

You might offer the following sentence starters to keep participants focused on the facts: I observe that...

- Some patterns/trends I notice...
- I can count....

Next, taking turns, ask individuals to share their factual statements for each *data source*. Describing the evidence enhances and leads to classifying the data.

STEP #4

CLASSIFYING THE DATA

Qualitative data analysis is basically a process of breaking down data into smaller units. In this step, the team identifies themes and develops a coding system which will allow the team to group the data and reduce it.

The typical way qualitative data are broken down is through the process of coding or classifying. A category is a classification of ideas or concepts. When concepts in the data are examined and compared to one another and connections are made, categories are formed. Categories are used to organize similar concepts into distinct groups.

Your team's next step is to develop a theme coding system. Coding the data source not only protects confidentiality but might allow you to identify a pattern related to data from different times or from different sources. Once the big patterns have been identified, other smaller patterns will emerge as the process continues.

It is important that all members of the team have the same understanding of the meanings attached to the codes. For example, considering the team in our Case Study, when coding instructional strategies, the team might decide to code instructional practices as IP (instructional practice) and assessment practices as AP (assessment practices). They might do this by highlighting the evidence in the following way: IP strategies highlighted in yellow, AP strategies highlighted in blue. They might further categorize the instructional and assessment data by coding evidence of a three part lesson: 'Minds On' (MO), Action

STAGE THREE

Collecting Evidence

(A), and Consolidation (C). Furthermore, they might see evidence of assessment *of, for* and *as* learning and decide to code the data according to these categories (*of, for* and *as*). It will depend on what themes the team identifies. The bottom line is that all members must determine what codes they will use – not only for the purpose of consistency, but so that they have an understanding of the codes attached to the themes identified.

Once the team has coded the data, it is important to review it and reduce it. In doing so, the team considers the following for each theme identified:

- a) Is the theme reflected in more than one *data source*?
- b) Are smaller patterns contained within the themes? If so, what are they?
- c) Upon closer inspection, what evidence isn't a good fit?
- d) Upon closer inspection, what evidence best represents each theme identified?

STEP #5

INTERPRETING THE DATA

Interpretations order information and facts into topics and arguments and impose meaning on facts.

Finally, in interpreting the evidence ask your team to consider the following:

- a) What does the data tell us about the problem?
- b) What are the assumptions we make about students and their learning?
- c) What are some things we could do to deal with this?
- d) What are the strengths and weaknesses you see based on the data?

Your team's next steps are to synthesize the organized data into general written conclusions or understandings.



Stage 4

**CELEBRATING
AND SHARING**

STAGE FOUR

Celebrating and Sharing

In the fourth stage, collaborative inquiry teams celebrate their learning and share the knowledge and insights gained with their colleagues.

The final report serves the purpose of sharing the knowledge gained through collaborative inquiry with others. This section contains suggestions for preparing to write the report and tips and recommendations for writing the final report.

A

PREPARING TO WRITE

Once your team has finished analyzing its data, the next step is preparing to write the report. Asking team members to return to the inquiry question & theory of action, identify the audience, and make an outline will help in preparing them to write the final report.

Return to the Inquiry Question and Theory of Action: Was the question answered? Were the results what the team expected? Does your team's theory of action need to be revised?

Identify the Audience: Who does the team want to share their findings with? Can the results inform others in the school? Board? Province?

Make an Outline: The team should define exactly what they want their readers to learn from their work.

Facilitator Notes: You might encourage your team to consider the following five elements for inclusion in their report:

1. introduction
2. context
3. method
4. findings and implications
5. next steps/recommendations

These elements are outlined in greater detail in the section that follows.

*"The challenges are difficult as teacher leaders strive to achieve widespread implementation of action research. The goals will require a commitment of time for research, public sharing of results, and personal reflection."
(Reeves, 2008, p. 45)*

STAGE FOUR

Celebrating and Sharing

B

WRITING THE REPORT

Sharing the team's findings is important because it helps the team to articulate and clarify thoughts making it a crucial part of learning from the inquiry. There are five elements your team might consider including in the final report.

1. Introduction

In this section the team should highlight the significance of the problem they addressed. The readers need to be invited to think about the problem and its implications for students and learning. How did the idea originate? Why was it important to your team? How was it linked to your team's preferred future? What was the purpose of your inquiry?

2. Context

Your team will need to provide a context for their work. In this section, your team might want to describe the setting, how they've previously tried to address the problem, and share their theory of action.

3. Method

In this section the team elaborates on their theory of action by describing what they did and why. What was the inquiry question? What did the team attempt to accomplish? What were the goals? How did they do it? What evidence did they collect? What successes and challenges did the team face?

4. Findings and Implications

Collaborative inquiry should result in educators coming to a new understanding about how to support student learning. Therefore, reports should contain some description of what your team learned. This is where your team should reflect on the learning process. At the conclusion of this section, your team should ideally know more than they did when they began. If they have not gained new insights about the problem and revised their theory of action accordingly, it is likely that they are only summarizing and not reflecting. Reflection is a powerful learning experience and an essential part of collaborative inquiry.

What did your team learn from the problem they investigated? What evidence supports your team's assertions? What, if any, elements of the theory of action were omitted or changed? What, if any, significant actions were taken that were not part of the original theory?

STAGE FOUR

Celebrating and Sharing

Most importantly this section should answer the following two questions:

What are the implications of this work for student learning?

What are the implications of this work for teacher learning?

5. Next Steps/Recommendations

Finally, include a paragraph describing the next steps for the team and recommendations.

How can we apply what we learned to further actions? What will those future actions include and how can we collect data on the next set of actions? What is the next step in the collaborative inquiry process? What do we still need to learn about?

REFERENCES:

- Bernhardt, V. (2002). *The School Portfolio Toolkit: A Planning, Implementation, and Evaluation Guide for Continuous School Improvement*. Eye on Education, Larchmont, New York.
- Bernhardt, V. (2000). Intersections: New Routes Open When One Type of Data Crosses Another. *Journal of Staff Development*, (21) 1, 33-36.
- Bushe, G. (2011). *Engaging Thought Leaders: An Interview with Gervase Bushe*. Learning Forward Ontario Newsletter, (3) 1, 10-13.
- City, E., Elmore, R., Fiarman, S., & Teitel, L. (2009). *Instructional Rounds in Education: A Network Approach to Improving Teaching and Learning*. Harvard Education Press, Cambridge, Massachusetts.
- Creswell, J. (2002). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. Pearson Education Limited, Toronto, Canada.
- Earl, L. (2003). *Assessment as Learning: Using Classroom Assessment to Maximize Student Learning*. Corwin Press, Thousand Oaks, California.
- Earl, L., & Katz, S. (2006). *Leading Schools in a Data-Rich World: Harnessing Data for School Improvement*. Corwin Press, Thousand Oaks, California.
- Easton, L. (Ed.) (2008). *Powerful Designs for Professional Learning Second Edition*. National Staff Development Council, Oxford, Ohio.
- Fullan, M. (2008). *The Six Secrets of Change: What the Best Leaders Do to Help Their Organizations Survive and Thrive*. Jossey-Bass Publishers, San Francisco, California.
- Katz, S., Earl, L., & Ben Jaafar, S. (2009). *Building and Connecting Learning Communities: The Power of Networks for School Improvement*. Corwin, Thousand Oaks, CA.
- Killion, J. (2008). *Assessing Impact – Evaluating Staff Development, 2nd Ed.* National Staff Development Council and Corwin Press. Thousand Oaks, California.
- Love, N. (2009). *Using Data to Improve Learning for All: A Collaborative Inquiry Approach*. Corwin Press, Thousand Oaks, California.
- National School Reform Faculty. http://www.nsrfharmony.org/protocol/a_z.html#O
- Patton, M. (1997). *Utilization-focused evaluation: The new century text, 3rd ed.* Thousand Oaks, California.
- Reeves, D. (2010). *Transforming Professional Development into Student Results*. ASCD, Alexandria, VA.
- Sagor, R. (2005). *The Action Research Guidebook: A Four-Step Process for Educators and School Teams*. Corwin Press, Thousand Oaks, California.
- Stoll, L. (2010). *Connecting learning communities: capacity building for systemic change*. In *Second International Handbook of Educational Change* (eds. Hargreaves et al.). Springer International Handbooks of Education.