Facilitator’s Guide to Collaborative Inquiry
Limestone District School Board
**Table of Contents**

**Introduction** .......................................................................................................................... 1

**What is Collaborative Inquiry?** ............................................................................................. 2
  *Why Collaborative Inquiry?* ........................................................................................................ 2
  *How is Collaborative Inquiry a Valid Form of Research?* ...................................................... 3
  *Forming a Collaborative Inquiry Team* .................................................................................. 5
  *Committing to an Inquiry Plan* ................................................................................................. 5

**STAGE ONE: Plan** .................................................................................................................. 6

**Focus in Collaborative Inquiry** ............................................................................................... 7
  *Activity #1 - Determining a Meaningful Focus* .................................................................... 8
  *Activity #2 - Determining a Shared Vision* .......................................................................... 10
  *Activity #3 - Sphere of Concern versus Sphere of Influence* .............................................. 12

**Framing the Focus - Checking Criteria** .................................................................................. 13

**Developing an Inquiry Question** ............................................................................................. 13
  *Activity #4 - Writing a Purpose Statement* .......................................................................... 14
  *Activity #5 - Developing an Inquiry Question* ................................................................... 17

**Formulating a Theory of Action** ............................................................................................. 19
  *Activity #6 - Formulating a Theory of Action* ................................................................... 19
  *Activity #7 - Identifying Underlying Assumptions* ............................................................ 24

**Planning to Collect Evidence** .................................................................................................. 27

**Developing a Data Collection Plan** .......................................................................................... 27
  *Activity #8 - Identifying Types of Data for School Improvement* ..................................... 28
  *Activity #9 - Where to Collect Evidence* ........................................................................... 32
  *Activity #10 - How is the Evidence Going to Be Collected?* ............................................. 35
  *Activity #11 - When is the Evidence Going to be Collected?* ........................................... 36

**STAGE TWO – Act** .................................................................................................................. 39
  *Activity 12: Building Relational Trust Through Norm Setting* ........................................ 40
  *Activity 13 – Creating an Action Plan* ................................................................................. 43

**STAGE THREE – Observe** ........................................................................................................ 45
  *Activity 14 – Creating an Agenda for Collaborative Inquiry Meetings* ......................... 46

**Facilitating Effective Discourse** ............................................................................................. 48
  *Activity 15 – Assessing the Quality of Professional Dialogue* ........................................ 49
  *Activity 16 – Moderation of Student Work* ....................................................................... 51

**Reflection and Adjustments to Instructional Practice** ............................................................. 52

**STAGE FOUR: Reflect** .............................................................................................................. 53

**Collecting, Analysing and Interpreting Evidence** ..................................................................... 54
  *Activity 17 – Organizing Data For Analysis* ..................................................................... 55
  *Activity 18 – Describing the data* ....................................................................................... 56
  *Activity 19 - Analysing Qualitative Data* ......................................................................... 58
  *Activity 20 – Analysing Quantitative Data* ....................................................................... 60

**Questions for Analysis** ............................................................................................................ 63

**Interpreting the Data** ............................................................................................................... 63
  *Activity 21 – Process for Interpreting Data* ...................................................................... 64
  *Activity 22 – Fostering Individual and Group Reflection* .................................................. 65

**Sharing your Learning** .............................................................................................................. 68

**References** ................................................................................................................................ 69
Introduction

Collaborative Inquiry is a form of professional learning that has existed, under different names and formats, for many years. The purpose of this document is to provide a context and framework for those who are facilitating the process of collaborative inquiry in schools. The framework is not meant to be prescriptive or confining, but to provide an understanding of the essential elements of collaborative inquiry. The resource contains a range of suggested activities that facilitators can choose from depending on the learning needs identified by members of their team.

A number of the enclosed activities were adapted from two resources: Collaborative Inquiry: A Facilitator’s Guide (Learning Forward Ontario, 2011) and Improving Teaching with Collaborative Action Research (ASCD Action Tool, Diane Cunningham (2011)). We are grateful to these authors for providing us with a solid basis for this guide.

Throughout the guide, there are parts of a continuum for self-assessment related to the key components of collaborative inquiry. Our hope is that participants will see themselves somewhere on this continuum without feeling self-conscious if they feel they are at the beginning stages. As teams learn together, we believe that they will come back to this continuum over time, reflecting on their progress, acknowledging their strengths, and identifying next steps for their joint learning.
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 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 effectiveness. 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 professionals 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 ... they changed their school culture by increasing collaboration and reflection on practice among teachers” (Love, N., 2009, p. 7).

Collaborative Inquiry 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.
How is Collaborative Inquiry a Valid Form of Research?

It is common for participants in collaborative inquiry to come to it with ideas about what does and does not constitute validity based on their experience or understanding of scientific or other forms of objective research. Consider the following four types of validity (Cunningham, 2011) that apply to collegial inquiry:

1. Democratic Validity: Inquiry is collaborative and uses multiple perspectives to guide the design, implementation, and analysis of data.
2. Outcome Validity: The inquiry is iterative: the group’s actions lead to answers that naturally guide the group to new research questions that extend and deepen understanding about professional work.
3. Process Validity: The group uses multiple sources and types of data to support and make conclusions that are credible and meaningful.
4. Catalytic Validity: The inquiry deepens the group’s understanding about the topic, transforms practice in significant ways, and leads to adjustments in educator beliefs.

Collaborative inquiry teams can reflect on these four forms of validity to reassure themselves of the rigor of their joint work, and might periodically reflect on the extent to which their inquiries meet the criteria associated with the forms of validity.
Getting Started

Contained in this Facilitator’s Guide is a four-stage model for collaborative inquiry based on available literature on the subject as well as the Ontario Ministry of Education’s Professional Learning Cycle (2011).

Stage 1: Plan
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. Teams identify their own professional learning needs, then determine what type of data to collect, how to collect the data, and where to collect it.

Stage 2: Act
During this stage, participants engage in professional learning to build a collective understanding of the instructional approach, and access learning resources to implement the approach, using ongoing assessment and feedback to adjust as needed.

Stage 3: Observe
Observe – Teams share and monitor evidence of student learning by identifying patterns and themes and formulating next steps for their own learning and for instructional adjustments.

Stage 4: Reflect
Reflect – During this final stage, teams come together to evaluate results, make conclusions about the extent to which student learning needs have been met, reflect on their own learning and practice, and identify next steps for the group.

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

Through this process, participants create and share knowledge that can be used to help others improve their practice. Reeves (2010) supports 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. 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. 74). 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 are willing to carry 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 throughout the process.

**Committing to an Inquiry Plan**

Planning requires deliberate and strategic thinking. Before a group begins planning, each group member needs time to think about their own commitment to being a part of a rigorous inquiry. Cunningham (2011) proposes the following criteria for rigor within a collaborative inquiry:

- The group will read and use current research and thinking in the area of focus.
- The group will access and use multiple perspectives about the area of focus.
- Group members will identify and use pertinent professional learning in their practice.
- Group members will collect and share evidence of their own, and student learning.
- The group will use various types of evidence over the course of the study.
- Group members will regularly reflect on: their own learning; implementation of instructional practices; student learning; and group processes.
- The group will use protocols to guide discussion, review evidence, and share thinking.
- The group will document learning and practice over time.

In taking the time to consider these commitments, a group increases its own clarity about the joint work, and ensures that the work meets the standards for high quality teacher learning.

“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).
During this stage your team will develop a focus, articulate an inquiry question, and formulate a theory of action.

Contained in this section are activities designed to scaffold participants through each of these processes. As a starting point, your team may reflect on their current understanding of, and commitment to the following elements of this stage of the Professional Learning Cycle:

| When meeting as a learning team, our work together ... |
|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| CRITERIA                                      | BEGINNING                                      | DEVELOPING                                     | INTEGRATING                                     | SUSTAINING                                     |
| Data/Evidence informed decision-making        | includes discussing educator perceptions (e.g., observations, anecdotes) of what students know and can do (with or without school level data) resulting in an overall sense of student learning need (e.g., literacy skills) | includes analysis and interpretation of perceptual data (e.g., student interests) and school and classroom level data/evidence (e.g., provincial standard rates, student work), resulting in identification of a general area of student learning need (e.g., communication) | includes analysis and interpretation of perceptual data, relevant school and classroom level data/evidence including formative (e.g., diagnostic assessment, analysis of student work) assessments to identify a focused student learning need (e.g., speaking) | includes analysis and interpretation of a variety of relevant and current school and classroom level data/evidence resulting in a precisely focused student learning need(s) (e.g., using talk to explain thinking) |
| Determining Educator Learning                 | involves learning that relates more to individual teacher focus/interest than to the identified student learning need or the work of the team (e.g., using information technology) | involves learning that is somewhat related to student learning needs and supports the goals of the team (e.g., improved grade 9 Applied Math scores) (e.g., learn how Smart Boards can be used together to support student learning) | involves learning instructional knowledge and skills that relate directly to student learning needs and support the goals of the team (e.g., investigate Open Questions and how they can be used to improve conceptual understanding) | involves learning instructional knowledge and skills that relate directly to student learning needs, support the goals of the team and are specific to the strengths and readiness of each teacher on the team (e.g., investigate how open questions can improve conceptual understanding in each teacher’s context) |
| Designing Instruction                         | includes the selection of a number of teaching/learning strategies aimed at addressing student learning need | identifies specific aspects of instructional practice (e.g., ways to provide descriptive feedback) to implement in order to address student learning needs; | articulates what the specific aspects of instruction will look like and how they address identified learning needs; plans for feedback to assess instructional impact and student learning | articulates what the change in practice will look like and how it addresses identified learning needs; plans for feedback and designs strategies to assess instructional impact and student learning |
Focus in Collaborative Inquiry

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

- The focus is based on identified student learning needs, is authentic, relevant to your work, and worth the investment;
- It is connected to a shared vision – connected to professional learning goals already established at the school or district level;
- It addresses an issue that you can do something about;
- It is manageable – you must have the time and resources 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 skills do your students struggle with the most? What do many of your students experience difficulty learning?

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

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?

Examples:

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 cite examples from the text, but when asked to explain what something means, they have difficulty.

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 have low skill in providing quality, descriptive feedback to their peers.
Evidence: Peer assessment forms and conversations during peer feedback conferencing show that students don’t fully understand how to provide feedback that is specific to the success criteria.

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.

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;
Probable Futures – things that probably will happen, unless something is done to turn events around;
Preferred Futures – things that you prefer to have happen and/or that you would like to happen.

**Share the following example:**
A group of mathematics teachers wants their students to become more proficient problem-solvers in mathematics. They described their preferred future this way:

“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?**

“*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

“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 student learning 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?
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 focus 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.*

*This activity was adapted from the National School Reform Faculty. See [http://www.nsrfharmony.org/protocol/a_z.html#O](http://www.nsrfharmony.org/protocol/a_z.html#O)*

**Framing the Focus - 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.

**Developing an Inquiry Question**

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

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.

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 on formative work and tuck their work away once it’s been returned. They don’t appreciate the learning that could have taken place if they had used assessment information to revise and improve their work.

Focus Framed: It is important for us to use strategies to support assessment for learning with our students.
Purpose Statement: The purpose of this inquiry is to explore how to use assessment for learning to improve student learning.

Example #2

Student Learning Need: Students enrolled in applied level classes need additional support in order to close the gap in achievement between students enrolled in applied courses and students enrolled in academic courses.

Focus Framed: Closing the achievement gap between students studying at the applied and academic levels in core grade 9 subjects.

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

Example #3

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

Focus Framed: Students often fail to see the relevance or purpose of 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 from texts and classroom lessons.

Focus Framed: Students lack the skills necessary to extract main points and key concepts from printed text and classroom lesson notes.

Purpose Statement: The purpose of this inquiry is to understand how to best support students in gaining skills needed to summarize information and ideas.

Example #5

The purpose of this inquiry is to explore what results from implementing the Ontario Numeracy Assessment Package (ONAP).

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 activating prior knowledge 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.
**Activity # 5 – Developing an Inquiry Question**

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

When formulating the question:
- use neutral exploratory language including the use of the words how or what;
- emphasize that learning and deepening practitioner understanding are important;
- identify starting points for action;
- provide a starting point for identifying indicators of success.

**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 does implementing more effective summarization strategies affect student achievement on summative tasks?

2. How does the use of specific metacognitive strategies influence students’ self-regulation?

3. What is the impact of using exit cards related to established learning goals on my students’ ability to self-assess and identify their own next steps?

4. What is the impact of exemplar study on teacher self-efficacy and students’ ability to improve the quality of their work relative to established success criteria?

5. How does student choice on summative tasks influence engagement and achievement on those tasks?

6. How does replacing marks with descriptive feedback on formative tasks affect the completion rate of these tasks?
7. Does a sense of belonging affect academic achievement?

8. Does improved skill in collaboration lead to increased student achievement?

9. Has student achievement increased as the result of technology being integrated into the classroom?

10. Does there always need to be a connection to the real world for students to be engaged in learning?

Examples 1-6 are strong examples – they are exploratory in nature, and are action-oriented and identify the criteria for success. Examples 7-10 are weaker examples – they can be answered with a simple ‘yes’ or ‘no’, some assume causality (e.g., #8) and the connection to indicators of success could be stronger.

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 below be re-worded to make them stronger and better reflective of the criteria?

Take the time to develop your inquiry question.

Checking Criteria

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

Does your inquiry question:

- use neutral exploratory language including the use of the words how or what?
- emphasize that learning and deepening practitioner understanding are important?
- identify starting points for action?
- provide a starting point for identifying indicators of success?
Formulating a Theory of Action

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 should:

☐ be committed to in writing;
☐ contain statements of causal relationships;
☐ contain statements that can be disproved.

“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).

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 (part of stage 2 of the collaborative inquiry process).

Materials Needed

Journal
Pens
Theory of Action Cards
Theory of Action T-Chart

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 – the end result will be a series of connected If...then statements that lead the reader from current state to future desired state.

**Theory of Action Cards:**

<table>
<thead>
<tr>
<th>Set 1</th>
<th>Set 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrators and grade 9 &amp; 10 teachers research and learn more about elements of effective feedback and strategies of teacher, self and peer feedback.</td>
<td>Administrators and teachers will gain a better understanding of ways that feedback to students can be improved.</td>
</tr>
<tr>
<td>Administrators vocally, visibly, and actively support teachers’ implementation of effective feedback strategies.</td>
<td>Teachers will feel supported and will be more likely to implement the knowledge and skills gained from the initial professional learning.</td>
</tr>
<tr>
<td>Teachers meet regularly to share samples of student work so as to identify successes and challenges of implementing effective feedback strategies in their classrooms.</td>
<td>Teachers will feel the support of their colleagues and learn additional strategies for supporting students. Teachers will also appreciate the benefits.</td>
</tr>
<tr>
<td>Teachers work with the instructional coaches in their schools.</td>
<td>Teachers will develop additional effective teaching and learning strategies and will be more likely to implement these strategies.</td>
</tr>
<tr>
<td>Teachers implement strategies for the provision of effective feedback.</td>
<td>Student learning will increase leading to higher completion rates of formative tasks and higher achievement on summative tasks.</td>
</tr>
</tbody>
</table>
Answer Key

<table>
<thead>
<tr>
<th>If ...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrators and grade 9 &amp; 10 teachers research and learn more about elements of effective feedback and strategies of teacher, self and peer feedback.</td>
<td>Administrators and teachers will gain a better understanding of ways that feedback to students can be improved.</td>
</tr>
<tr>
<td>Administrators vocally, visibly, and actively support teachers’ implementation of effective feedback strategies.</td>
<td>Teachers will feel supported and will be more likely to implement the knowledge and skills gained from the initial professional learning.</td>
</tr>
<tr>
<td>Teachers meet regularly to share samples of student work so as to identify successes and challenges of implementing effective feedback strategies in their classrooms.</td>
<td>Teachers will feel the support of their colleagues and learn additional strategies for supporting students. Teachers will also appreciate the benefits.</td>
</tr>
<tr>
<td>Teachers work with the instructional coaches in their schools.</td>
<td>Teachers will develop additional effective teaching and learning strategies and will be more likely to implement these strategies.</td>
</tr>
<tr>
<td>Teachers implement strategies for the provision of effective feedback.</td>
<td>Student learning will increase leading to higher completion rates of formative tasks and higher achievement on summative tasks.</td>
</tr>
</tbody>
</table>

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.

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

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

- Are all key players represented in the theory of action?
- Are the actions key players 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).

“The best theories at their core are solidly grounded in action.”
(Fullan, 2008, p. 1)
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 your team to consider the following example.

Focus Framed:
There are a number of barriers that prevent the delivery of effective literacy 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 literacy instruction in science, history, and geography classrooms in three secondary schools.

<table>
<thead>
<tr>
<th>If (Action)</th>
<th>Then (Outcome)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrators and content area teachers have access to classroom materials</td>
<td>Teachers will be better equipped to address individual student learning needs.</td>
</tr>
<tr>
<td>required to assess students’ current level of reading ability.</td>
<td></td>
</tr>
<tr>
<td>Administrators and content area teachers engage in professional learning</td>
<td>Administrators and teachers will gain a better understanding of how to integrate</td>
</tr>
<tr>
<td>to learn about explicit reading strategies and skills instruction.</td>
<td>explicit reading instruction within their curriculum.</td>
</tr>
<tr>
<td>Administrators vocally, visibly, and actively support the instructional</td>
<td>Teachers feel supported and are more likely to use the information to address</td>
</tr>
<tr>
<td>practices.</td>
<td>students’ learning needs.</td>
</tr>
<tr>
<td>Teachers attend monthly meetings to learn about research-based strategies</td>
<td>Teachers feel the support of their colleagues as they rehearse strategies in</td>
</tr>
<tr>
<td>and share successes and challenges.</td>
<td>the meetings and in their classrooms.</td>
</tr>
<tr>
<td>Teachers work with the instructional coach a minimum of six times during the</td>
<td>Teachers put into practice the research-based strategies they learned while</td>
</tr>
<tr>
<td>three months following the initial training session.</td>
<td>attending the professional development session.</td>
</tr>
<tr>
<td>Coaches debrief lessons with content area teachers – considering what went</td>
<td>Teachers engage in deep reflection on their practice.</td>
</tr>
<tr>
<td>well and potential next steps.</td>
<td></td>
</tr>
<tr>
<td>Teachers implement and monitor how the strategies they use affect student</td>
<td>Teachers recognize how strategies can improve student learning and are</td>
</tr>
<tr>
<td>learning.</td>
<td>motivated to continue implementing, monitoring, and evaluating various</td>
</tr>
<tr>
<td>Teachers debrief strategy instruction with their students – explicitly</td>
<td>Students will gain a better understanding of their own cognition and come to</td>
</tr>
<tr>
<td>sharing information about how particular strategies will help facilitate</td>
<td>appreciate how strategies help them learn. They will also know how, when, and</td>
</tr>
<tr>
<td>performance – and when – why and how to use them.</td>
<td>why to use various strategies.</td>
</tr>
<tr>
<td>Teachers employ methods that promote generalization and transfer of</td>
<td>Students become more strategic learners.</td>
</tr>
<tr>
<td>strategies.</td>
<td></td>
</tr>
</tbody>
</table>

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 reconstruction 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.

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 issue framed?

**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?

“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.”
Planning to Collect Evidence

Once the inquiry question, theory of action, and underlying assumptions have been agreed to, collaborative inquiry teams determine:

a) what evidence is going to be collected and from where,
b) how is it going to be collected and,
c) when to collect the evidence.

Collaborative inquiry is often related to qualitative data collection techniques because this methodology is more flexible and emergent. Questions change during the cycle of inquiry as teams learn more about the issue they’re exploring. Therefore, collaborative inquiry teams often collect qualitative data including evidence based on observations, interviews, and written responses as such practices are similar to the ones used by educators in their places of work.

When looking for available data, collaborative inquiry teams will find that it exists in a range of places and forms and may have difficulty identifying evidence that is relevant to their priorities.

Developing a Data Collection Plan

Criteria for an effective data collection 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 and analysis - given available time and resources.

“Using data for school improvement planning does not begin with the data you have. Instead, it begins with thinking about what you want (or need) to know and deciding what data you require to answer your question.” (Earl, L., & Katz, S., 2006, p. 46)
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
Types of Data and Sources chart

Types of Data for School Improvement

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

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.

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.

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.

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

“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).
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 summative assessment data, standardized assessment scores, samples of 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

<table>
<thead>
<tr>
<th>Student Learning Data</th>
<th>Demographic Data</th>
<th>Perceptual Data</th>
<th>School Process Data</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Focus Framed</th>
<th>Purpose Statement</th>
<th>Inquiry Question</th>
<th>Type of Data and Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is important for teachers to develop strategies to support assessment for learning in our school.</td>
<td>The purpose of this inquiry is to explore how teachers’ use of assessment for learning practices improves the learning of their students.</td>
<td>How does teachers’ use of specific assessment for learning strategies improve student achievement?</td>
<td>School Process Data (e.g., assessment for learning strategies in use, school and district policies and procedures)</td>
</tr>
<tr>
<td>Closing the achievement gap between students studying at the applied and academic course types in grade 9 and 10 core subjects.</td>
<td>The purpose of this inquiry is to explore how to close the gap in achievement of provincial standard between students studying at the applied and academic courses.</td>
<td>What can be done to close the gap in achievement between students studying at the applied and academic levels?</td>
<td>School Process Data (e.g., instructional and assessment practices, timetabling practices)</td>
</tr>
</tbody>
</table>

“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)
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 students in at-risk situations?

How does the elimination of numerical grades impact student attitudes toward revising and editing written work?
Activity #9 - Where to Collect Evidence

The purpose of this activity is to ensure evidence is collected from multiple sources when developing the data collection plan for your inquiry question.

**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*

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.

“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)
**Data Collection Plan – Triangulation Matrix**

Inquiry Question: ____________________________________________________

<table>
<thead>
<tr>
<th>What evidence is going to be collected?</th>
<th>How is the evidence going to be collected?</th>
<th>When is the evidence going to be collected? By Whom?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Source 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Source 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Source 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*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 (e.g., 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 1 based on the discussion.
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*
*Case Study*

There are many vehicles for the collection of data in addition to student assessment:
- 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, such as:
- summative assessment results
- description of tasks assigned to students
- report cards
- attendance records
- samples of student work
- minutes from Collaborative Team meetings
- course outlines
- teacher assessment plans
- lesson plans
- portfolios
- student self assessments
- exit cards
- student learning journals

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.
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 we 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*

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?

Revisit the continuum associated with the Plan phase to reflect on your team’s readiness to begin to take action:

### When meeting as a learning team, our work together ...

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>BEGINNING</th>
<th>DEVELOPING</th>
<th>INTEGRATING</th>
<th>SUSTAINING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data/Evidence informed decision-making</td>
<td>includes discussing educator perceptions (e.g., observations, anecdotes) of what students know and can do (with or without school level data) resulting in an overall sense of student learning need (e.g., literacy skills)</td>
<td>includes analysis and interpretation of perceptual data (e.g., student interests) and school and classroom level data/evidence (e.g., provincial standard rates, student work), resulting in identification of a general area of student learning need (e.g., communication)</td>
<td>includes analysis and interpretation of perceptual data, relevant school and classroom level data/evidence including formative (e.g., diagnostic assessment, analysis of student work) assessments to identify a focused student learning need (e.g., speaking)</td>
<td>includes analysis and interpretation of a variety of relevant and current school and classroom level data/evidence resulting in a precisely focused student learning need(s) (e.g., using talk to explain thinking)</td>
</tr>
<tr>
<td>Determining Educator Learning</td>
<td>involves learning that relates more to individual teacher focus/interest than to the identified student learning need or the work of the team (e.g., using information technology)</td>
<td>involves learning that is somewhat related to student learning needs and supports the goals of the team (e.g., improved grade 9 Applied Math scores) (e.g., learn how Smart Boards can be used together to support student learning)</td>
<td>involves learning instructional knowledge and skills that relate directly to student learning needs and support the goals of the team (e.g., investigate Open Questions and how they can be used to improve conceptual understanding)</td>
<td>involves learning instructional knowledge and skills that relate directly to student learning needs, support the goals of the team and are specific to the strengths and readiness of each teacher on the team (e.g., investigate how open questions can improve conceptual understanding in each teacher’s context)</td>
</tr>
<tr>
<td>Designing Instruction</td>
<td>includes the selection of a number of teaching/learning strategies aimed at addressing student learning need</td>
<td>identifies specific aspects of instructional practice (e.g., ways to provide descriptive feedback) to implement in order to address student learning needs;</td>
<td>articulates what the specific aspects of instruction will look like and how they address identified learning needs; plans for feedback to assess instructional impact and student learning</td>
<td>articulates what the change in practice will look like and how it addresses identified learning needs; plans for feedback and designs strategies to assess instructional impact and student learning</td>
</tr>
</tbody>
</table>
STAGE TWO – Act

Once the inquiry question and data collection plan have been decided, the collaborative inquiry group can begin planning action steps. This is an exciting stage for teachers as they consider exactly how to go about changing their classroom practice. It is also the stage that requires the most relational trust within the group as teachers will be working closely with each other as critical friends, and will often be working within each other’s classrooms and sharing reflections and feedback about their practice.

Consider your team’s readiness for the Act stage of the Professional Learning Cycle by reflecting on the following continuum:

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>BEGINNING</th>
<th>DEVELOPING</th>
<th>INTEGRATING</th>
<th>SUSTAINING</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer to practice</td>
<td>involves few adjustments to classroom practice based on assessment and student feedback</td>
<td>involves some adjustments to classroom practice as well as gathering of some assessment and student feedback</td>
<td>involves some adjustments to classroom practice in response to assessment and student feedback</td>
<td>involves regular adjustments to, and differentiation of instruction in response to ongoing assessment and student feedback</td>
</tr>
<tr>
<td>Professional Learning - Building a collective understanding of the instructional approach</td>
<td>involves sharing ideas, experiences and opinions around timelines, curriculum content, coverage and student conduct</td>
<td>involves sharing examples of instructional practice such as exchanging effective instructional strategies and resources</td>
<td>involves joint work such as co-planning, co-assessing and sharing examples of effective instructional practice</td>
<td>Involves joint work that includes co-planning, co-assessing as well as in-class experiences such as co-teaching, coaching and peer observation</td>
</tr>
</tbody>
</table>

The activities in this section are designed to help your group to build relational trust, leverage the power of true collaboration, and create a plan of action to support the implementation of instructional practices through professional learning.
Facilitator’s Guide to Collaborative Inquiry  

Activity 12: Building Relational Trust Through Norm Setting

Collaborative Inquiry is a process that challenges thinking and practice. Relational trust has been found to be a particularly strong facilitator of the kind of professional community that is required for collaborative inquiry to reach its potential for improved practice (Katz, 2009).

In this activity, participants first learn about the importance of building relational trust in collaborative teams, and then work towards committing to a set of norms that will be used during the work of the team.

Materials Needed

Copies of article: Trust as the Foundation of a Professional Learning Community
Copy of sample norms in chart form
Chart Paper
Sticky Notes

Provide a copy of the article to each member. Provide time to read the article, and ask each participant to highlight key points. Ask each person to state what they highlighted and why, being sure to include the views of each participant.

Facilitator Notes: Educators with little experience of working collaboratively with peers may not see the importance of developing trust, or may feel that there is already enough trust within the group that there is no need to complete this activity. If this arises, moderate the group’s thinking by asking the following questions:

Can you describe an experience from your past where you didn’t feel completely comfortable talking to your peers about your classroom experience or sharing your work with them, such as sharing your planning documents or your reason for specific instructional decisions? Why didn’t you feel comfortable?

How do you feel about having other teachers in your classroom observing student learning and providing feedback on your practice? What conditions would have to be in place to make that feel comfortable and supportive?

This conception of trust goes beyond that of goodwill and friendship, though such “companion trust” is certainly essential. It extends to include respect for each other’s dignity and idea, belief in each other’s competence, and a confidence in each other’s integrity to put students first (Katz, Earl & Jaafar, 2009, p. 40)
At this point, there should be sufficient engagement in the concept of relational trust to work towards the development of norms of collaboration. The following activity, adapted from Learning Forward (2010) will allow for the development of a set of norms specific to the work of collaborative inquiry groups.

1. Before the activity begins, print the list of sample norms on a sheet of chart paper and post on the meeting room wall. In addition, refer to the handout below and create five more posters, one for each category:
   - Time
   - Dialogue
   - Decision making
   - Participation
   - Evaluation

   Place these posters on the meeting room walls as well. Point out the sample norms that are posted in the room. Point out the other five posters and the questions that are posed on each poster.

2. Recommend to the team that it establish a set of norms:
   - To ensure that all individuals have the opportunity to contribute in the meeting;
   - To increase productivity and effectiveness; and
   - To facilitate the achievement of its goals.

3. Place a pad of sticky notes on the table and give every person the same kind of writing tool. Ensure that all sticky notes are the same color.

4. Ask each person to reflect on and record behaviors they consider ideal behaviors for a group. Ask them to write one idea on each sticky note. Time: 10 minutes.

5. Invite the team members to place their ideas on the charts at the front of the room. Ask them to refrain from discussion while doing so.

6. Read each norm that has been suggested. Allow time for the group members to discuss each idea. As each recommended norm is read aloud, ask the group to determine if it is similar to another idea that already has been expressed. Sticky notes with similar ideas should be grouped together. Time: 30 minutes

7. When all of the sticky notes have been organized, assign two individuals to work together to write the norms suggested under each heading. In some cases, there may be only one norm; in others, there could be several. Use the worksheet below to record these norms. Time: 15 minutes.

8. Read each of the proposed norms aloud to the group. Determine whether the group can support the norms before the group adopts them. You could ask for a thumbs up to indicate support or find another way for each team member to indicate to the team his or her willingness to abide by these ground rules. Time: 30 minutes.

9. When the team agrees that it will abide by this norm, the facilitator writes the norm on a new sheet of chart paper with the label: TEAM NORMS. Leave that poster in the team’s meeting room for future meetings.

10. The facilitator should also transcribe the norms onto a sheet of paper and distribute to all team members.

11. The facilitator should review the meeting norms at the beginning of each meeting to ensure that participants are regularly reminded about the agreements they have made to each other.
### TIME
- When do we meet?
- Will we set a beginning and ending time?
- Will we start and end on time?
- What happens if someone can’t make a meeting?

**Proposed Norms:**

<table>
<thead>
<tr>
<th>Proposed Norms</th>
<th>Proposed Norms</th>
<th>Proposed Norms</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

### DIALOGUE
- How will members respond to each others work and ideas?
- How will we encourage listening and discourage interrupting?
- How will we ensure that dialogue remains open and focused on instruction and learning?

**Proposed norms:**

<table>
<thead>
<tr>
<th>Proposed norms</th>
<th>Proposed norms</th>
<th>Proposed norms</th>
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<tbody>
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</tbody>
</table>

### PARTICIPATION
- What are our expectations of each other in preparing to meet?
- What are our expectations in terms of willingness to bring student work to the table?
- Do we agree to open the doors of our classrooms to each other, and if so, what conditions will we put in place to ensure this is safe?

**Proposed norms:**

<table>
<thead>
<tr>
<th>Proposed norms</th>
<th>Proposed norms</th>
<th>Proposed norms</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>

### DECISION MAKING
- Will the team reach decisions by consensus?
- How will members deal with conflicts and differences of opinion?

**Proposed norms:**

<table>
<thead>
<tr>
<th>Proposed norms</th>
<th>Proposed norms</th>
<th>Proposed norms</th>
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</thead>
<tbody>
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</tbody>
</table>

### EVALUATION
- How often will our team evaluate its functioning, and what indicators will we evaluate?
  
  **Consider:**
  
  - Are team members abiding by the team’s agreed-upon norms?
  - What ground rules did you use well?
  - What norms do you need to re-emphasize, add, or adjust?
**Activity 13 – Creating an Action Plan**

The criteria for action planning help to guide decisions. This activity will help participants to use the criteria to identify action steps.

**Materials Needed:**
*Potential Action Items Chart (Adapted from Cunningham p. 97)*

Based on the potential action items listed below, formulate your own action plan that matches the focus of your study and meets the criteria for rigour.

**Potential Action Items**

<table>
<thead>
<tr>
<th>Criteria (How do we ensure that the inquiry is rigorous?)</th>
<th>Potential Actions (What we might do?)</th>
</tr>
</thead>
</table>
| Group members engage in learning together to deepen their understanding of the practices they intend to implement. | • Read articles, professional learning materials.  
• View professional learning videos  
• Take part in professional learning sessions. |
| Group members agree to apply pertinent new learning in the classroom. | • Individually and collaboratively identify new learning that has occurred and capture it in writing.  
• Agree to methods to be used in applying new learning in the classroom (individual practice, co-planning, co-teaching, peer observation).  
• Collaboratively design and use instructional strategies, agreeing to frequency and extent of use.  
• Decide what artifacts of student learning will be collected to provide feedback to the group during team meetings. |
| The group documents the collective learning journey. | • Maintain agendas and meeting notes over time.  
• Record and summarize decisions.  
• Keep individual and group portfolios that capture the work and learning.  
• Keep copies of resources read and used. |
While the Act phase of the professional learning cycle occupies the smallest space in this guide, most of the team’s time will be spent in the Act phase. Teachers will go through several iterations in this phase where they learn about, plan and implement the instructional practices they have agreed to try; observe evidence of student learning (either directly in the classroom or by sharing student work samples); refine their understanding of their instructional practices, and possibly refine their inquiry question or theory of action; and plan the next phase of instruction in their classrooms.
STAGE THREE – Observe

In the third stage, collaborative inquiry teams meet in order to collaboratively analyse student work, and each other’s practice. As a result of this work, participants plan to increase the precision of their practice.

Criteria for success in the observation stage are shown in the following continuum from the Professional Learning Cycle:

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>BEGINNING</th>
<th>DEVELOPING</th>
<th>INTEGRATING</th>
<th>SUSTAINING</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBserve</td>
<td>Monitoring student work and addressing instructional issues</td>
<td>involves discussion about aspects of instruction that were implemented to address student needs and student response to the instruction</td>
<td>includes sharing and discussion of student work and instructional practice that relate to the aspect of instruction implemented to address student needs</td>
<td>includes collaborative analysis of student work/feedback and each other’s practice to identify instructional issues and possible adjustments/solutions</td>
</tr>
</tbody>
</table>

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.
Activity 14 – Creating an Agenda for Collaborative Inquiry Meetings

The sample template\(^1\) provided in this activity is meant to be completed by the meeting’s facilitator. Whether the team has a consistent facilitator for all meetings, or a rotating facilitator, the template provides a consistent format for the agenda and ensures that the group remains focused on the inquiry question and incorporates time for reflection and the identification of next steps.

Agenda Template

Date:

At our last meeting, we agreed to do the following prior to this meeting:

•

•

We also agreed to bring the following work from our practice to this meeting:

•

•

TODAY’S INQUIRY QUESTION FOCUS

<table>
<thead>
<tr>
<th>AGENDA ITEMS</th>
<th>DOCUMENTATION STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>•</td>
<td></td>
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<tr>
<td>•</td>
<td></td>
</tr>
<tr>
<td>•</td>
<td></td>
</tr>
<tr>
<td>• Planning for next session</td>
<td></td>
</tr>
<tr>
<td>• Reflection (individual or group)</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Adapted from Cunningham (2011) p. 114
Sample Agenda

Date: February 4th, 2012

At our last meeting, we agreed to do the following prior to this meeting:

- Use the diagnostic assessment we have developed to assess the ability of each of our students to explain their reasoning to a peer in writing.
- Use the three techniques we have researched for checking for understanding at least once in each of our classes, and use the feedback to adjust instruction.

We also agreed to bring the following work from our practice to this meeting:

- Three student samples of the completed diagnostic assessment with varying degrees of achievement.
- A summary of what we tried for checking for understanding, together with classroom artifacts of the results (e.g., exit cards, student groupings).

TODAY'S INQUIRY QUESTION FOCUS
How can we use moderated marking to come to a common understanding of the elements of quality for explaining your reasoning in writing?

AGENDA ITEMS
- Use success criteria for the learning goal on explaining your reasoning in writing in a moderated marking activity to identify work at different levels of achievement. (45)
- Discussion: What has worked well as checks for understanding, and how have we adjusted our instruction as a result?
- Planning for next session:
  - Action items for next meeting
  - Question to be discussed at next meeting
- Reflection (written): how am I feeling about relational trust when asked to bring student work to meetings?

DOCUMENTATION STRATEGIES
- Performance wall created from moderated marking activity. Photograph for group portfolio.
- Facilitator notes from discussion of checks for understanding.
- Templates and results from checking for understanding activities (include in teacher portfolios).
- Written reflections in journals.


**Facilitating Effective Discourse**

The effectiveness of professional discourse about instructional practice is influenced by two interrelated factors: the amount of relational trust that has been built within the team; and the skill of the facilitator in ensuring that dialogue follows a set of principles that sustain this level of trust.

When facilitating professional dialogue in collaborative inquiry, model and promote the following norms:

1. **Pausing**: Pausing before responding or asking a question allows time for thinking and enhances dialogue, discussion and decision-making.

2. **Paraphrasing**: Using a comfortable paraphrase starter, e.g., “So...” or “As you are...” or “You’re thinking...” and following the starter with a paraphrase assists members of the group to hear and understand each other.

3. **Putting Inquiry at the Centre**: Intentionally exploring the perceptions, assumptions and interpretations of others – using a pattern of pausing, paraphrasing and questioning.

4. **Probing for specificity**: Using gentle open-ended probes or inquiries such as “I’m curious about...” increases the clarity and precision of the group’s thinking.

5. **Placing ideas on the table**: Label the intention of your comments, e.g., “Here is one idea...” or “One thought I have is...”

6. **Paying attention to self and others**: Meaningful dialogue is facilitated when each group member is conscious of self and others and is aware of what she/he is saying, how it is said and how others are responding. This includes paying attention to learning style when planning for, facilitating and participating in group meetings. Responding to others in their own language form is one manifestation of this norm.

7. **Presuming positive intentions**: Assuming that others’ intentions are positive promotes and facilitates meaningful dialogue and eliminates unintentional put-downs. Using positive intentions in speech is one example of this norm.

The following activity can be used during meetings of collaborative teams to pay attention to patterns of dialogue.

---

Activity 15 – Assessing the Quality of Professional Dialogue
The following activity can be used periodically to ensure that professional dialogue leads to effective collaborative work. It is particularly helpful when a group is struggling to have conversations that feel productive and produce new learning.

**MATERIALS NEEDED**

**Observation Template**

1. Before discussion begins, review the norms of professional dialogue. As a group, clarify any norms that you have questions about.
2. Identify a process observer to monitor the group’s use of the norms. This may be the facilitator or another volunteer from the group.

**For the Process Observer**
3. Listen and analyse the conversation.
4. As the group has the discussion, place check marks or tallies next to the criteria that you see and hear.
5. Make additional notes about talking points, references to specific examples, and references to professional learning materials, as well as questions raised.
6. After 10-15 minutes, stop the group and report back about what you have observed and heard.
7. Ask the group about what they want to work on during the remainder of the discussion.

**Template for Effective Dialogue**

<table>
<thead>
<tr>
<th>Observed</th>
<th>Norms of Effective Dialogue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members pause to allow time for thinking.</td>
<td></td>
</tr>
<tr>
<td>Members paraphrase what others say.</td>
<td></td>
</tr>
<tr>
<td>Members intentionally explore the perceptions, assumptions and interpretations of others.</td>
<td></td>
</tr>
<tr>
<td>Members use probes to increase the clarity and precision of the group’s thinking.</td>
<td></td>
</tr>
<tr>
<td>Members are explicit about the purpose of their comments.</td>
<td></td>
</tr>
<tr>
<td>Members listen attentively and build on one another’s ideas.</td>
<td></td>
</tr>
<tr>
<td>Members’ comments reflect positive assumptions.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Talking Points</th>
<th>Questions Raised</th>
</tr>
</thead>
</table>

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3 Adapted from Cunningham (2011) p. 132-133
The following self-assessment tool\(^4\) could also be used for personal reflection and goal-setting.

### Self-Assessment for Individual Contribution to Discussion

**Key:**
- 1 = I rarely practice this
- 2 = I am inconsistent in my practice
- 3 = I am consistent in my practice

<table>
<thead>
<tr>
<th>Criteria</th>
<th>How consistently do I practice this?</th>
<th>What specific goal can I set for our next discussion?</th>
</tr>
</thead>
<tbody>
<tr>
<td>I strive to contribute to each discussion by sharing reflections about my practice openly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When we look at artifacts of practice, student work, or data sets, I explicitly draw from these items and connect my ideas to them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I raise questions for my group that will push our thinking and deepen our understanding.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I paraphrase what others say in an effort to sharpen my listening skills and communicate that I am listening carefully.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I make explicit connections to the ideas of other group members in an effort to understand their perspectives and build on them or provide an alternative perspective.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am conscious of not talking too much, because I know that my colleagues also have significant contributions to make.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^4\) Adapted from Cunningham (2011) p. 134-135.
Activity 16 – Moderation of Student Work

Moderation of student work is the process of teachers collaboratively assessing the quality of student work samples, either from their current students or exemplars from other sources, in order to improve clarity about the criteria for success, and to build consensus about what constitutes different levels of achievement. Moderation improves both the validity and reliability of assessment evidence collected by teachers.

Materials Needed
Student work samples
Curriculum documents
List of success criteria and/or rubric
Sticky notes
Pens/pencils/highlighters

The following protocol for moderated marking is based on the premise that learning goals and success criteria have already been developed for the skills and understandings to be assessed. The steps could be modified if the purpose of the activity was to come to consensus about the highest priority learning goals and to then develop the success criteria.

Purpose
• Analyse students work through a collaborative inquiry process with colleagues.
• Determine the next steps to improve student achievement.

Steps
1. Decide on the learning goal(s) to be assessed, and agree to the success criteria for the learning goal(s). Use the success criteria to create a rubric for the assessment task your team will collaboratively mark.
2. Each teacher selects a few work samples, representing either a range of achievement or students whose work teachers would like assistance with.
3. Work samples are reviewed, discussed, and sorted into levels of performance. The goal is for each work sample to receive a level that is agreed to by all participants.
4. Refine the rubric as necessary so that it stays true to the success criteria determined by the group.
5. If the student work samples are from current students in the teachers’ classes, identify features of student work that require the most attention and use these to create an instructional plan for improvement.
6. When discussing an individual student’s work, be sure to cite the specific evidence from the work that relates to the success criteria as a way to support your assessment of the quality.

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5 Adapted from 50 Tools and Techniques for Classroom Assessment – Hume (2010)
Reflection and Adjustments to Instructional Practice

Recall that the collaborative inquiry cycle is an iterative, organic process. As teams learn about instructional practices, implement them in their own classrooms, observe each other, and collect feedback about the impact of their work on the learning environment, understanding of effective practice will deepen. As a result, team reflection will often suggest adjustments to instructional practice. This is an intended result of collaborative inquiry and team members should not worry about how such changes will impact the validity of research findings. When making adjustments, recall the four types of validity associated with collegial inquiry that were presented on page 3 of this resource. You will realize that adjustments you make to better address student learning needs, and to deepen your collective understanding supports, rather than reduces, the validity of your work.

Continue to document any adjustments you make to your inquiry question, data collection methods, and instructional practices. Consider the following questions:

- What classroom evidence is causing you to consider the adjustment?
- What new learning has the group engaged in that suggests a refinement of instructional practice?
- What impact, if any, will the change have on any of the four forms of validity described on page 3?
- What additional questions do you now hope to answer as a result of the changes you propose?

Revisit the collaborative inquiry continuum for this stage:

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>BEGINNING</th>
<th>DEVELOPING</th>
<th>INTEGRATING</th>
<th>SUSTAINING</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBSERVE</td>
<td>Monitoring student work and addressing instructional issues involves discussion about aspects of instruction that were implemented to address student needs and student response to the instruction</td>
<td>includes sharing and discussion of student work and instructional practice that relate to the aspect of instruction implemented to address student needs</td>
<td>includes collective analysis of student work/feedback and each other’s practice to identify instructional issues and possible adjustments/solutions</td>
<td>includes collaborative analysis of student work/feedback and each other’s practice as well as problem solving that results in increased precision of instruction</td>
</tr>
</tbody>
</table>
STAGE FOUR: Reflect

Although reflection is a key aspect of the work of collaborative teams throughout the learning cycle, it is in the Reflect stage that participants come together to determine if they have collectively completed what they set out to accomplish. The following questions guide the reflection stage:

Have we learned what was necessary to begin to address the needs of learners?
To what extent have student learning needs been met?
What conclusions can we make as a result of our work?
What are our next steps as a learning team?

The following continuum can be used by teams to assess their own practices with the reflection phase of the professional learning cycle:

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>BEGINNING</th>
<th>DEVELOPING</th>
<th>INTEGRATING</th>
<th>SUSTAINING</th>
</tr>
</thead>
<tbody>
<tr>
<td>REFLECT</td>
<td>Reflection on student and educator learning</td>
<td>determines next steps in terms of how well the new aspect of instruction was applied</td>
<td>determines next steps in terms of how well the new aspect of instruction was applied in terms of its impact on students</td>
<td>determines next steps for student and educator learning based on an analysis of evidence that illustrates the extent to which the targeted needs were met</td>
</tr>
</tbody>
</table>

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)
Collecting, Analysing and Interpreting Evidence

Now that you have the evidence of student learning it is time to make sense of it. 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 four step process is suggested: organizing, describing, analyzing and interpreting. This cyclical process is described in the activities that follow.

“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).

Facilitator Notes: Notice that the interrelationships among these steps are not necessarily linear. At the beginning of the analysis the logical sequence of activities goes from organizing to describing, to analysing, 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.
Activity 17 – Organizing Data For Analysis

**Materials Needed:**
- All forms of evidence collected by the team
- A copy of the chart show below (large chart version and individual copies for each member)

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
- ensuring it is legible

The facilitator should prepare data from each *data source* separately.

Once the data sets have been prepared, use the following chart to organize each data set so that it is ready for description and analysis:

- In the first two columns, name the data set and label it by type (student learning data, perceptual data, or school process data).
- Think about what you want to know from each data set. Write this in the third column in the form of a question. The question could be your inquiry question, or may be a smaller question that supports the inquiry question or informs your theory of action.
- Think about a strategy for analyzing each set of data, and describe that in the last column. For example:
  - Do we need to look for themes in qualitative data?
  - Are we comparing pre and post assessments?
- As a group, discuss the analysis strategies you brainstormed and determine what you will undertake.

<table>
<thead>
<tr>
<th>What data do we have?</th>
<th>What type of data are they? (perceptual, student learning, school process)</th>
<th>What do we want to know from the data?</th>
<th>How should we analyse this data set?</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

6 Adapted from Cunningham (2011) p. 154-155
Activity 18 – Describing the data

**Materials Needed:**
Data (after it has been organized)

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 of a factual statement, such as the following:

In reading the data collected during observations of grade 9 & 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.

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.

In 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…*

*I am surprised to see…*

Next, taking turns, ask individuals to share their factual statements for each *data source*. Describing the evidence enhances and leads to classifying the data.
Activity 19 - Analysing Qualitative Data

MATERIALS NEEDED
Data after it has been organized
Highlighters, markers or a computer to use for coding

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 to its essence.

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

1. As individuals, or working in pairs or small groups, read through the entire data set without making any marks. Your goal here is to get a general sense of the whole to look for connections to the questions you want to answer.
2. Now read through the data again, this time underlining or highlighting key phrases, noting the themes that seem to be emerging and writing these in the margins. As a team, use these notes to come to consensus on the themes.
3. The 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.
4. It is important that all members of the team have the same understanding of the meanings attached to the codes. For example, 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 (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.
5. 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:

“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)
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?

Example of Coding Data

**Question:** How are teachers adjusting their practice and applying their learning about assessment for learning?

**Data Source:** Teachers’ responses to a reflection prompt.

**THEME KEY**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changing thinking about the role of assessment</td>
<td>A</td>
</tr>
<tr>
<td>Focusing on feedback to the student</td>
<td>F</td>
</tr>
<tr>
<td>Use of assessment tools (e.g., rubrics, exemplars)</td>
<td>AT</td>
</tr>
<tr>
<td>Sharing with colleagues</td>
<td>SC</td>
</tr>
</tbody>
</table>

**Data: Sample Teacher Responses**

<table>
<thead>
<tr>
<th>Theme Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>AT</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>SC</td>
</tr>
</tbody>
</table>

**Data: Sample Teacher Responses**

<table>
<thead>
<tr>
<th>Theme Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>AT</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>F</td>
</tr>
<tr>
<td>SC</td>
</tr>
</tbody>
</table>

**Theme Summary Statement**

<table>
<thead>
<tr>
<th>Theme</th>
<th>Summary Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changing thinking about the role of assessment (A)</td>
<td>3 teachers’ responses emphasized how their learning caused them to change their views about the purpose of assessment.</td>
</tr>
<tr>
<td>Focusing on feedback to the student (F)</td>
<td>3 teachers’ responses focused on how to provide more meaningful feedback to students.</td>
</tr>
<tr>
<td>Use of assessment tools (e.g., rubrics, exemplars) (AT)</td>
<td>4 teachers stated indicated that they made us of a variety of assessment tools and strategies.</td>
</tr>
<tr>
<td>Sharing with colleagues (SC)</td>
<td>1 teacher response focused on the importance of sharing with colleagues.</td>
</tr>
</tbody>
</table>
Activity 20 – Analysing Quantitative Data

Quantitative data sources may include:

- Perceptual data from surveys using scaled items such as Likert Scales (e.g., strongly agree... strongly disagree).
- Process data such as the number of students enrolled in different course types, or the tally of specific instructional practices that were observed in a classroom.
- Student achievement data such as pre and post assessment scores or standardized assessment results.

Quantitative data can be analysed in two main ways:

- Trend analysis to show (often graphically) how the data have changed over time.
- Calculation of statistics to quantify the degree of growth, compare two sets of data, or look for correlations that may exist between different variables.

Trend Analysis:

1. As a team, review your data sets and decide what trends might be informative to look for. For example, if you have collected student perceptions of their level of interest in completing formative work at various points during the school term, you might want to look for trends over time. You could graph average response levels over time, or the response levels of each student separately, or the proportion of students with positive responses to the questions provided.

2. Once you have decided on what trends you would like to present, decide on a method of presentation. The method chosen depends on how you have chosen to collect the data, how you will use or share the trend analysis, and the familiarity or comfort with different methods of presentation. For example, you could use a data wall with sticky notes to track changes over time for each student, or you could use graphing functionality available in Microsoft Excel or other software.

Significance Statistics:

1. There are many statistics that can be applied to quantitative data sets. A common approach of analysis is to compare the results of a pre- and post-assessments to answer two questions: are the results of the post-assessment significantly different (statistically speaking) than the results of the pre-test; and if so, how much different are they (in other words, if there has been improvement, how much and what counts as significant). As a team, determine what analysis is suited to your data sets.

2. Decide what questions you have about your data sets, perform the descriptive statistics calculations and use them to answer the questions you have about the data. Use these results to give you a sense of the impact of your practice on student achievement and to develop further questions for inquiry.
Example: Paired pre- and post- assessment results.

In the example shown below, a group of students were given an assessment to determine their level of performance with a range of skills connected to the curriculum. Moderated marking was used to come to a common understanding of different levels of achievement, and each student was assessed a level in each achievement chart category. Towards the end of the course, the same set of skills was assessed again using a new assessment task developed by the inquiry team. The second task was developed collaboratively and the group again engaged in moderated marking to ensure a high level of reliability and validity in the data.

The team has two questions:
- Did the students’ level of skill improve as measured by these assessments and, if so, by how much?
- Did the students improve more in some of the achievement chart categories than other categories?

In the chart below, the assessment results for a small number of students is included for the sake of simplicity. The larger the data set, the higher will be the confidence in the results. The statistic that has been calculated is called the ‘Effect Size’. The Effect Size allows the comparison of two sets of matched data on a common scale, regardless of the type of values included in the sets (levels, percentages, scaled responses). The formula for calculating effect size is:

\[
\text{Effect Size} = \left( \frac{\text{average of post assessment scores}}{\text{average of pre assessment scores}} \right) - 1
\]

\[
\text{Average of the standard deviations of the two sets}
\]

While this might seem confusing, it is easy to calculate the effect size in Excel, since there are built-in functions for finding the average and standard deviation.

<table>
<thead>
<tr>
<th>Student #</th>
<th>Knowledge / Understanding</th>
<th>Thinking</th>
<th>Communication</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>4</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>9</td>
<td>9</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>7</td>
<td>5</td>
<td>6</td>
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<td>4</td>
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<td>8</td>
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<td>5</td>
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<td>8</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>9</td>
<td>8</td>
<td>10</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>10</td>
<td>11</td>
<td>12</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>
Average | 5.0 | 7.4 | 4.4 | 7.4 | 3.2 | 5.1 | 5.2 | 9.2
---|---|---|---|---|---|---|---|---
Standard Deviation | 3.94 | 2.41 | 2.95 | 1.84 | 2.86 | 3.51 | 3.74 | 1.87
Effect Size | 0.76 | 1.25 | 0.60 | 1.43

*Note that all of the scores were applied as levels (1-, 1, 1+ etc.) and were converted to numeric values so that analysis is possible (i.e. level 1- was converted to 1, level 1 was converted to 2, level 1+ to 3 etc.)*

So, what does this all mean? Well, a number of observations can be made:

- The average scores for the post assessments are all higher than for the pre assessments so the scores improved for all achievement chart categories.
- Apart from the scores for communication, the standard deviation (which measures the amount of spread amongst the values) was lower in the post assessments than in the pre assessments. This shows that the scores of students were closer to one another in the post assessments, that some gaps were closed. This wasn’t the case for the communication category however, where the spread of scores increased.
- The effect sizes were all positive (the scores improved on average) but the effect size was considerably higher for the scores in the thinking and application categories than for the knowledge/understanding and communication categories.

Note that John Hattie (Hattie, 2008) talks about effect size in his work, and refers to a ‘hinge point’ effect size of 0.4. He suggests that an effect size greater than 0.4 is in the zone of desired effects – that such an effect size is more than would be expected for the average student just from attending school for a year. In this example, the effect sizes for all achievement chart categories are above 0.4 suggesting that there was significant improvement in all areas. Keep in mind though that the most of the effect sizes in Hattie’s analyses were based on standardized test scores covering a range of academic skills. If the range of skills being assessed is narrow, then a higher effect size would be expected. For this reason, it would be good to triangulate the results with other measures of academic skills for the same student group. If the effect sizes continued to be higher than 0.4 this would improve the team’s confidence in claiming that there was significant improvement.

To learn more about calculating descriptive statistics for quantitative data, refer to: [http://www.ecs.org/html/educationissues/research/primer/understandingtutorial.asp](http://www.ecs.org/html/educationissues/research/primer/understandingtutorial.asp)
Questions for Analysis

Working with data to uncover patterns, display trends, and perform calculations makes it easier for team members to begin to ask questions about what they see. Hume (2010) suggests the following process for viewing and asking questions about the data to develop a deep understanding of what it does, and does not show.

• Ask people to predict what the data will show before showing it. Committing to a prediction can avoid overconfidence and helps to engage people in finding out if their predictions were correct.
• Display data from multiple sources around the room and ask participants to keep an open mind by looking for similarities, differences, and surprises in the various sources, rather than looking only for confirmation.
• Ask participants to view the data first on their own, then with a partner to begin to build consensus about what patterns are emerging.
• Provide prompts to encourage statements of comparison. Some suitable prompts are:
  o What surprises you?
  o What similarities and differences do you see across the data sources?
  o Which students are being successful, and which are not yet successful?
  o What pieces of data stand out from the rest?
  o What trends do you notice over time?
• If participants begin to give interpretations of the data, return their attention to the data by asking them to provide evidence for their interpretations. Record these for discussion later.
• Separate the processes of analysis and interpretation by a day or two to keep the attention on analysis for long enough to gain a deep understanding.

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 our inquiry question?
  b) What are the assumptions we make about students and their learning?
  c) What conclusions can we draw from our analysis?
  d) What new questions or next steps are generated from our interpretation?

In addition to her recommendation of purposefully separating interpretation from analysis, Hume also discusses the importance of considering the role that beliefs play in the interpretation of data. Our beliefs, both personal and professional, influence which data we pay attention to and which we don’t. We tend to pay selective attention to the data sets that reinforce our beliefs, leading to conclusions and actions that are insufficiently supported by

the evidence. The following activity provides a process for interpretation that avoids the tendency to allow beliefs to adversely influence conclusions and actions.

**Activity 21 – Process for Interpreting Data**

Interpretation is a crucial step as it leads to decisions about what actions to take next. Flawed interpretations can lead to actions that don’t create the desired results. However, attending to the key considerations that follow can make interpretation one of the most rewarding parts of collaborative inquiry.

1. Ensure that every team member feels comfortable speaking openly about their interpretations: review the collaborative norms you have agreed to if necessary.
2. Ensure that everyone has a common understanding of key terms. Spend some time clarifying and agreeing to that common understanding.
3. Do not rush the work of interpretation. For each interpretation made, ask for supporting evidence. Provide an opportunity for respectful dialogue about the interpretation and identify any possible alternative explanations.
4. Triangulation is important when interpreting. Ensure that participants are working with multiple data sources, that they work in groups, and that they consider multiple perspectives.
5. If there is a possibility that an interpretation may be incorrect, look for additional data to best inform the situation. This may require additional data collection or analysis, or may lead to the identification of a next step for inquiry.

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7 Adapted from Hume (2010) p. 60-61
Activity 22 – Fostering Individual and Group Reflection

Individual and group reflection will have been fostered throughout the collaborative inquiry process, but the end of the school year or semester is a good time to consolidate individual reflection and think about what you have learned together about the collaborative process as well as your practice and its impact on student learning needs.

Two reflection templates are provided below, one for reflecting on insights, and another for reflecting on successes. These templates can be used for individual reflection at first, and then can be consolidated into a group reflection.

Reflection Template 1: Share what you have learned, what you have struggled with, and new questions that have emerged.

<table>
<thead>
<tr>
<th>Insights Related to Our Research Question</th>
<th>Insights About Our Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insights About Our Students</th>
<th>New or Persistent Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

“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).

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8 Adapted from Cunningham (2011) p. 188-191
Reflection Template 2 – Reflecting on Our Successes

1. What have we done right? How do we know?

2. What specific actions, attitudes, or conditions contributed to our success?

<table>
<thead>
<tr>
<th>Actions</th>
<th>Attitudes / Beliefs</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

3. What lessons can we take away from this?
Example of Reflecting on Our Successes

1. What have we done right? How do we know?

We were able to analyse data together successfully. We know this because

- We agreed to collect data from multiple sources
- We learned how to analyse both quantitative and qualitative data
- Two of our group members said they recognized what changes need to be made in their classrooms as a result of the data analysis
- Three of us were surprised to learn from the analysis that we can have a bigger impact on student learning than we thought
- Our analysis provided a number of key insights that felt authentic to us all when we reflected on them

2. What specific actions, attitudes, or conditions contributed to our success?

<table>
<thead>
<tr>
<th>Actions</th>
<th>Attitudes / Beliefs</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• We worked in diverse groups so we could get a variety of perspectives.</td>
<td>• Each person in the group has expertise that is valuable.</td>
<td>• We had the support of a skilled facilitator.</td>
</tr>
<tr>
<td>• We all agreed to bring student work to each meeting and held each other accountable for this.</td>
<td>• We all want students to be successful.</td>
<td>• Our school leaders support and respect this work.</td>
</tr>
<tr>
<td>• We were careful to ensure that members felt relational trust as we moved from independent practice to peer observation to co-planning and co-teaching.</td>
<td>• We have a shared belief that all of our students can achieve at high levels.</td>
<td>• We were able to meet in a space that allowed us to spread out our data and keep it at hand when we needed it.</td>
</tr>
<tr>
<td>• We evaluated our group norms often.</td>
<td>• We respect one another’s different styles of learning, sharing and working.</td>
<td>• Our schedules allowed us to meet informally from time to time and to visit each other’s classrooms.</td>
</tr>
</tbody>
</table>
Sharing your Learning

The collaborative inquiry process is rewarding to participants because of the ownership participants feel in the development of the inquiry, and because of the professional dialogue that emerges from the collaboration. The sense of being a part of a community of learners is enhanced when teams share their learning with others. Sharing can take many forms, from the informal approach of reaching out to others in the school to talk about what you have learned, to more formal approaches such as producing written reports, presentations, or displays and engaging in professional dialogue about them with colleagues. When learning is shared, a culture of inquiry and professionalism develops, and engagement in the process of collaborative inquiry broadens.

As your team prepares to engage in their next phase of collaborative inquiry, consider once again the continuum for the reflection stage of the professional learning cycle:

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>BEGINNING</th>
<th>DEVELOPING</th>
<th>INTEGRATING</th>
<th>SUSTAINING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>REFLECT</strong></td>
<td>Reflection on student and educator learning determines next steps in terms</td>
<td>determines next steps in terms of how well the new aspect of instruction was applied</td>
<td>determines next steps for student and educator learning based on an analysis of evidence that illustrates the extent to which the targeted needs were met</td>
<td>determines next steps for student and educator learning based on student results and an analysis of the effectiveness and relevance of the tasks, tools and strategies used to address the targeted learning needs</td>
</tr>
</tbody>
</table>
References:


National School Reform Faculty - http://www.nsrfharmony.org/protocol/a_z.html#O


Reeves, D. (2010). Transforming Professional Development into Student Results. ASCD, Alexandria, VA.
