Triangulation of Data

What is triangulation?

Triangulation is a systematic process that involves looking across different types and sources of data.

Triangulation opens an invitation for offering alternative interpretations, a way to check your own and others' assumptions. For example, sometimes we judge a book by its cover. But when you want to find out more about it, you may also look at the description on the back, you might give the first few pages a read through, you might explore the table of contents, you might read the accolades provided by critics or other well-known authors etc.

Triangulation starts with asking what other data supports or challenges our current assumptions and interpretations.

Types of Data

One thing to consider is that there are a variety of sources of data that you might wish to explore. Each has its own unique form that can help you gain insights into different things:

Demographic data: these sources of data are helpful for gathering insights about the unique characteristics of a school and community population; e.g., OnSIS data (grade, age, gender, special education, language learning needs, socio-economic indicators, etc.), Canadian Census data.

School Process Data: gathering insights about the structures and processes that support learning conditions in the school; e.g., school and board improvement planning, IPRC and diagnostic assessment processes, community partnerships for social services.

Attitudinal/Perceptual Data: gathering insights about attitudes, perspectives, or behaviors at a given point in time and exploring changes over time; e.g., narrative accounts, pre and post surveys, feedback forms, interviews, focus groups.

Observational Data: can be gathered first-hand or collection from other people. Systematic documentation and analysis helps to strengthen anecdotal evidence; e.g., attendance, checklists, rubrics, field notes, pedagogical documentation.

Conversational Data: helpful for exploring multiple perspectives, attitudes and changes over time; e.g., interviews, focus groups, written reflections, meeting notes, narrative accounts, conversation mapping.

Task-Based Data: the lens for looking at this data may include a focus on the process and/or the product of student learning. The data may also reflect individual, small or whole group tasks; e.g., student work samples, pre and post assessments, video or audio documentation.

Student Achievement Data: Often quantitative in nature, these data sources provide a snapshot of student learning at a given point in time. These sources are often aggregated at the classroom, school, board or provincial level; e.g., report card data, EQAO data, graduation rates, diagnostic, formative, summative classroom assessments.

Pedagogical Documentation

When it comes to triangulating data across sources, this is one model that you may be most familiar with; click here for monograph on pedagogical documentation. This is a nice framework to consider the multiple formats that data might be collected through:

Conversations might include examples like conferences, notes, journal, community talking circles, student feedback, and interviews.

Observations might include examples like observations checklists, anecdotal observation, questioning, learning moments file (student and or teacher learning), presentations, listening, speaking, problem solving and group skills.

Products might include examples like performance tasks/assignments, reader responses, photo journal, student leadership planning activities, social media posts, videos, checklists, drawing images, projects.

Bernhardt's Model of Multiple Measures of Data

Another model that is highly cited in education research is Victoria Bernhardt's Multiple Measures of Data (click to framework) framework.

Bernhardt's model considers four key types of data that might best help you gather a full picture of the story you are exploring when looking across data:

Demographic: provides descriptive information about the characteristics of students or a school community;

Perceptions: help us understand what students, parents, educators and other stakeholders think about the learning environment;

Student Learning: describes the impact of teaching and learning in classrooms and schools; and

School Processes: reflect what we are doing to see the impacts on learning and achievement (interventions, initiatives, instructional and assessment strategies etc.).

A few more thoughts on the matter …

Despite what you may have been told, there is no firm rule about considering three data sources. Rather, Bernhardt invites you to explore the intersection between two or more as a starting point for going deeper. The other thing that is missing from the visual here is that triangulation might also take place between the same data over time or across contexts.

So how do you know how much data is needed before you find yourself buried and overwhelmed?

The questions that you need to ask yourself might include:

- What is already known?
- What do I need to know more about?
- What do I need to report on and to whom?
- How much time do I have?
- Have I been intentional about following a specific methodology or approach to data collection and analysis?
- Are there other people I need to connect with?
- Do I have sufficient information to say that something has changed?
- Have I checked that my interpretations accurately describe the data?

Consolidation of key ideas:

- Starting with a well-articulated area to explore is most certainly a first step that will help you to uncover trends and patterns in a more focused way. Data analysis and triangulation should always start with identifying:
    - "What might we learn from this data?" *and move towards a more narrow question to explore …*
    - "What is this data telling us about _____ (a specific phenomenon)?" *and finally to …*

"What other data might we look at in addition to this that may help us to understand more about it?"

- Data may be collected in a variety of formats and one way is not always sufficient in presenting a full picture. There are a variety of sources of data you can collect and analyze, and each might be leveraged to explore different things.