

Using Data To Inform Your Work

MFWHSR Collaborative Day

Red Deer

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Presenters

**Eleana Yun, Education Manager - Engagement Branch,
Alberta Education**

**Anthony Warren, Education Manager – System
Assurance Branch, Alberta Education**



Session

Purpose: To provide a space for a conversation about data use in your school and district.

Outcomes: Participants will:

- know and understand a useful process for using data in their school/district
- have an opportunity to network with colleagues and share knowledge and insights relate to the topic

Credits

This presentation is based primarily on the following sources:

- **Bocala, C., Henry, S. F., Mundry, S., and Morgan, C. (2014). *Practitioner Data Use in Schools: Workshop Toolkit***
- **Geier, R. and Smith, S. (2012). *District and School Data Team Toolkit.***
- **National Forum on Educational Statistics. (2012). *Forum Guide to Taking Action with Educational Data.***

Full Citations provided on the “Resources” handout

What is Data Informed Decision Making?

- **The process by which an individual collects, examines and interprets empirical evidence to make a decision.**

Mandinach & Sablan (2013), p.7

Why is Using Data Important?

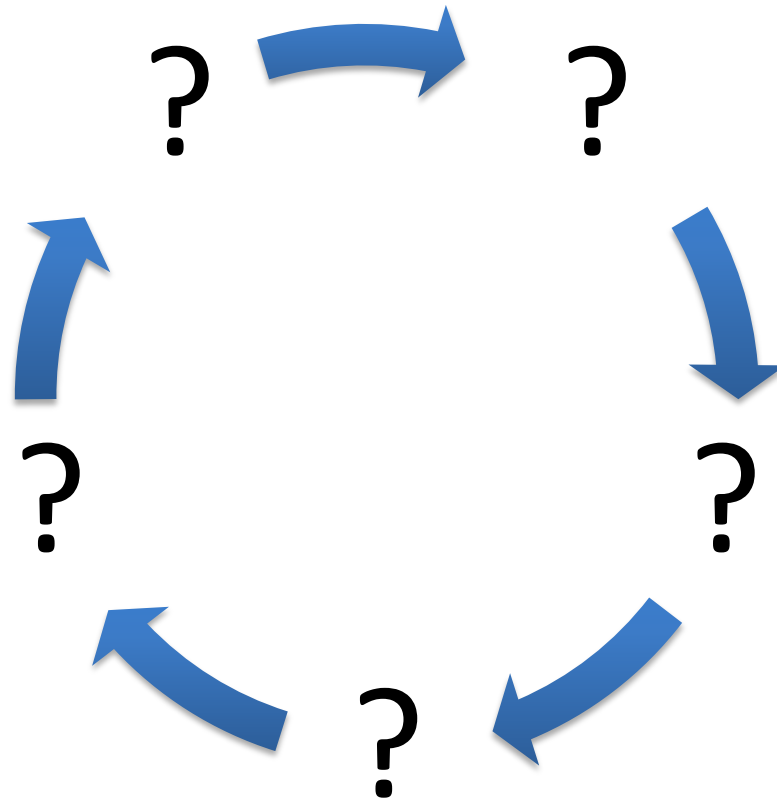
- **Data-Informed decision making is only part of the equation for school success.**
- **Data-driven action is what really improves education.**
 - Greater efficiency
 - Greater effectiveness
 - Greater student outcomes

Mandinach & Sablan (2013), p.17

What is Data Literacy?

- **Data literacy is the ability to use multiple measures and levels of data, make accurate observations, and draw sound inferences (Love, Stiles, Mundry, & DiRanna, 2008).**
- **It includes the ability to understand what an assessment or tool measures, acknowledge its limitations, and translate data from the assessment or too into usable form.**

Conceptualizing A Data Inquiry Cycle



Activity – Data Cycle

- **Using the sort cards on your table:**
 - Organize the steps on the cards in a logical sequence that you believe reflects what would occur on a data inquiry cycle
 - If you decide that an action is missing or needs to be repeated, you can write it on a sticky note and include it in your diagram

Activity – Data Cycle

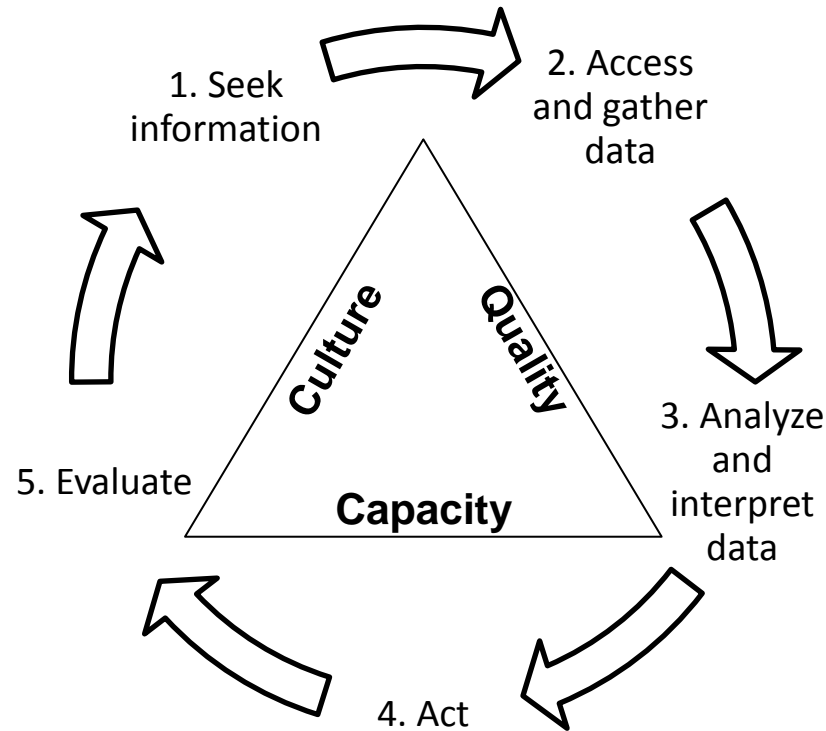
1. Identify an inquiry question	5. Create data displays (charts or graphs)	9. Choose one student learning challenge	13. Develop ways to monitor progress
2. Identify which data are needed to answer the question	6. Make data observations that are specific, factual, and related to the question	10. Brainstorm possible reasons for the student learning challenge	14. Adjust instruction
3. Gather multiple data sources	7. Identify patterns in the data	11. Set student learning goals	15. Monitor progress and measure success
4. Describe the data sources and their limitations	8. Identify students' strengths and challenges from the data	12. Develop an action plan	16. Determine next steps for teachers and students

Why a Structured Inquiry Process?

- **Sustains team focus on an instructional issue long enough to develop and test solutions in the classroom, observe and discuss causal connections, and question current practices.**
- **Frames repeated cycles of action and reflection to explore underlying assumptions and beliefs and revise conceptions of effective teaching and learning.**

(Achinstein, 2002; Edmondson, 2002; Stokes, 2001; Timperley, 2008)

The Data Inquiry Cycle



National Forum on Education Statistics. (2012). Geier, R. and Smith, S. (2012).

Step 1: Seek Information

“What do I have vs. what data do I need?”

- **Recognize when information is needed to inform a decision and direct action**
- **Define a meaningful and achievable scope of concern**
- **Clearly articulate the issue at hand as a critical question**

Seek Information

- **Attributes of a good issue:**
 - Under your control
 - It is significant in terms of helping students

Key Question (s)

- **What do I want to know?**
- **What is our focus area/issue?**

Seek Information

Examples Issues:

- **What does the 9th grade performance of the incoming 10th grade students tell us about adjustments that need to be made in 10th grade programs and instructional practices?**
- **What do we know about why students leave our school?**
- **Which students are not on track to graduate on time?**
- **What are the characteristics and performance levels of students who did not graduate?**

Seek information – Types of Questions

- **Focusing Questions:** Broad questions that will guide the inquiry process – provide a lens to view the data that need to be collected and analyzed
- **Clarifying Questions:** Questions that arise during data analysis that must be answered to further the inquiry and dig deeper to identify the root cause of the issue

Seek Information – Focusing/Clarifying Questions

- **What are the characteristics and performance levels of students who leave (transfer or drop out) the district?**
 - What groups had the highest percent of drop outs? What schools?
 - Where are our transfer students going?
- **What are the characteristic and performance levels of students who do not graduate with their 10th grade cohort?**
 - Which characteristics are most commonly held by students who do not graduate with their cohort?
 - What was the 10th grade performance of student who did not graduate with their cohort?

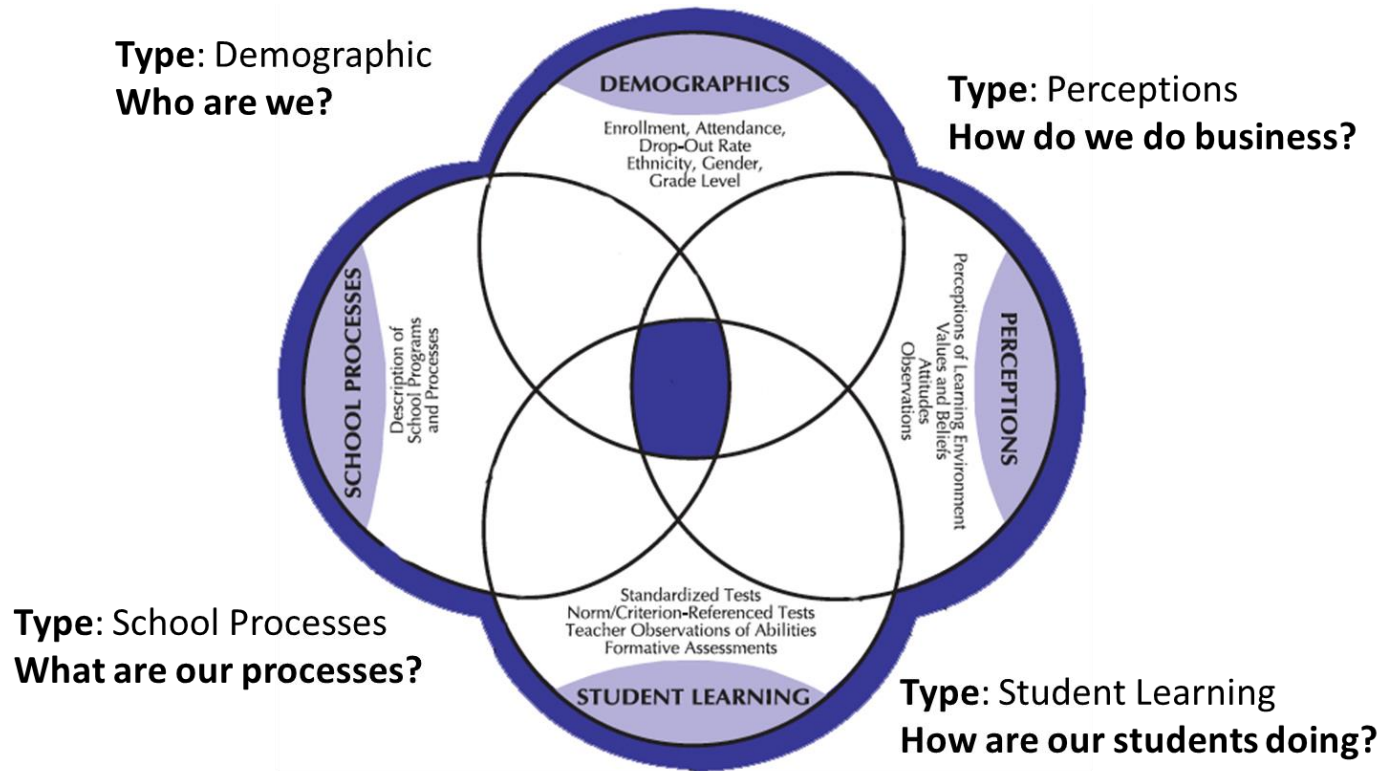
Seek Information – Focusing/Clarifying Questions

- **What are the characteristic and performance levels of students who do not graduate with their 10th grade cohort? (cont')**
 - What percentage of the cohort did graduate, but required more than the normal three years?
 - What are the characteristics and performance levels of students who graduated in more than the normal three years

Step 1: Seek Information

- **Assess what relevant data are already available**
- **Identify “gaps” in currently available data**
- **Identify potential barriers to finding the information and way to overcome them**
- **Seek additional data that are accurate, valid, reliable, timely, and relevant**

Seek Information - Data Types



Bernhardt, V. (2013). Data Analysis for Continuous School Improvement (3rd Edition).

Seek Information

Triangulation

- **The process of relating multiple sources of data.**
- **Leads to more accurately assessing a teaching and learning problem and point to a possible solution**

“Using multiple data sources compensates for the deficits in individual tools and provides a comprehensive picture of the topic under study” (Lipton & Wellman, p.58).

Step 2: Access / Gather Data

“What data do I have and what data can I get?”

- **Identify whether the needed data already exist**
- **Collect the data, which often means gaining access to relevant data that have already been collected by someone else**
- **Learn about the data, such as applicable definitions, limitations, timeliness, formatting, other data sets, to ensure that you fully understand the information**

Access / Gather Data

Key Question (s):

- **What data might be relevant?**
- **How will I access the relevant data?**
- **What data are available at different levels (classroom, school, district, and province)?**

Activity: What's your Issue?

In the context of your HSR project(s):

- **What is your area of focus or a focus question?**

Record your responses on your data plan template

Activity: Access / Gather Data

What data sources do you have or need to collect related to your questions/issue? Be specific. Record on your template.

Examples:

- **Accountability Pillar**
- **PATs / DIPs/SLAs**
- **Tell Them From Me**
- **District/School Assessments**
- **District/School Surveys**
- **Demographic Information - SIS**

Step 3: Analyze/Interpret Data

“What do the Data Suggest?”

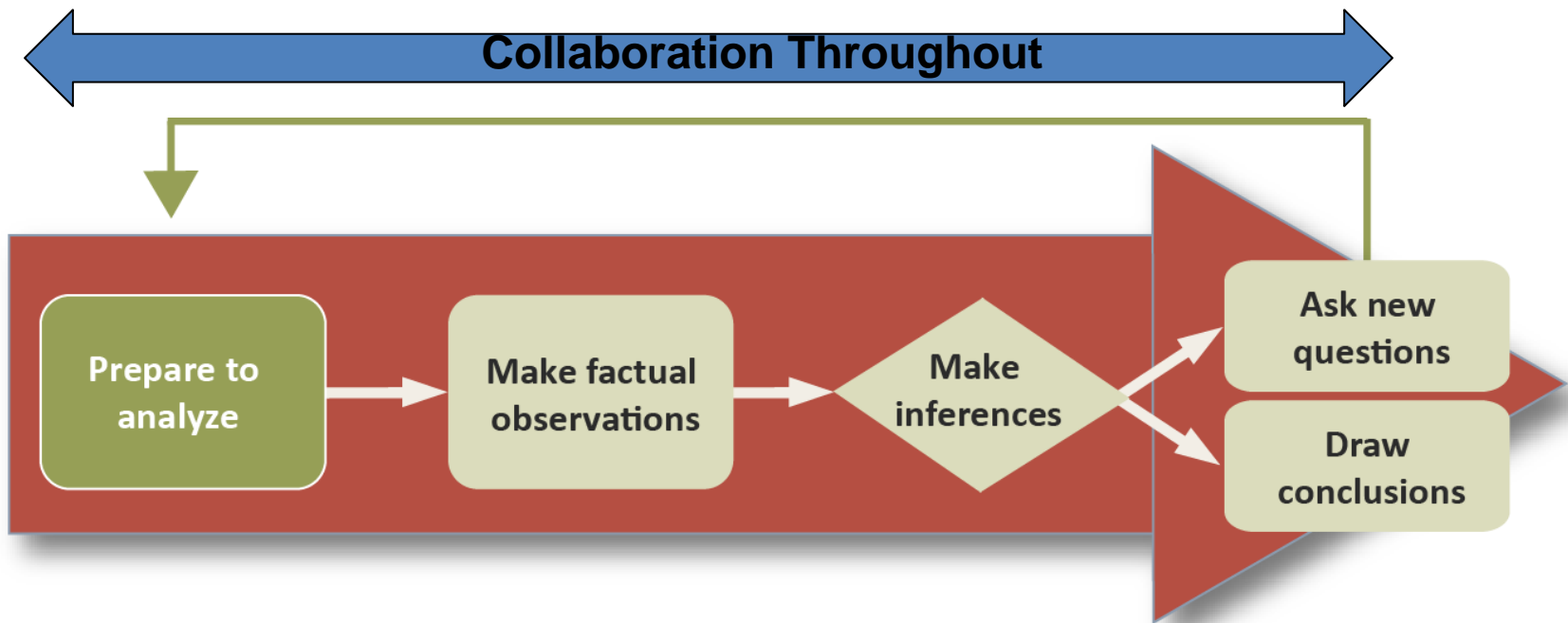
- **Format the data in a manner that enables sound analysis and interpretation**
- **Determine any limitations on, or constraints to, data use, including consideration of the data’s:**
 - **Purpose**
 - **Quality**
 - **Bias**
 - **Timeliness**
- **Review whether conclusions are logically and statistically sound and defensible**

Analyze/Interpret Data

Key Question(s):

- **What skills and tools do I need to analyze the data?**
- **What do the data tell me?**
- **What do we observe in the data? What patterns do we notice?**

Analyze / Interpret Data Process



Geier, R. & Smith, S. (2012). *District and School Data Team Toolkit*. P. 14

Analyze / Interpret Data Process

1) Prepare to Analyze – Steps 1 & 2

- Articulate a clear question
- Organize the data

2) Make Factual Observations

- a factual interpretation or statement about specific information, or numerical relationships between ideas, patterns, and trends.
- free of assumptions and biases.

Analyze / Interpret Data Process

3) Make Inferences

- The inferences (conjectures, tentative conclusions) must logically flow from the objective observations
- The initial inferences may lead to new questions that require additional data be collected and analyzed to test or support the inferences.

4) Ask New Questions

- 1–3 of the data analysis process should be repeated until there is sufficient evidence to allow a tentative conclusion about the priority issue.

5) Draw Conclusions

Activity: Analyze & Interpret

Using the Data sets provided:

- **What important points seem to “pop out”?**
- **Are there any trends or patterns that emerge?**
- **What strengths or challenges emerge from the data?**
- **What other data would be helpful?**
- **What processes and supports for data analysis exist in your school/district?**

Step 4: Plan/Act

“How can data be acted upon to improve education processes and outcomes”

- **Actionable data refer to information that allows a decision to be made and action to be taken**
- **Trends in data can be used to assess the relative strengths and weaknesses of various strategies**
- **Data analysis process leads to the identification of a learner – centered problem or challenge that will be addressed in the action plan.**

Plan / Act

- **Root Cause: an underlying factor or condition that creates a problem and which, if addressed, would eliminate or dramatically reduce the problem.**
- **Challenging to determine in education because it is a complex system**
- **“We must understand and accept the complexity of the environment in which we are working and do our best to make sense out of that complexity” Geier, R. and Smith, S. (2012)**

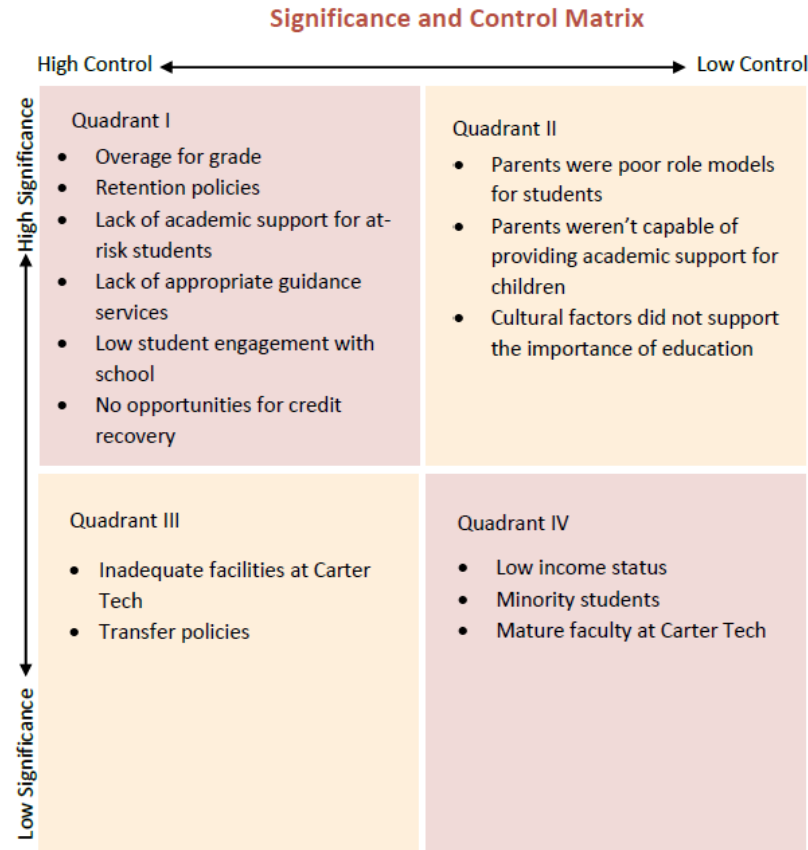
Plan / Act

Key Questions:

- **What are my conclusions from the data analysis?**
- **What are the root causes that might have led to the outcomes?**
- **What will I do?**
- **What changes or action steps will enable you to achieve the outcomes?**

Plan / Act

Significance – Control Matrix



Geier, R. and Smith, S. (2012). District and School Data Team Toolkit. p. 120

Plan / Act

Identifying a Practice Problem or Challenge

“It is the adults in the district who create and maintain learning opportunities for the students they serve. The outcomes that students experience, therefore, are determined by the practices of adults in the district.”

Geier, R. and Smith, S. (2012), p. 181

They define “practices” as systems, relationships, instruction, learning environments and resources

Plan/Act – Successful Strategies

Characteristics of potential successful strategies:

- **Clearly addresses the problem practice problem or challenge**
- **Is based on sound research**
- **Endorsed by other schools/districts**
- **Targets our population of students**
- **Other?**

Plan / Act – Action Plan

The Action Plan identifies:

- **Measurable outcomes**
- **The desired end state/improvement target**
- **Each of the high impact strategies**
- **The action steps that need to be taken to achieve the outcomes**
- **A timeline for implementation**
- **Inputs or resources needed to support the implementation**
- **A person responsible for overseeing implementation**

Plan / Act Outcomes

Typical goal /outcome Statement:

- Increase the percentage of students who score at the acceptable level on the gr. 6 mathematics PAT.

A clearer and more useful statement would address the following questions:

- **What will change?**
 - The percentage of students who score at the proficient level.
- **For what population?**
 - All students who are taking the Gr. 6 PAT.

Plan / Act Outcomes

- **By how much?**
 - In this example, the target could be to reach 80% in 4–5 percentage point annual increments.
- **By when?**
 - In this example, within 5 years.

The resulting measurable statement:

- **To increase the percentage of all students who score at the acceptable level on the gr. 6 math PAT to 80% within the next five years.**

Activity: Plan/Act

Reflecting on your HSR Plan,

- Does your plan have the recommended elements?
- Are there aspects that you would like strengthen?



Step 5: Evaluate

“Has the issue changed for the better?”

“Is it working?”

- **Has the situation improved sufficiently to have adequately addressed the original concern?**
- **Consider these questions:**
 - How effectively has the initial issue been resolved?
 - What new concerns have arisen?
 - Which factors are understood sufficiently and which warrant additional investigation?
 - Have new data gaps (needs) been identified?
 - Should we continue with our action plan or choose a new area of focus?

Evaluate

Evaluation Plan

- **Assesses improvement targets**
- **Focused on the final product / outcome**
- **Addresses the question: Did our planned strategies have the desired outcomes?**
- **Why was, or wasn't, the initiative partially or completely effective?**

An evaluation plan should be developed with your action/project plan.

Evaluate

Key Questions:

- **What effects did our actions have?**
- **What are the next steps?**
- **How effectively has the initial issue been resolved?**
- **What new concerns have arisen?**

Activity: Reflection

Reflecting on the Cycle for Data Use:

- **What step(s) do you feel your school/district is doing most effectively?**
- **What step (s) could use some attention/development?**
- **What is one action you could take to move data use forward in your school / jurisdiction?**
- **What would be helpful moving forward?**
- **What questions do you have?**

Activity: Reflection

Reflecting on the Cycle for Data Use:

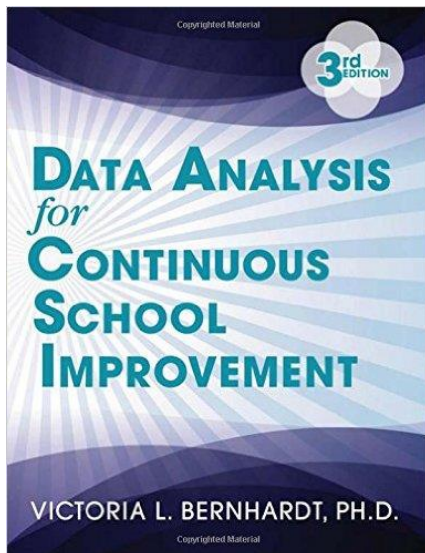
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Resources



*Creating and Leading
Cultures of Inquiry*

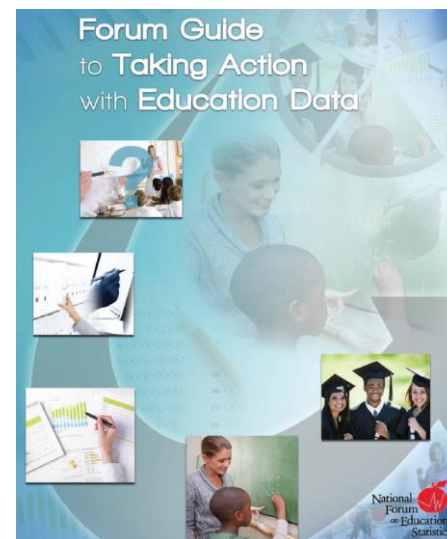
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Washington Data Coaching Development

DISTRICT AND SCHOOL DATA TEAM
TOOLKIT

TOOLS AND RESOURCES TO ENGAGE ALL MEMBERS
OF THE DISTRICT COMMUNITY IN USING MULTIPLE
DATA SOURCES TO CONTINUOUSLY IMPROVE
TEACHING AND LEARNING



Questions / Comments?

Contact:

Eleana.Yun@gov.ab.ca (780) 638-3317

Anthony.Warren@gov.ab.ca (780) 422-6503