



Advanced Data Analysis: Item and student sample June 2016 Results

CARE November 4th
Facilitator: Geneviève Légaré
In Collaboration with CARE

Welcome!



- **Introduction**
 - **Welcome to the session**
 - **Guests**
 - **Set-up**
 - **Virtual participants**
-



Room set-up

- **Subject tables**
 - **2-4 participants per subject**
 - **At least one computer per team**
 - **Online access to DBMS**
 - **Set of exams by subject**
 - **Handouts**

 - **Virtual teams: set up**
-

Context



Part 1: Big 5 Data analysis June 2016

- **Provincial Portrait**
 - Two outcomes:
 - Overall matrix
 - A descriptive report
 - **Part 2: Dig deeper**
 - Item analysis (Grade 10)
 - Student samples
-

Outputs



- **Provincial report written report (W.I.P.)**
 - **A table of results for all boards**
 - Entered manually
 - Missing one board
-

Drilling Down—Five Levels of Analysis

LEVEL OF DATA	DEFINITION	EXAMPLE
Aggregated data	Student-learning data results compiled at the largest level	All sixth-grade students' performance in science
Disaggregated data	Student-learning data results separated into groups of data sets by race/ethnicity, language, economic level, and/or educational status	Sixth-grade African American, White, Latino/a, Native American, and Asian students' performance in science
Strand data	Student-learning data results separated into groups of data sets by areas within the content	All sixth-grade students' performance in physical science, life science, and the nature of science
Item-level data	Student-learning data results reported by students' performance on individual test items	All sixth-grade students' performance on all test items in each strand area in science
Student work	Artifacts that show evidence of student thinking	Written responses from sixth-grade students to a question or prompt focused on a physical science concept

Today (learning outcomes)



- Data Analysis: Drilling the items
 - Grade 10 subjects
 - Provincial picture
 - Connect to the WIP provincial report
 - Collaborative inquiry
 - Teams: Roles and norms
 - Protocols to use with data
 - Reflection about the transfer and connection to role as consultants
-

Reflection



- What is your personal learning goal?
 - A burning question?
-

Team set up



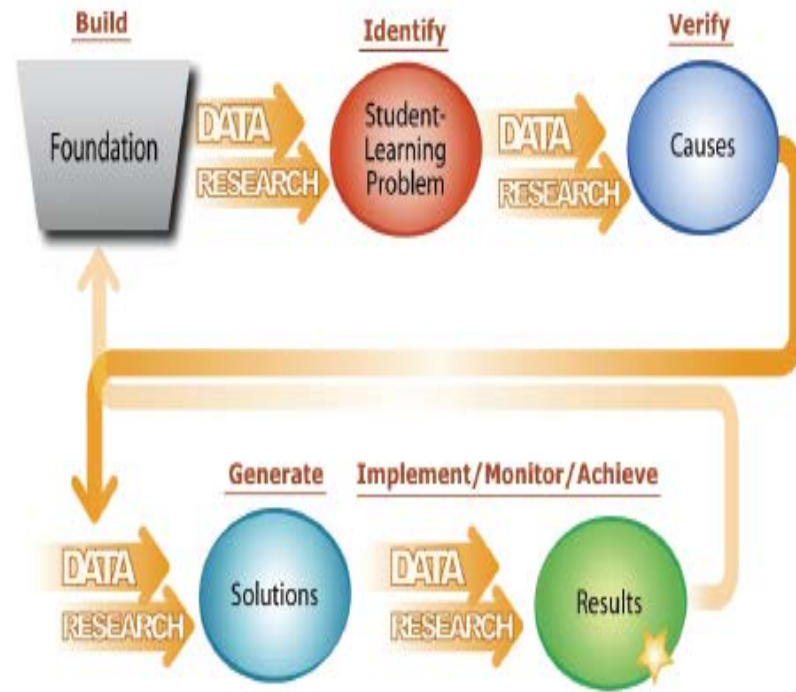
- Select a role
 - Establish the norms

 - Virtual teams
-

Revised Student Learning Problem

The Using Data Process Components and Tasks

The *Using* Data Process

Today



- **Part 1: Items analysis (AM)**
 - Embedding the collaborative inquiry process
 - **Part 2: Student samples (PM)**
 - Leading to the Student Learning Problem
 - Provincial report
 - **Wrap-up**
-



Part 1: Item Analysis

- Four steps:
 1. Prediction
 2. Inventory of pass/fail by items
 3. Data analysis: Go visual + Observation
 4. Write up for provincial report
-



Part 1: Item Analysis

Step 1: Prediction—June 2016

a) Individually on post-it :

- What is the provincial success rate for your subject :
 - Math CST
 - Science Sn
 - History

b) As a team, on a separate sheet:

- Using the exam, indicate for each item the success rate What is the success rate of the students for each item on the exam
 - No debate; this is a pass/fail
-

Part 1: Item Analysis



Step 2: Inventory

DBMS: Provincial results

In dbms in pairs within a subject

Do all exams of your subject

- 3 Maths
- 2 Sciences
- 2 History

Work in student booklet

See the handout

First pass

- Count number of failed items
- Identify main differences: hi and low

Second pass

Zoom in: Proficiency for each item:

- *Note: Cutting point to be discussed*
 - Above 70
 - Weak 60-70
 - Almost there: 50-59
 - Fail: 0-49

Third pass

- Make connection to nature of items (type of questions, intellectual operations or Progression of Learning)
-



Part 1: Item Analysis

Step 3: Data Driven Dialogue

Go visual

- Flip chart
 - Identify the key pieces of information for your exams
 - Inventory handout
-

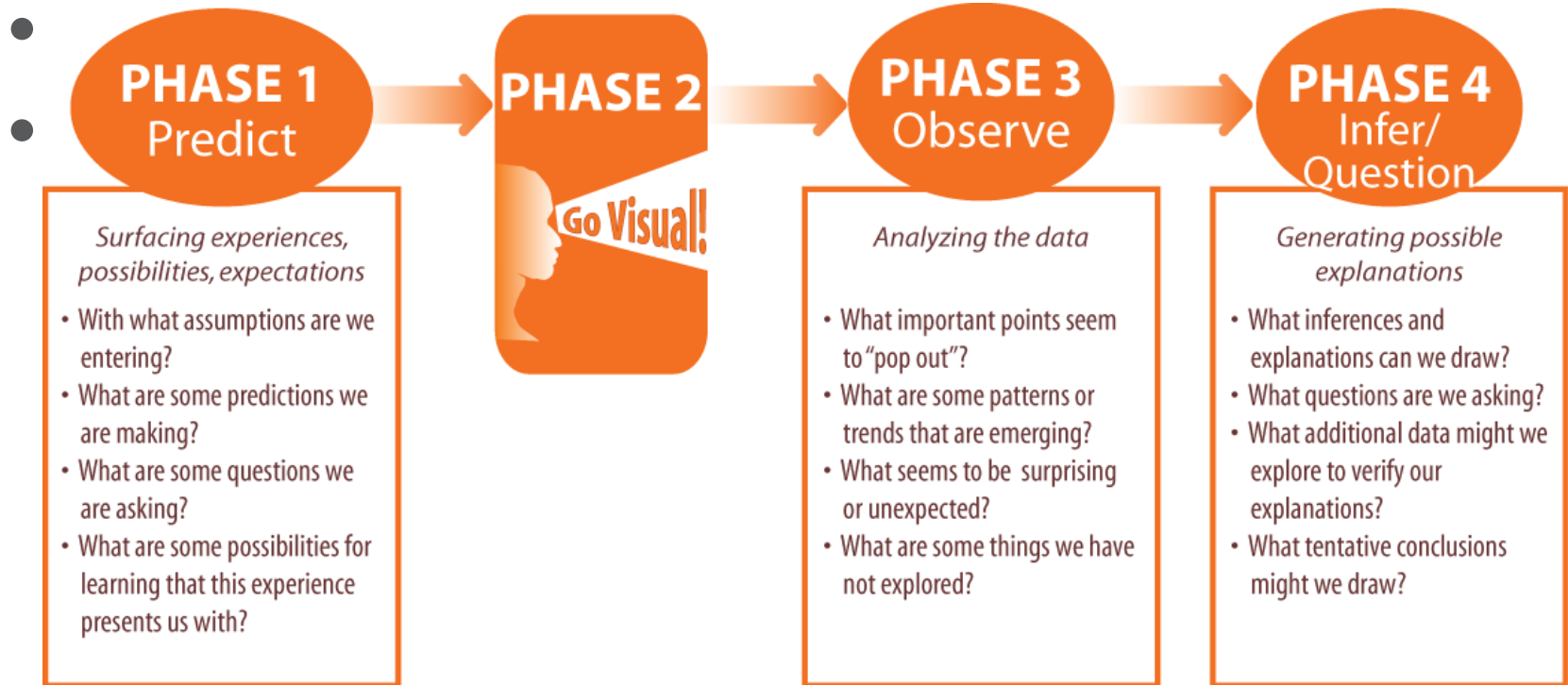


Part 1: Item Analysis

Step 4: Draft a description of the results of the item analysis

- summary of the findings
 - most successful items, weakest strands, etc.
 - neutral language
-

Data Driven Dialogue



Adapted from Wellman, B., & Lipton, L., 2004. *Data-Driven Dialogue: A Facilitator's Guide to Collaborative Inquiry*. Sherman, CT: MiraVia, LLC. Used with permission.

Lunch





Part 2: Student samples

Step 1: inventory

a) Select samples:

- Connect to item analysis results:
- Identify weak questions and go through

b) What are the students able/unable to do?

- Code/ categorize by types of mistakes
- Missing answers

c) Inquiry mindset: What are we looking for (proving or opened)?

Part 2: Student samples



Step 2 (If time)

Student learning problems

Using the outcomes of the item analysis and student samples, participants draft student learning problems that would be worth exploring further.

Example: Student Learning Problems



- June 2014 results
- English, public
- Math Reasoning competency

The final provincial/board success rate of Grade 10 students in math CST is X%.

CST analysis:

- The mean school mark is A%, the mean moderated mark is B% and the MELS exam mark is C% (D% after conversion).
 - The final average mark is E%.
-



Verify Causes Tree

Student-Learning Problem

	Curriculum	Instruction	Assessment	Equity	Critical Supports
Possible Causes	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Research Findings	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Local Data Findings	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Verified Causes	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Adapted from Paul G. Preuss, *Root Cause Analysis: School Leader's Guide to Using Data to Dissolve Problems*. 2003. Larchmont, NY. Eye on Education. Used with permission.

Part 3: Provincial report



Review the written report

Members complete the written section for the the three exams.

Summary of the Day



- Feedback
 - Key ideas
 - Feedback forms
-

Thank you!



Evidence-based Practice Project for the Anglophone Community

Ebpquebec.com

Twitter: [@ebpppractice](https://twitter.com/ebpppractice)

Background



Four competencies



1. **Data literacy and collaborative inquiry**
 2. **Content knowledge, pedagogical content knowledge, generic pedagogical knowledge***
 3. **Cultural proficiency**
 4. **Leadership and facilitation strategies**
-

Handout H5.6

Low-Capacity Versus High-Capacity Data Use

High-capacity uses are those that actually translate into improved instruction, expanded opportunities to learn for diverse learners, and improved outcomes for students. They draw on the four core competencies identified in Chapter 1: data literacy and collaborative inquiry skills; content knowledge, pedagogical content knowledge, and generic pedagogical knowledge; cultural proficiency; and leadership and facilitation skills. Low-capacity use, on the other hand, leads to inappropriate responses to data that can harm children and/or teachers. The table below contrasts high- and low-capacity use with several examples.

Comparison of Low- and High-Capacity Data Use

LOW-CAPACITY DATA USE	HIGH-CAPACITY DATA USE
• Misinterprets and misunderstands data	• Accurately interprets data and discerns what they mean
• Uses aggregated and disaggregated data only	• Regularly uses item-level data and student work
• Accepts achievement gaps as inevitable	• Responds to achievement gaps with immediate concern and corrective action
• Uses single measures to draw conclusions	• Uses multiple sources of data before drawing conclusions
• Uses only summative measures	• Uses formative and summative measures
• Blames students and external causes for failure	• Looks for causes for failure that are within educators' control
• Draws conclusions without verifying hypotheses with data	• Uses student work and data about practice and research to verify hypotheses
• Fails to monitor implementation and results; big surprises at the end	• Regularly monitors implementation and student learning; no surprises
• Responds as individual administrators and teachers	• Responds in teams and as a system
• Prepares for tests by drilling students on test items	• Aligns curriculum with standards and assessments; implements research-based improvements in curriculum, instruction, and assessment
• Tutors only those students just missing the cutoff for proficiency—"bubble kids"	• Differentiates instruction; provides extra help and enrichment for all who need it
• Tracks students into classes by perceived ability	• Increases the rigor of the curriculum for all students; assigns the best teachers to those who need them most
• Chooses strategies based on instinct or the latest educational fad	• Chooses strategies that are culturally proficient and research-based and have a logical link to the intended outcome

Questions for Discussion

1. What are the differences between high- and low-capacity data use? What additional examples can you think of for both high- and low-capacity data use?
2. Which practices on either side are prevalent in our school?
3. What can our school and data team do to increase high-capacity data use?



Types of Expertise

- Subject/Content
 - Subject-specific pedagogy
 - General pedagogy
 - Adult learning and professional development context
-



VC Decision making

Student-Learning Problem

	Curriculum	Instruction	Assessment	Equity	Critical Supports
Possible Causes					
Research Findings					
Local Data Findings					
Verified Causes					

Adapted from Paul G. Preuss, *Root Cause Analysis: School Leader's Guide to Using Data to Dissolve Problems*. 2003. Larchmont, NY. Eye on Education. Used with permission.

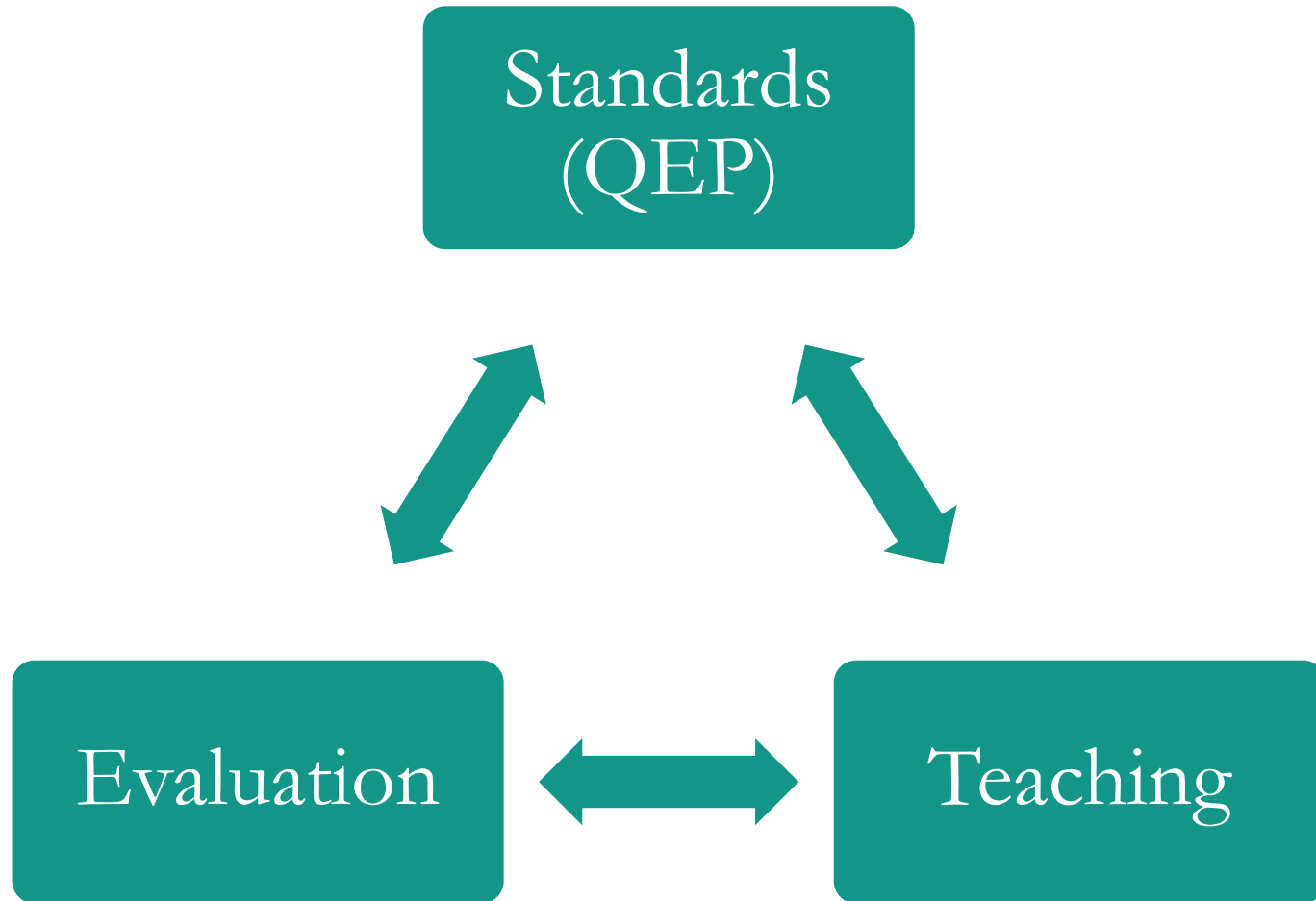
Types of Causes



- Curriculum: *See next slide*
 - Instruction: Research-based, quality, differentiation
 - Assessment: Formative evaluation, feedback to students
 - Equity: Attitudes and perceptions toward certain groups
 - Critical supports: engagement, leadership, collaboration, help for students, high quality PD for teachers
-



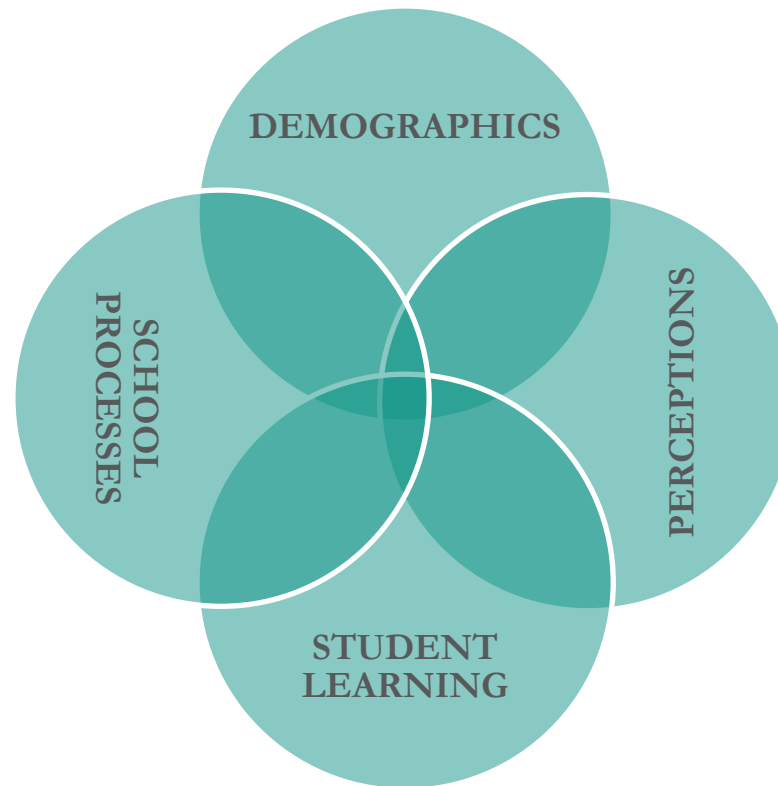
Curriculum



Types of Data



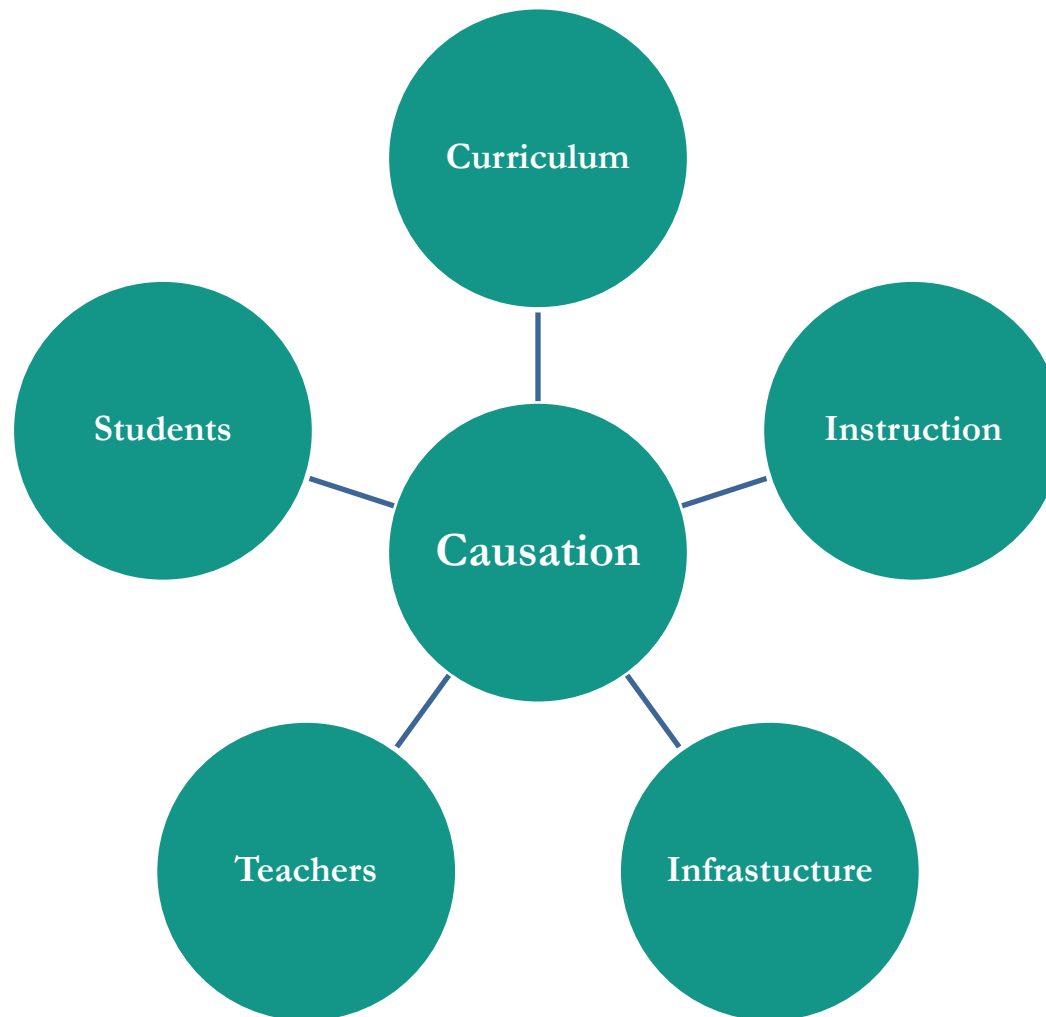
Victoria Bernhardt



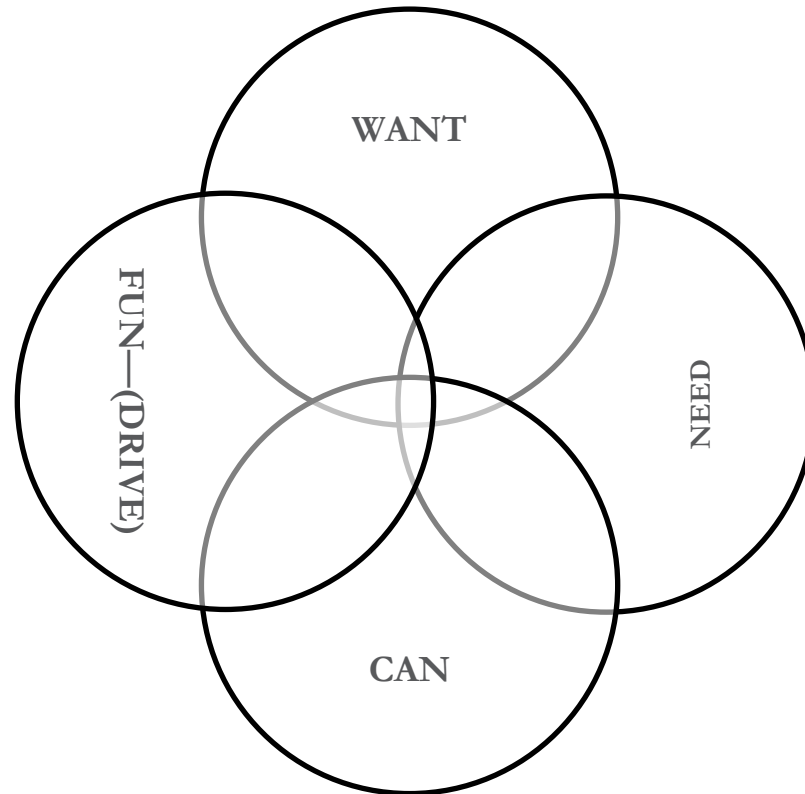


Theories of Causation:

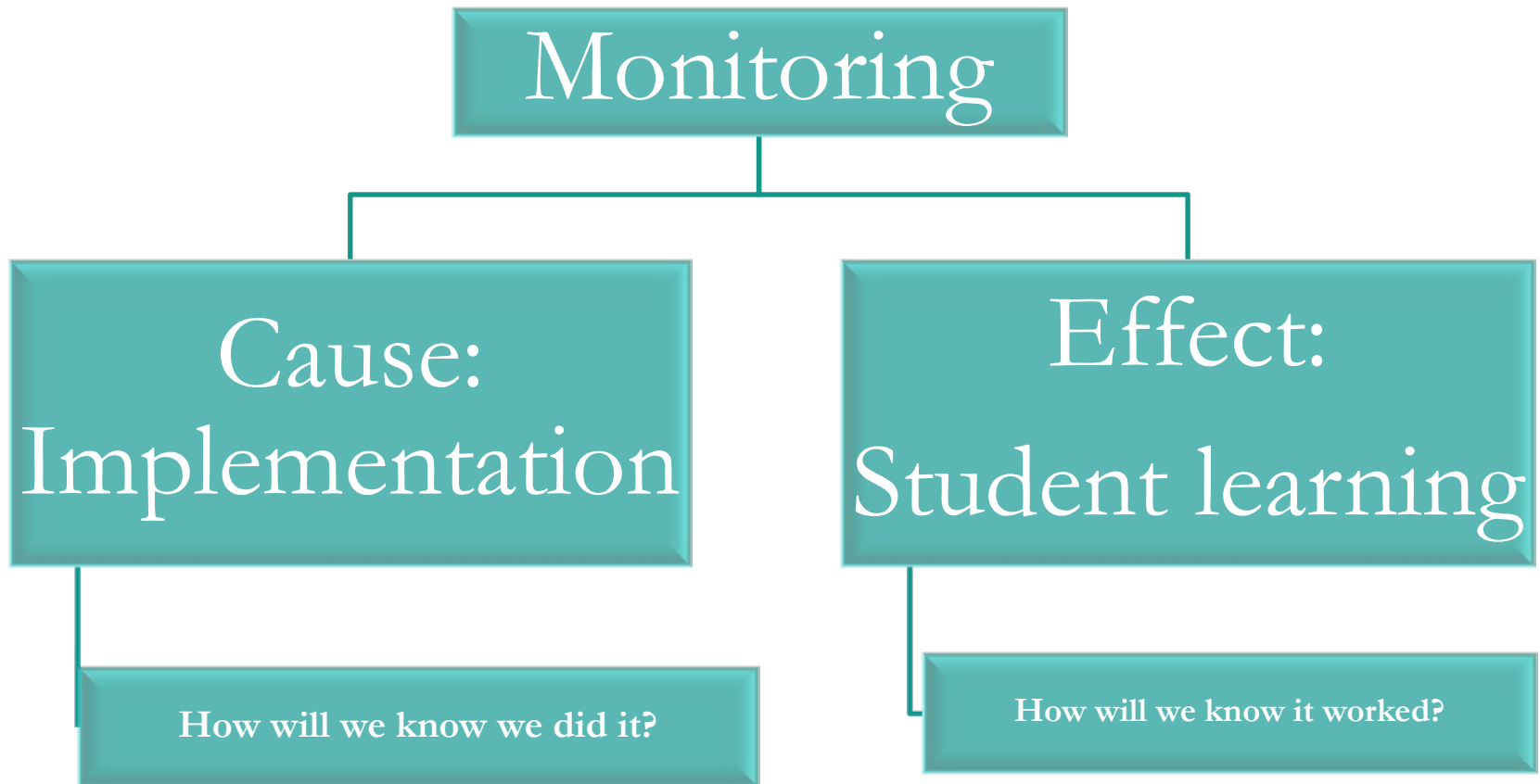
Lipton and Wellman



Planning PD model



Action Plan





Further Readings

- Bernhardt, V. (1998). *Data Analysis for Continuous School Improvement*. Larchmont, NY: Eye on Education.
- Boudett Parker, K., City, E. A., and Murnane, R. J., eds. (2005). *Data Wise: A step-by-step-guide to using assessment. Results to improve teaching and learning* (Cambridge, MA, Harvard Education Press).
- Hattie, J. (2012). *Visible Learning for Teachers: Maximizing Impact on Learning*. London: Routledge.
- Lipton, L. & Wellman, B. (2012). *Got Data? Now what? Creating and leading cultures of inquiry*. Bloomington, IN: Solution Tree Press.
- Love, N. (2009). *Using data to improve learning for all: A collaborative inquiry approach*. (Cambridge, Massachusetts, Corwin Press).
- Love, N., Stiles, K. E., Mundry, S., and DiRanna, K. (2008). *The Data Coach's guide to improving learning for All Students*, Library of Congress Cataloging-in-Publication Data edn (Thousand Oaks, California, Corwin Press).
- Marzano, R. J., and Waters, T. (2001). *Classroom Instruction that Works: Research-based Strategies for Increasing Student Achievement*.(Alexandria, VA: ASCD Press).
- Ontario Principals' Council, and Press, C. (2009). *The Principal as Data-Driven Leader: Leading Student Achievement* (Thousand Oaks, CA, Corwin Press A Sage Company).
- Donohoo, J. (2013). [Collaborative inquiry for educators: A facilitator's guide to school improvement](#). Thousand Oaks, CA: Corwin Press.
- Glaude, C. (2005). [Protocols for professional learning conversation: Cultivating the art and discipline](#). Courtenay, BC: Connections Publishing.
- White, S. H. (2005). [Beyond the numbers, making data work for teachers and school leaders](#). Englewood, CO: Lead and Learn Press.
- Ontario: Ministry of Education: Leadership Strategy: <http://www.edu.gov.on.ca/eng/policyfunding/leadership/actionPlan.html>
- Ontario Ministry of Education:
 - <http://www.edu.gov.on.ca/eng/policyfunding/leadership/ideasIntoAction.html>
 - Education Quality and Accountability office: <http://www.eqao.com/categories/home.aspx?Lang=E>
 - Michael Fullan's Website: <http://www.michaelfullan.ca/>
 - Halifax Regional School Board: <http://www.hrsb.ns.ca/>
 - Marzano Research Lab: http://www.marzanoresearch.com/Free_Resources/tools.aspx
 - Doug Reeves on toxic Grading Practices (Teachertube): http://www.teachertube.com/viewVideo.php?video_id=29656&title=Dr_Douglas_Reeves_Toxic_Grading_Practices
 - Teaching and Learning Tool kit: <http://educationendowmentfoundation.org.uk/toolkit/approaches/>

Extra

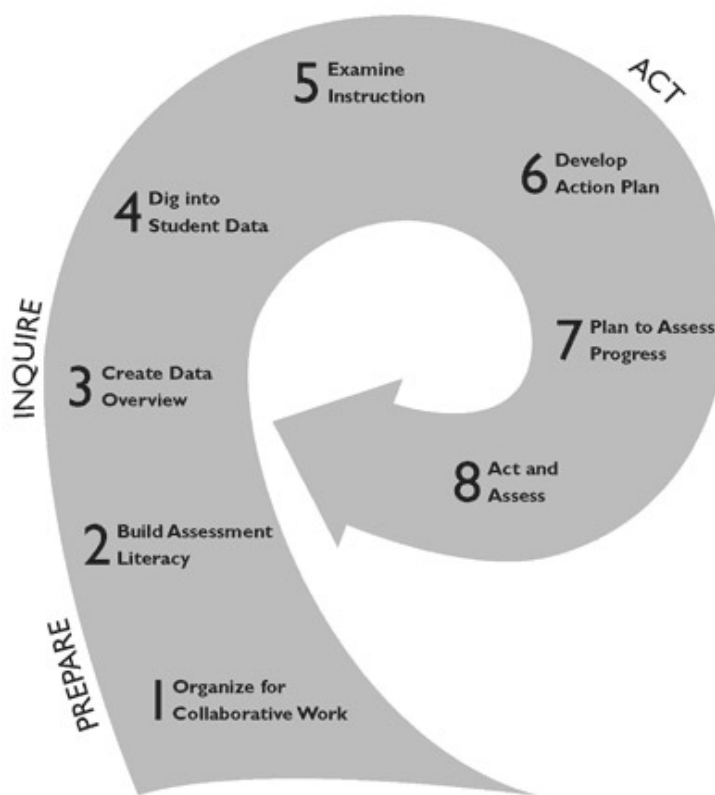




Collaborative Inquiry Process



Data Wise Model (Boudett et. al)





Collaborative Inquiry Process



Instructional Data Team Model (Leadership and Learning)

