

The Beyond the Numbers Series: Advanced Data-Driven Decision Making

Support Documents

For training provided through:

The Oregon DATA Project
www.OregonDataProject.org

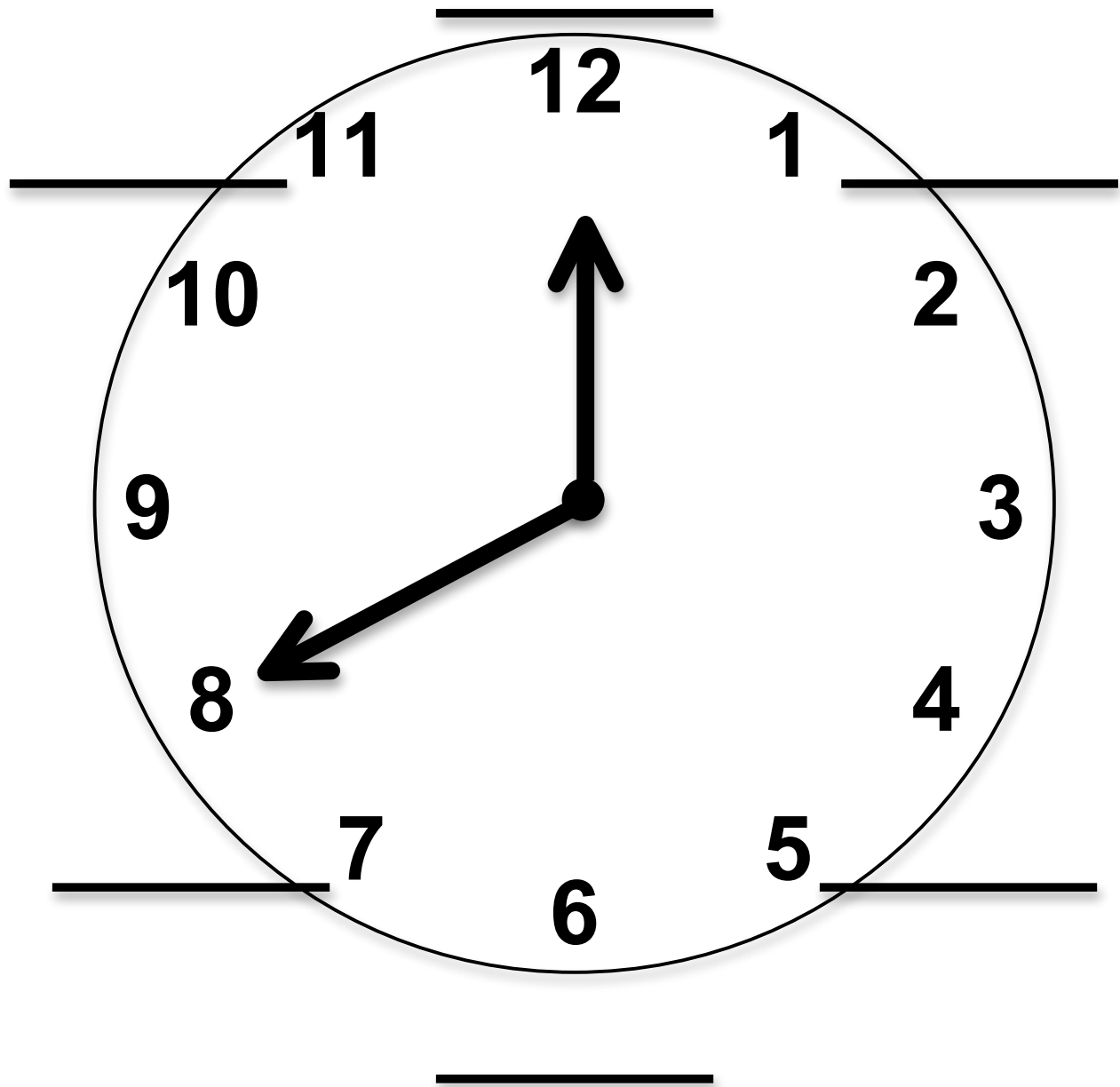
Conducted with the assistance of:

The Leadership and Learning Center
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**A project of the
Oregon Department of Education,
with support from the EESC**

Round-the-Clock Learning Partners

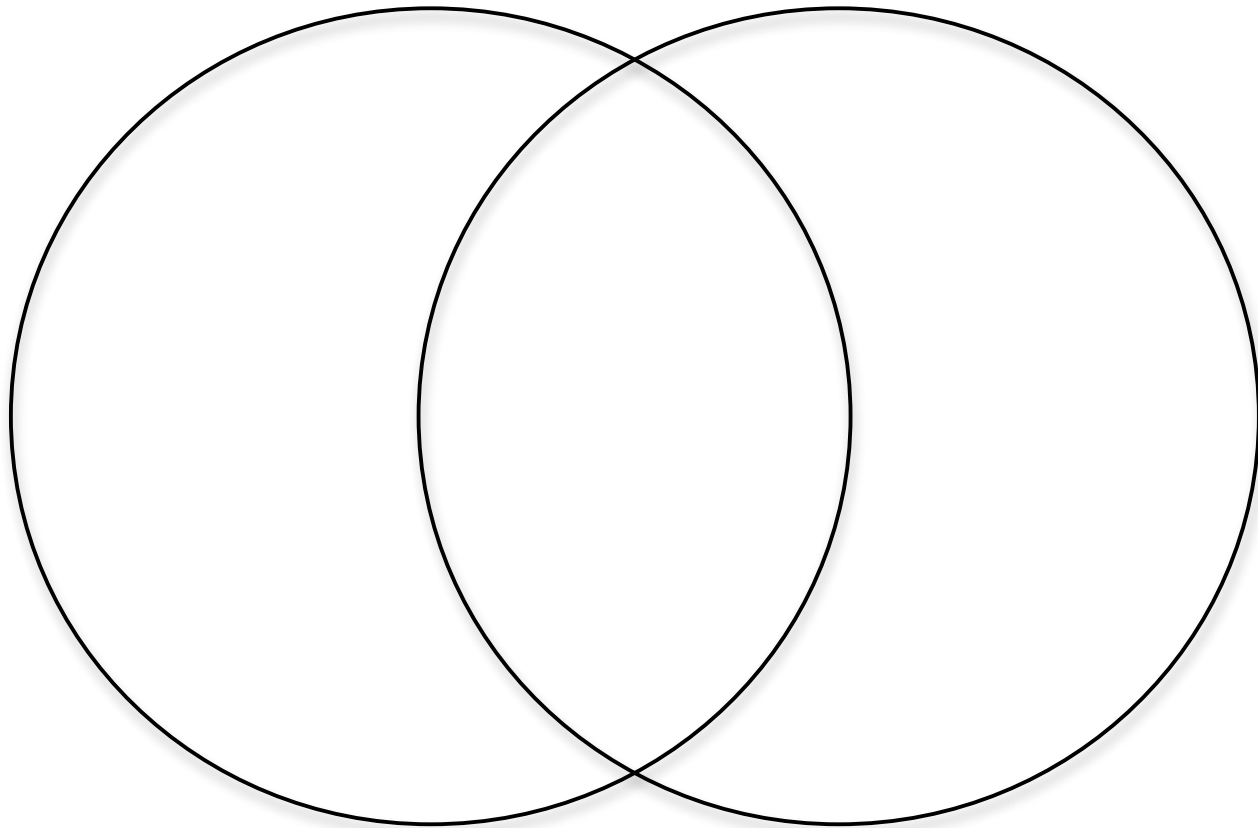


Directions: Find six people who would be willing to serve as your learning partner these next two days (one each for the 12, 1, 5, 6, 7, and 11 o'clock positions) and who have yet to fill the time position for which you are looking to fill. When you find a match, write their name in the blank next to the appropriate time position at the same time you write your name in the corresponding time position on their clock.

The Changing Nature of Tools

Stone Age

Information Age



The Principles of Data-Driven Decision Making

The Data-Driven Decision Making Seminar has helped educators at all levels understand and apply five concepts that form the basis for the current seminar:

Antecedents of excellence: The universe of adult actions that serve as predictors of improved student achievement. They can be distinguished in three ways: teaching behaviors, instructional strategies, and conditions and structures for learning.

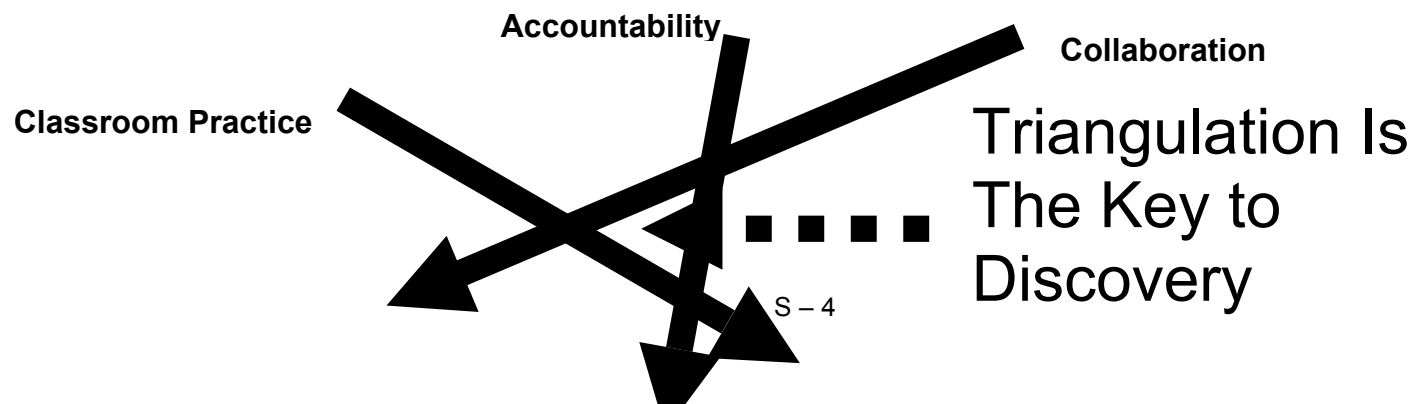
Classroom Practices: those best practice events or conditions that have a high correlation with improved student achievement. The identification, measurement, and management of these factors have equipped teachers to drive instructional processes in a proactive, intentional way that improves student achievement for all students.

Collaboration about and around student work: Conscious recognition of the power of teachers collectively applying their best thinking to address specific challenges for individual students has become a hallmark of this very successful seminar.

Accountability: that specifies responsibilities and promotes empowerment at all levels is a characteristic of Decision-Making for Results (DMR) that has resonated with educators across the country and facilitated a powerful focus on results that reflect high expectations.

Continuous Improvement Cycle for managing and monitoring the work of data-driven decision making. The 7-step process has equipped educators to develop and implement targeted action plans.

These principles form the basis for this advanced seminar, which provides additional practical tools and practices to discover patterns and trends in data to improve our ability to make decisions in the important work of educating our youth. Advanced DMR is designed to incorporate these principles into every aspect of your organization's work, intensifying the focus on student achievement. DMR Principles Applied to Data Analysis (pp. 6-9) provides an example of how these principles are integrated into six methods to promote a culture of data-driven decision-making.



Categories in the Cognitive Process Dimension

Most educators are quite familiar with Bloom's Taxonomy of Educational Objectives (Bloom, et al., 1956). For many, understanding the levels of thinking represented in this taxonomy was a cornerstone of required educational methods courses.

In recent years, as educators have become increasingly focused on the accurate assessment of student learning, the original taxonomy has been revisited and revised. Unlike the original, the revised framework is two-dimensional. In the newer model, the two dimensions are cognitive process and knowledge. These two components operate like an X and Y axis: the cognitive level (evident from a verb that represents student learning) would be placed on the horizontal axis, and the type of knowledge (evident from the nouns that represent what the student is to learn) would be placed on the vertical.

The six cognitive processes in the revised taxonomy are *remember, understand, apply, analyze, evaluate, and create*. These are just slightly different from the original six levels of Bloom's Taxonomy (Bloom, et al., 1956). The four categories of knowledge in the revised taxonomy are factual, conceptual, procedural, and metacognitive.

This revised taxonomy works well with the "unwrapping" process and later, in designing effective assessment items. In order to place an objective in the taxonomy, teachers must first "unwrap" a standard to discover what it requires cognitively (the verb) and knowledge-wise (the nouns that delineate content and concepts). Once they have determined the correct placement, then the "bare bones" of the assessment items are set. However, the placement is important, because different types of objectives require different approaches to assessment (Anderson, et al., p. 8).

Thus, even though the list below contains only verbs that represent student learning, it is important to "unwrap" standards and ensure each standard is placed in the taxonomy table before designing appropriate assessment items.

Cognitive process 1: To remember

To remember is to retrieve relevant knowledge from long-term memory.
(Anderson, et al., p. 67)

Verbs associated with this level: **tell, list, define, label, recite, recall, retrieve, name, record, relate, recognize, identify, retrieve, describe, examine, group, locate, match, say, show, tell, write.**

Cognitive process 2: To understand

To understand is to construct meaning from instructional messages, including oral, written, and graphic communication. (Anderson, et al., p. 67)

Verbs associated with this level: **interpret, clarify, paraphrase, represent, translate, exemplify, illustrate, classify, categorize, summarize, generalize, infer, conclude, predict, compare, contrast, match, explain, construct, differentiate, distinguish, reorganize.**

Cognitive process 3: To apply

To apply is to carry out or use a procedure in a given situation. (Anderson, et al., p. 67)

Verbs associated with this level: **apply, execute, carry out, implement, use, construct, implement, model, display, illustrate.**

Cognitive process 4: To analyze

To analyze is to break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose. (Anderson, et al., p. 68)

Verbs associated with this level: **differentiate, determine, discriminate, distinguish, focus, select, organize, integrate, outline, structure, deconstruct, solve (a problem), experiment, investigate, reduce, attribute, connect, ascertain.**

Cognitive process 5: To evaluate

To evaluate is to make judgments based on criteria and standards. (Anderson, et al., p. 68)

Verbs associated with this level: **check, coordinate, detect, monitor, test, judge, critique, appraise, criticize, defend, justify, assess, prioritize, award, convince, discriminate, order, rank, recommend, support.**

Cognitive process 6: To create

To create is to put elements together to form a coherent or functional whole; reorganize elements into a new pattern or structure; inventing a product. (Anderson, et al., p. 68)

Verbs associated with this level: **make, generate, hypothesize, plan, design, produce, construct, compose, formulate, invent, develop, refine, produce, transform, originate, test, execute.**

Recognizing Types of Antecedents

Antecedent	Teacher Behavior	Instructional Strategy	Administrative Structures & Conditions for Learning
<ol style="list-style-type: none"> 1. Reciprocal Teaching 2. Homework guidelines 3. DATA Team expectations 4. Redirection techniques 5. Cooperative Learning 6. 5-Step Writing Process 7. KWL 8. Metaphors and Analogies 9. Bell to Bell Teaching 10. Alignment of Curriculum to Standards 11. 5 Easy Steps to a Balanced Math Program 12. Use of Scoring Guides 13. Dual Block Algebra 14. Common Assessments 15. Feedback 16. Classroom Management System 17. Common Planning Periods 18. Parent Communication 19. Advanced Organizers & Questioning Techniques 20. Opening Lesson Activities 			

Triangulation

Triangulation

How to Triangulate Data

Method

Systems Analysis:

Decision-Making:

Continuous Improvement:

Recommended Tool(s)

7-Step DMR

Relations Diagram

Wagon Wheel Chart

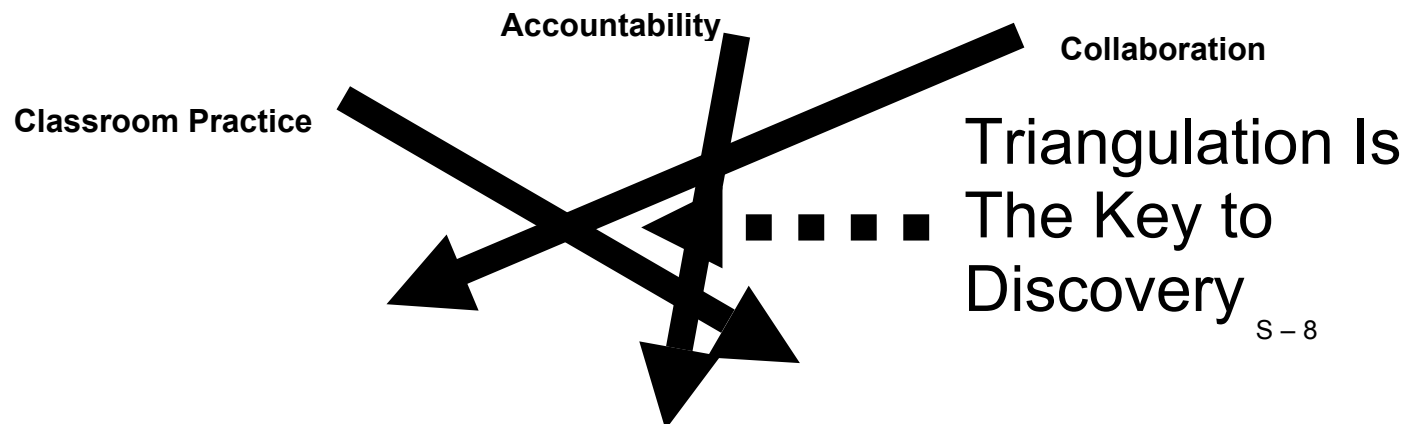
Decision-Making Matrix

Discrepancy Chart

Triangulation is a process to identify a center point from which lines are measured and angles about the point are formed. The process necessitates discovery of a center point from other, often unrelated data. Hence, the importance of applying this process to educational data that is varied, often unrelated, and collected at different time frames for different purposes.

Triangulation is a messy process. It requires teams to make assumptions, draw inferences, and come to conclusions without total certainty. When data is triangulated, each point serves as a check on the other dimension, with the desired outcome the realization of new insights from the various data points (and types) that is not available from examining one type of data (e.g., achievement), or one perspective. Triangulation requires us to look beyond the numbers by examining data from various perspectives. It is recommended that at least two tools be applied to any triangulation effort and that the principles of DMR be addressed in each triangulation exercise. Methods like Spider charts and Relations Diagrams allow us to mix and match any data your teams warrant as important.

Triangulate student assessment with multiple types of antecedent cause data. Even when examining one data set such as 3rd Grade Math scores on the State Assessment test, it is advisable to include causal data and antecedent conditions in the analysis to identify strategies that should be applied to improve student achievement. Triangulation with these existing data will help the data team determine where resources and strategies need to be committed.



Triangulation Exercise Modeled

Effects (results +/- Proficient)	Classroom Practices	Collaboration Opportunities	Accountability Structures
<p>Grade 3 Writing Process ISTEP+ 34% Females (percent passing) 25% Males (percent passing)</p>	<p>--% of teachers who routinely apply their ET training at the proficient or higher level to improve (male) writing</p> <p>--% of teachers using rubrics for student self-assessment in writing</p> <p>--% of teachers who alter their instructional practices in writing monthly based on the collective reflections of (male) writing within teacher teams</p>	<p>--% of teachers collectively examining (male) student work for trends, patterns, misconceptions monthly</p> <p>--% of teachers collectively scoring (male) writing with a .80 r in scoring</p> <p>--% of teachers collectively reflecting on instructional practices, which have lead to the most rapid rate of growth in writing for (male) students</p> <p>--% of (male) students writing monthly scored by the principal and calibrated with specific data teams</p>	<p>--% of (male) students who score proficient or higher in writing clear sentences and paragraphs monthly</p> <p>--% of (male) students monthly who self-assess their writing at the proficient or higher level using a common scoring guide</p> <p>--% of (male) students applying their learning of ETs at the proficient or higher level to improve their writing</p>

Triangulation Exercise: Using your effect data, brainstorm possible antecedents you might measure to determine causes and test your hypotheses.

Effects (results +/- Proficient)	Classroom Practices	Collaboration Opportunities	Accountability Structures

Discuss with colleagues what NEW LEARNING, INSIGHTS, AWARENESS, RECOMMENDATIONS can be surmised from this simple triangulation exercise:

- 1.
- 2.
- 3.

How much more could be gained if you were able to triangulate with quiz patterns, time devoted to specific standards, knowledge of individual student Math skills, or side by side analysis of local curriculum, state standards, and state test blueprints? Take a moment and do a quick write as to your observations or instructions to yourself.

Template for Triangulation of Data

1st Data Set—

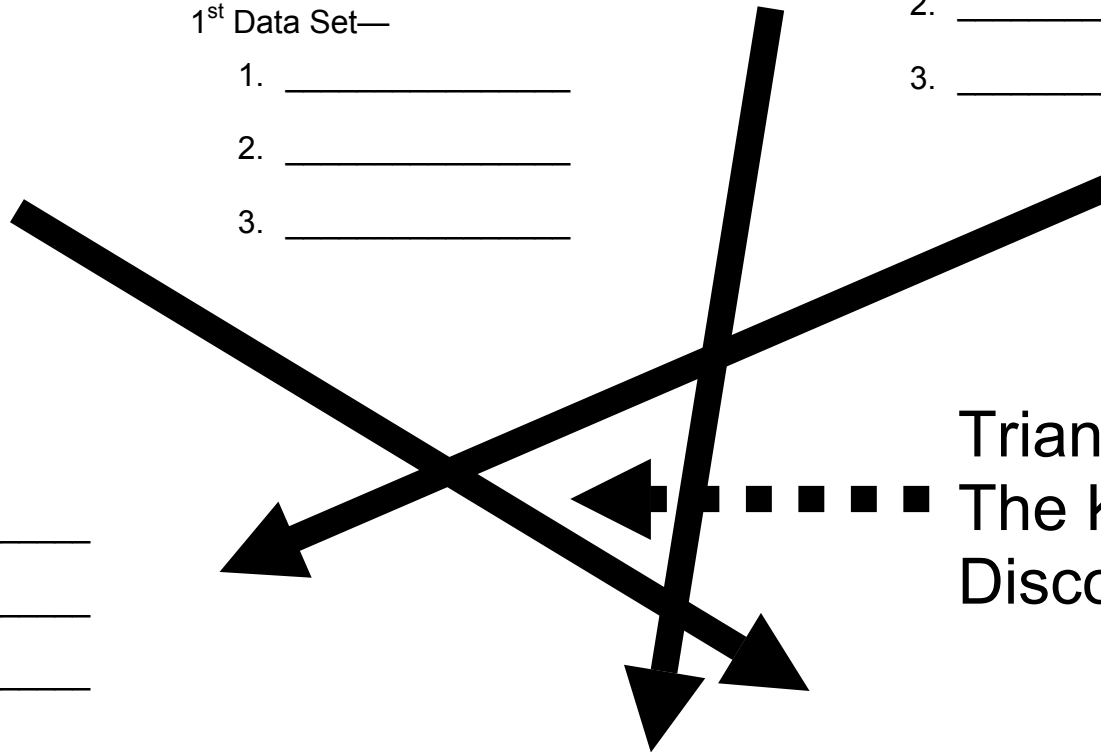
- 1. _____
- 2. _____
- 3. _____

2nd data set—

- 1. _____
- 2. _____
- 3. _____

3rd Data Set—

- 1. _____
- 2. _____
- 3. _____



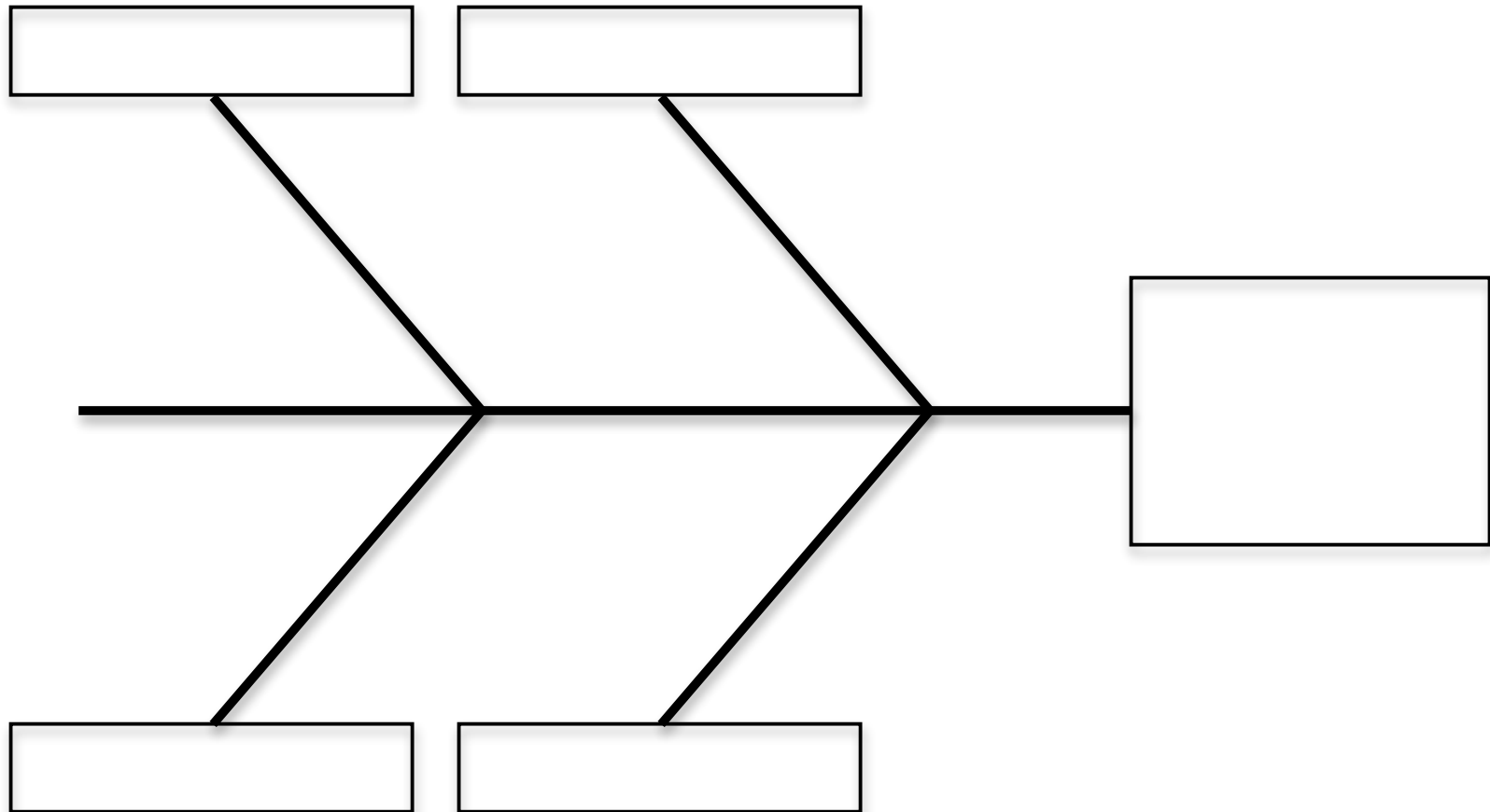
Triangulation is
The Key to
Discovery

What do we **K**now from these data? (patterns, trends, similarities, differences, outliers)_____

What do we **W**ant to find out? (decide on purpose of analysis)_____

What do we need to **L**earn & how will we know we learned it? (choose analysis method)_____

Ishikawa Fishbone: Cause & Effect Diagram



**Day 1
Plus/Delta**

+	Δ

Critical Incident

Critical Incident Prompt	Evidence available or data needed to verify
What incident in 2007-08 was most difficult to deal with or was repeatedly unwelcome?	
What incident was too costly or a waste of time & effort?	
What incident disrupted work-flow or caused embarrassment?	
What incident required re-work or inhibited achievement?	

Critical incident 'jump starts' real data analysis by relying first on professional judgment and perceptions. Critical issues, once identified, are then verified with evidence or data is identified to collect, monitor, and analyze in the future.

Problem Solving: Force Field Analysis

What Is It? Force field analysis is a problem-solving tool used to help change occur. Force field analysis is the exercise of identifying the driving and restraining forces that surround a proposed change. Working through this process of identifying forces encourages creative thinking by forcing a team to think together about the aspects of the desired change. The exercise also encourages the team to agree on the priority forces. This agreement provides a starting point for action.

Force field analysis is used by teams when trying out their improvement theories (hypotheses). It is often used just after the team has generated improvement theories using the funneling of data concept in which the nominal group technique has been applied. It is a powerful tool and can be used to help any desired change occur.

When Is It Used? Any time a change is expected to be difficult. Many times systems changes are difficult and complex to carry out.

How Is It Made? Perform the following six (6) steps:

1. **Define the desired change or action:** Agree on a simple statement to describe the change to be made. An action would have been previously defined during the Inquiry Process of your improvement planning (winnowing the data, perhaps using a nominal group technique).
2. **Brainstorm the driving forces:** Driving forces are those, which currently exist and tend to support, or drive, the desired change. It is important that these forces are brainstormed first because they are likely to be the most important source of ideas for an implementation plan.
3. **Brainstorm the restraining forces:** Restraining forces are forces, which currently exist and are most likely to inhibit implementation of the improvement action. Looking at the driving forces can sometimes help identify restraining forces, which are sometimes opposites of driving forces.
4. **Prioritize the driving forces:** Discuss the driving forces and determine their relative importance. Forces can be prioritized by using several different methods: forced ranking, an open discussion, or a vote.
5. **Prioritize the restraining forces:** Use the same process as in Step 4 to prioritize the relative importance of the restraining forces.
6. **List the actions to be taken:** Use the same sentence stem format (increase the percent of adults that...) you used during the triangulation exercise.

Force Field Analysis

Desired Change:

Driving Forces (+)

Restraining Forces (-)

ACTIONS:

- 1.
- 2.
- 3.

Scenarios—Leadership and Accountability

Luis was principal of a high poverty, inner city elementary school with over 86% of its enrollment students of color. The first eight years of his tenure focused on building community and McKinley Elementary School adopted Comer's School Development model. The school was cited by the State for its high-quality before and after school program, and Luis almost independently lifted the per capita income of the neighborhood by training and employing dozens of local parents in various capacities. His school had the highest proportion of teachers who began their educational careers as teacher aides, as he assisted several to secure financial aid and grants to become teachers. Student achievement in those years was not nearly as important as attending school, completing each year, and retaining students from year to year. Luis never wavered from his focus on literacy, physical education, and basic mathematics, but until 2002, student achievement was not the central tenet of accountability. Attendance and safety took center stage.

Since 2002, however, the school's very existence has been predicated on improvement in student achievement, using various measures, and Luis was one of the first to recognize the need to change the culture of the school and translate high expectations into high student achievement results. Luis, always the teacher advocate, decided to place the responsibility for results squarely on the shoulders of teacher teams, so he created a framework where teachers designed common assessments across grade levels by subject and shared them school wide. He encouraged teams to post the results in charts and graphs in visible areas. He trained his entire staff in data-driven decision-making and common formative assessments (CFAs) to ensure a standards-based approach. Grade level teams presented their most promising practices at faculty meetings with data as evidence. Luis was anything but hands-off in this process, as he reviewed each common assessment personally, and periodically scored writing assessments at random across the school. Classrooms competed to achieve the highest growth on the CFAs. He prided himself in providing same-day feedback to teachers.

Luis was collaborative in his leadership style, and recruited teachers so committed to his community that they were willing to express their mind without hesitation to improve student achievement while committing themselves to the team vision of every student at standard, every year, every subject. Luis was very clear about his decision-making process: consensus where possible, collaborative with a clock. His teachers appreciated his decisiveness and where time prohibited meeting or the faculty was at an impasse, Luis would make a decision and move on.

McKinley utilized an assessment calendar that ensured that when data was collected, action was taken and implementation monitored. After six years of improved performance by subgroup, 2008 saw flat scores for all subgroups except Caucasian students whose scores dropped below the school average and the state average on OSA assessments. Luis was not deterred, deciding to make 2008-09 the best year yet by addressing that subgroup in the school improvement plan.

Complete as thoroughly as possible the Leadership Acts evident for Luis below (left column). Add practices from your experiences in Oregon schools as suggested improvements (right column) that might improve his school even more.

At your tables, examine the **Acts of Leadership** below to help Luis link prior successes to accountability structures at his school. Use chart paper if you like.

Leadership Acts of Accountability

Current Practice (How I...)	Improvements I will make & Anticipated Results
Schedule and Modify Time	
Create Opportunities	
Commit Resources	
Provide Corrective Feedback	
Communicate Expectations	
Develop & Test Hypotheses	
Monitor Progress	
Replicate Successful Practices	
Make Midcourse Corrections	
Collaboratively Create, Implement, and Evaluate common Assessments	

Assessment Calendar

An Assessment Calendar promotes Data-Driven Decision Making for schools and school districts by suggesting explicit procedures to ensure that assessments are not only administered but that the results and findings are acted upon to improve student achievement. Describe each assessment by specifying the times when these steps are accomplished. Precise dates when available or windows of time (range of days, month)

Assessment	Administration	Collection Date/Window	Disaggregate Date/Window	Analysis	Reflection	Recommend Changes	Decision Point	Written Rationale	Disseminate to Stakeholders
NRT									
State Assessment									
District CRTs									
District Writing Assessment									
EOC Assessments									
Common Assessments									
Performance Assessments									
Unit Tests									
Other									

- Scheduled times to collect, aggregate, and disaggregate data
- Required time for analysis, reflection, and recommendations for changes
- Decision points to proceed at status quo or implement change recommendations
- Written rationale for each decision
- Disseminate rationale driven by data to all affected parties

Listening Data

Principal _____
 Email _____

Date _____

						P	I	E	Rationale for Current Practice
Types of Data	Parents	Teachers & Admin.	Staff	Students	Patrons				
Satisfaction Survey									
What do we do currently with the data?									
Authority to act? (commit resources)									
Who?/ When?									
How?									
Focus Groups									
What do we do currently with the data?									
Authority to act? (commit resources)									
Who?/ When?									
How?									
Website Comments									
What do we do currently with the data?									
Authority to act? (commit resources)									
Who?/ When?									
How?									

Proposed = P Introduced = I Established = E

Guidelines for Listening Systems: **Cyclical Predictable Public (open, transparent) User-Friendly**

Self-Assessment of Collaboration and Listening Systems

	Strongly Agree	Agree Somewhat	Disagree Somewhat	Strongly Disagree
School improvement plans are developed through a collaborative process.				
My school probes to determine satisfaction from faculty more than once a year.				
School improvement plans are implemented, monitored, and evaluated by teams.				
We routinely analyze stakeholder input (surveys, complaints, focus groups) and disseminate recommendations and planned changes resulting from that input.				
2. My school probes to determine parental satisfaction more than once a year.				
My staff would say they have authority to make classroom, grade, or department changes without consulting me, as long as an established process is followed and changes are communicated to me.				
3. My school probes to determine student satisfaction at least every year.				
Analyzed data routinely leads to recommendations which lead to decisions to take action.				
My staff would say that they have authority to stop obsolete or ineffective practices without consulting me, as long as an established process is followed and changes are communicated in a timely fashion.				
My staff feel empowered in ways I can cite or list as examples.				
My faculty are relentless in expressing diverse ideas and perspectives to find the best solutions.				
Data teams operate at all grades or departments in my school.				
Staff meetings routinely invite and receive candor through alternative viewpoints.				
My school disseminates achievement results routinely and openly to stakeholders regardless of whether the data indicates gains, status quo, or growing learning gaps.				
Recommendations are routinely made to take action following data analysis.				
My school/department employs a continuous improvement cycle that all staff can describe if asked.				
I schedule time for teams to analyze, reflect upon, and develop recommendations from school data.				
Improvements in my school/department are the result of team recommendations.				
My school systematically communicates with internal team members involved in data collection about recommendations and decisions made on the basis of that data.				
Instructional calendars guide the work of teacher teams by grade or department.				
Parents at my school would say that my staff and leadership team listen to their concerns.				
Common assessments are designed, monitored, evaluated, and revised by teams.				

Action Research

A proactive hunt for a better way.

Method

Action Research:

Recommended Tool(s)

Scattergrams
2 x 2 Matrix
Discrepancy Charts

After analyzing data for patterns, teachers develop hunches about relationships between instructional strategies, antecedent conditions such as materials or programs, and student achievement. Sadly, many if not most of these hunches become either 'folklore' or legend or are lost altogether to the profession simply because we so often fail to do anything about them. Witness the story of Flora Flagg who single-handedly gave the profession a simple and effective tool to engage students in thinking and reasoning every day, every classroom. Ms. Flagg is the Milwaukee Principal who introduced the notion of gathering writing samples from each teacher and scoring them herself weekly. The school became a 90/90/90 school, and had this pioneer, with assistance from the Leadership and Learning Center, failed to engage in a form of Action Research, only 100s would have benefited rather than millions.

Action Research has six self-explanatory (6) steps: 1. Observe 2. Hypothesize 3. Predict 4. Test Hypothesis 5. Gather Data 6. Explain (draw inferences, conclusions, applications), and five (5) suggestions:

1. Use when patterns from the data emerge that suggest that something new is happening that needs to be verified, clarified, or discovered.
2. Study relationships between one independent and one dependent variable. You are already very familiar with them: independent variables are the presumed 'causes,' and dependent variables are the presumed 'effects.' Every time you use the Ishikawa Fishbone as an analysis tool, you identify possible Action Research studies.
3. Use pre/post measures on the dependent variable (dependent on the cause variable), correlations between the dependent variable and an isolated independent variable, and comparisons with classrooms who are not introducing the cause variable in any systematic way offer three (3) additional ways to get started.
4. Apply simple collection tools, especially 2 x 2 matrix and scattergram, reveal three basic constructs behind statistical analysis: measure of central tendency (examination of means, modes, medians), measure of relationship, and analysis of differences (including Analysis of Variance).
5. Focus on improved student achievement with your Action Research study, a form of the proven instructional strategy category, Setting Objectives and Providing Feedback (Marzano, et al, 2001).

Clarification Analysis

Method

Recommended Tool(s)

Clarification:

Relations Diagram
Wagon Wheel Chart
Venn Diagram
Forced Field Analysis

Problem-Solving

To institutionalize reflection, a formal process should be instituted that requires reflection on the system for data that you are relying on and operating within. The Clarification Analysis Method adheres to the K.I.S.S. principle and lends itself to sustained practice and implementation. The astute observer will note that the graphic organizer for Clarification Analysis is the same basic form used with several forms of Cornell Notes. Review the example on this page before doing your own reflection on the tools and strategies presented in this Advanced DMR Seminar. Collaborate with a colleague at your table using the Clarification Analysis method and be prepared to report to the larger group.

Area requiring Clarification: Use of Control Chart and Need to Reduce Variability

Essence of Issue: (Q.) How do I translate the need for consistency to my faculty, which prides itself on creativity and autonomy?

Known or Agreed Upon:

Variability in instructional strategies opens rather than closes the learning gap....

Areas of Confusion/Contradictions:

- 1) What about site-based management? I need flexibility and autonomy to maximize effectiveness of my staff.
- 2) We differentiate instruction because of differences in teacher knowledge, skills, training, and experience, but we insist on common assessments, common instructional calendars, and common professional development. Why?

Resolution: 1) Build on the Known and Agreed upon; Design a persuasive communication plan regarding variability in instructional practices and impact on students and a persuasive argument that consistency and creativity are not mutually exclusive; 2) Recommend a rubric that articulates the craft of teaching for self-monitoring or voluntary monitoring (like Charlotte Danielson's); 3) Recommend a 2nd self-assessment that measures stages of concern (like CBAM) for mentor teachers and induction process; 4) work with Central Office to design and implement a differentiated professional development model in our district.

Clarification Analysis Template

Area requiring Clarification:	
Essence of Issue: (Q.)	
Known or Agreed Upon:	Areas of Confusion/Contradictions:
Resolution:	

Wagon Wheel Chart

Graphical representations to compare performance of several entities (classrooms, students, schools) across multiple variables (up to eight). The primary applications are to 1) Determine which issue is most critical, and 2) Compare performance across multiple dimensions.

Steps in Using Wagon Wheel Charts:

1. Assign key variables to each of eight spokes on chart.
2. Collect data across key variables
3. Establish scale for each spoke with highest performance on outer rim of circle. Spokes have their own scales.
4. Plot data on spokes, color-coding to distinguish entities (classrooms, schools, departments, grade levels).
5. Connect lines for each entity (spider web).
6. Identify variables that show the largest gaps between your entity and benchmarks represented on outer rim.

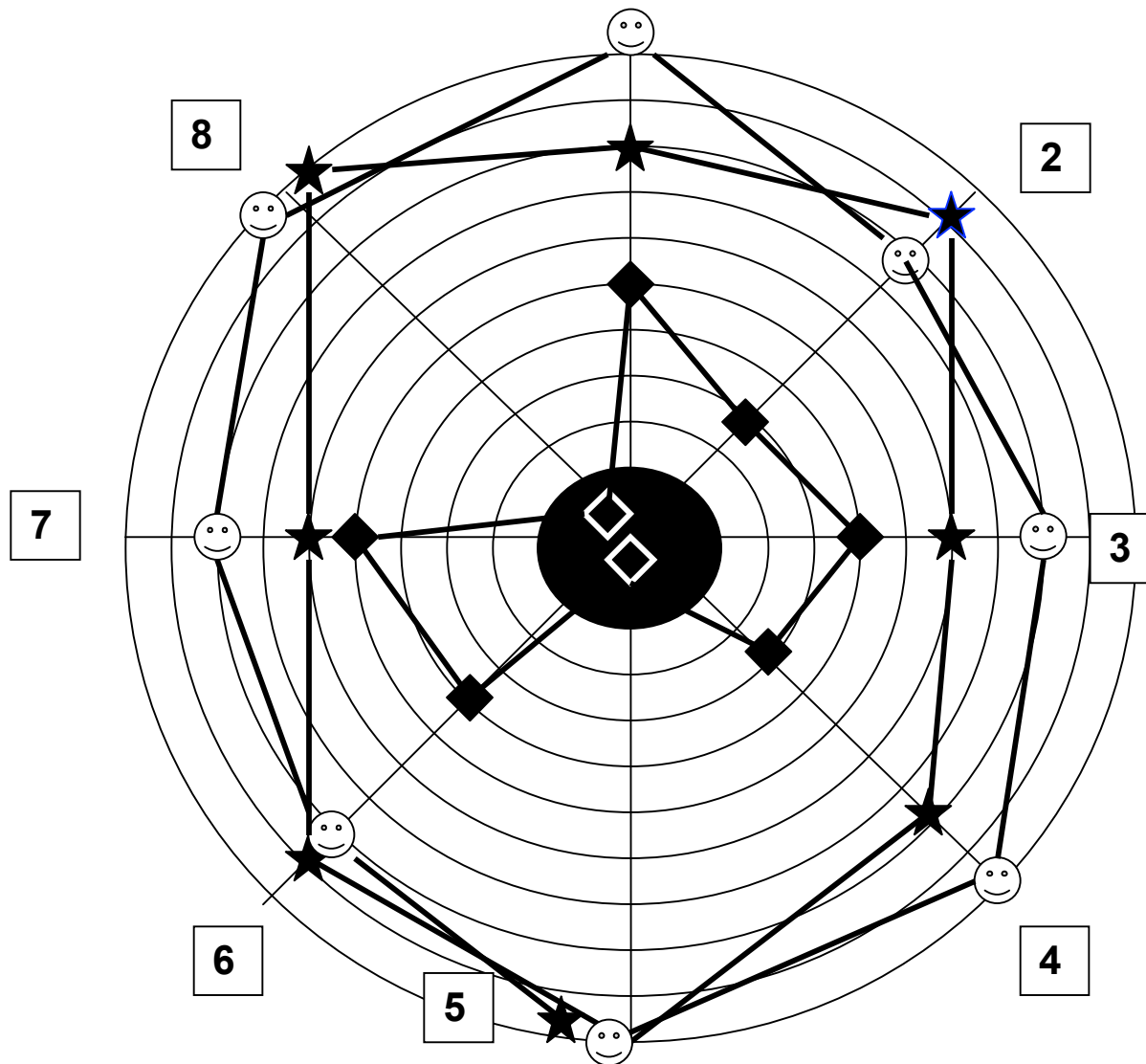
Example Variables for Wagon Wheel Chart Spokes:

Central Office (District)

- Multidimensional Assessment of Leadership. Graphically represent concise data that illustrate leaders' strengths and weaknesses. Equally useful as a self-assessment.
- Elimination of Duplication of Effort. Tracking processes across departments or schools.
- Budget Projections. Budgeted to Actual expenditures reveal degree of precision and accuracy.
- Use of Technology. Degree of variability within entities (e.g., all central office) in terms of fluency with key technologies (spreadsheets, data base). Movement toward a paperless office, other dimensions of efficiency.
- Awareness of District Goals, personal and department missions, and performance indicators for departments.

Site Level (Schools)

- Reduction of classroom interruptions (e.g., Intercom Announcements/day)
- Classroom Checklist for Standards Implementation. Wagon Wheel helps monitor % items in place by teacher.
- Leverage applied in performance assessments (# and type of standards incorporated).
- Student Performance Results, including behavior, attendance, achievement.
- Grade/ Subject level Safety Net (power) Standards demonstrated at key times (Oct, March, May).
- Percent of total assessments delivered as performance assessments.



Wagon Wheel Example

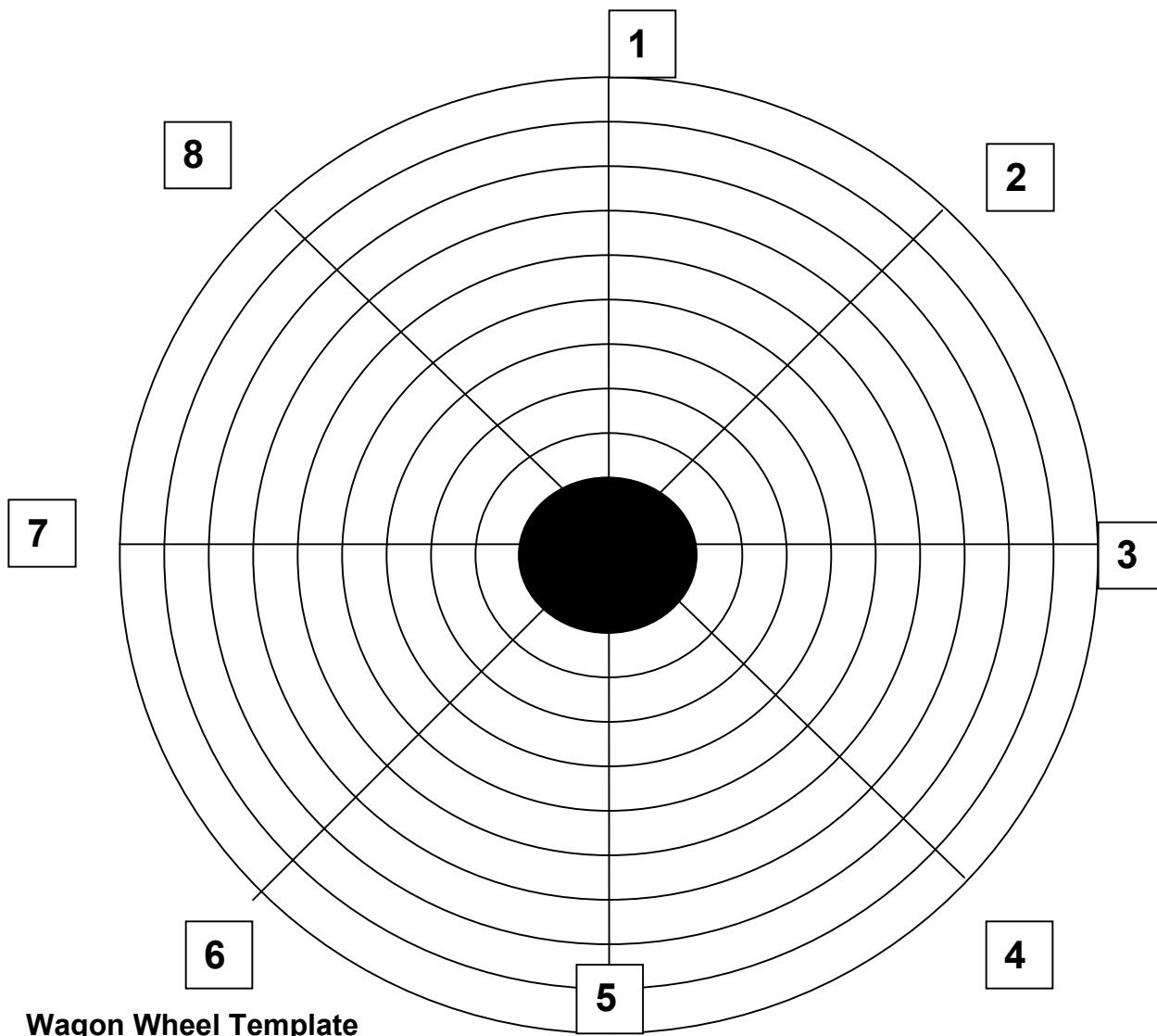
Key Variables

1. % Standards checklist in place
2. % Proficient in Facts/Opinion
3. % Proficient in Algebraic Functions
4. # Performance Assessments in place
5. # Teachers with Standards-based Instructional Calendar
6. % Proficient in writing assessment
7. 100% minus the Gap F/R Lunch v. School Achievement-Language Arts
8. Class average exceeds State average in Math.

Teacher A = 😊

Teacher B = ★

Teacher C = ◆



Wagon Wheel Template

Key Variables

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.

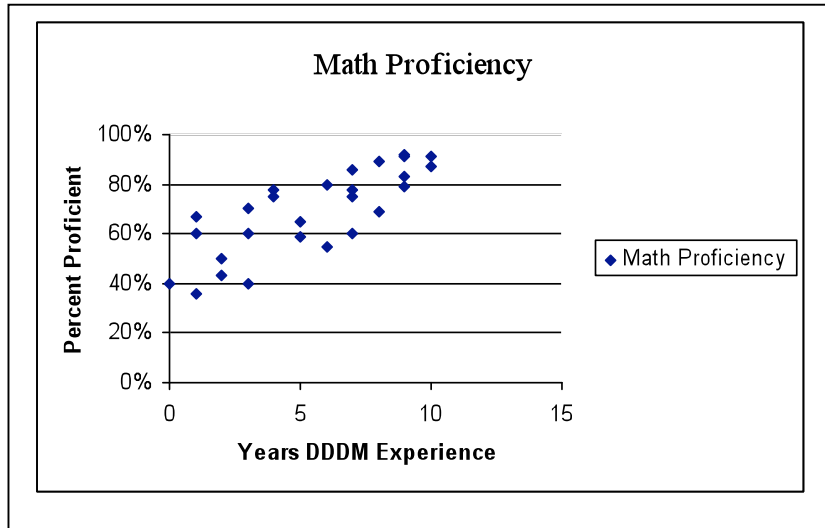
Possibilities for Analysis

- Schools
- Teachers
- Subgroups
- Domains
- Grades
- Courses
- Instructional Strategies-Training
- Instructional Strategies-Implementation
- Years (trends)

Communication is More than Presentation

If data is important enough to expend time and effort to collect and if the data is important enough to be even mildly invasive (infrequent interruptions), it is critical that there be fixed procedures to collect, analyze, reflect, and act.

- Scheduled times to collect, aggregate, and disaggregate data
- Required time for analysis, reflection, and recommendations for change
- Decision points to proceed at status quo or implement change recommendations
- Written rationale for each decision
- Disseminate rationale driven by data to all affected parties



Scattergram

	A No Collaborative Scoring	B Collaborative Scoring
C Instructional Calendars	73%	86%
D No Instructional Calendars	41%	68%

2 x 2 Matrix

Two common analysis tools for Action Research and Continuous Improvement analysis methods.

Establish Guidelines for Data Presentations

Guidelines for Data Presentations are critical for school leaders who are limited to very brief presentations to policy makers such as boards of education. The following guidelines are provided to make “Presentations with Integrity” and avoid some of the common pitfalls in presenting data to various audiences:

- 1. Describe data in its context**
 - a. Separate anecdotal information in your presentation and label it as such.**
 - b. (Anecdotal data is extremely important to tell the story, but if it can't be presented in terms of data, present it separately).**
- 2. Describe data with integrity**
 - a. Scales should always represent the full range of possible responses or scores (0-100 for percent, etc).**
 - b. Software programs often default to narrower ranges to exacerbate differences. This practice also skews the data, so the recommendation is to adhere strictly to the full range recommendation.**
- 3. Interpret data conservatively and avoid conjecture**
 - a. Let the data tell the story; (i.e., statements like ‘a different group of kids this year’ insults your audience.**
 - b. Offer subsequent graphs and charts to describe those differences with deeper analysis (e.g., correlations for certain subgroups based on teaching methods, attendance, behavior) strengthens the story you are telling and adds credibility.**
- 4. Never present data that is dependent on anecdotal narrative to tell the story.**
 - a. If the data does not reveal patterns or trends, let it tell its message of the null hypothesis (assumption that changes will be insignificant).**
 - b. Lessons can be learned when no changes are evident, especially lessons for examining at deeper levels, identifying alternative measures.**
- 5. Use graphic organizers liberally**
 - a. Always interpret data presented to others, providing as much detail as necessary; the audience should understand the graph following the presentation as well as the presenter.**
 - b. Graphic organizers are ‘thinking tools’ that lend themselves to group processing and data analysis.**
- 6. Data should make visible what is otherwise invisible**
- 7. Describe the ‘big Ideas’ that emerge from your analysis.**

Personal Commitments

Lessons from “Getting Beyond the Numbers to Make Data Teams Work for Leaders”

- ✚ The rearview mirror effect
- ✚ Antecedents: What has predictive power in your school?
- ✚ Acts of leadership
- ✚ Triangulation
- ✚ Creative improvement cycle
- ✚ Data about learning, teaching, and leading
- ✚ Accountability by visibility, transparency, and corrective feedback

What I **KNOW** needs to be done?

What I **UNDERSTAND**I will need to change?

How I will **INCORPORATE** knowledge and understanding to more effectively achieve our vision?

To whom I will **DEMONSTRATE** and when?

How I will **EXTEND** this knowledge and understanding so it lasts and so it fits the challenges I am facing?

Readings of Interest — Advanced Data Analysis

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