SEC Self-Guided Tour of Data Charts

Introduction to Data Reported through the Surveys of Enacted Curriculum Online Report Generator

The SEC Self-Guided Tour is posted on the www.SEConline.org webpage in electronic format.

SEC Self-Guided Tour of Data Charts
Introduction to Data Reported through the SEC Online Report Generator

This Self-Guide has been prepared for educators who have completed SEC Teacher Surveys or school/district leaders interested in viewing the kinds of data reported from the SEC surveys. It is intended to assist teachers and leaders with how the SEC data might be helpful to further explore, analyze, and use the SEC data with suggestions to other data as well.

Accompanying tools to the Self-Guide are found on www.SEConline.org, including an online tutorial demonstrating and explaining (with voice over) how to access your data and to navigate the SEC Report Generator in the SEConline.org systems.

The *SEC Self-Guided Tour of Data Charts* shows educators how SEC data can address the following types of questions:

1. **Is our instruction aligned with state standards?**

2. **How does instruction vary among teachers within a content area? Within a grade level?**

3. **What instructional practices are used the most? What practices are used the least? How does this compare to what practices we say we value?**

4. **What instructional practices are being implemented by teachers? To what degree?**

5. **What purpose does assessment serve for improving learning? Is assessment an instructional tool?**

6. **What is the schools/district climate and how might teacher beliefs impact student learning?**

7. **In what types of professional development have teachers participated in the past year and to what degree have they impacted instruction**?

8. **What is the level of formal preparation of teachers in the subject? How do teachers in the school compare?**

9. **What is our purpose for assigning homework? Should we have a homework policy?**

10. **How can schools look further into the SEC data to ask and answer questions about where and how classroom instruction can be improved?**

1. Is our instruction aligned with state standards?

[Assume school- or district-level analysis]

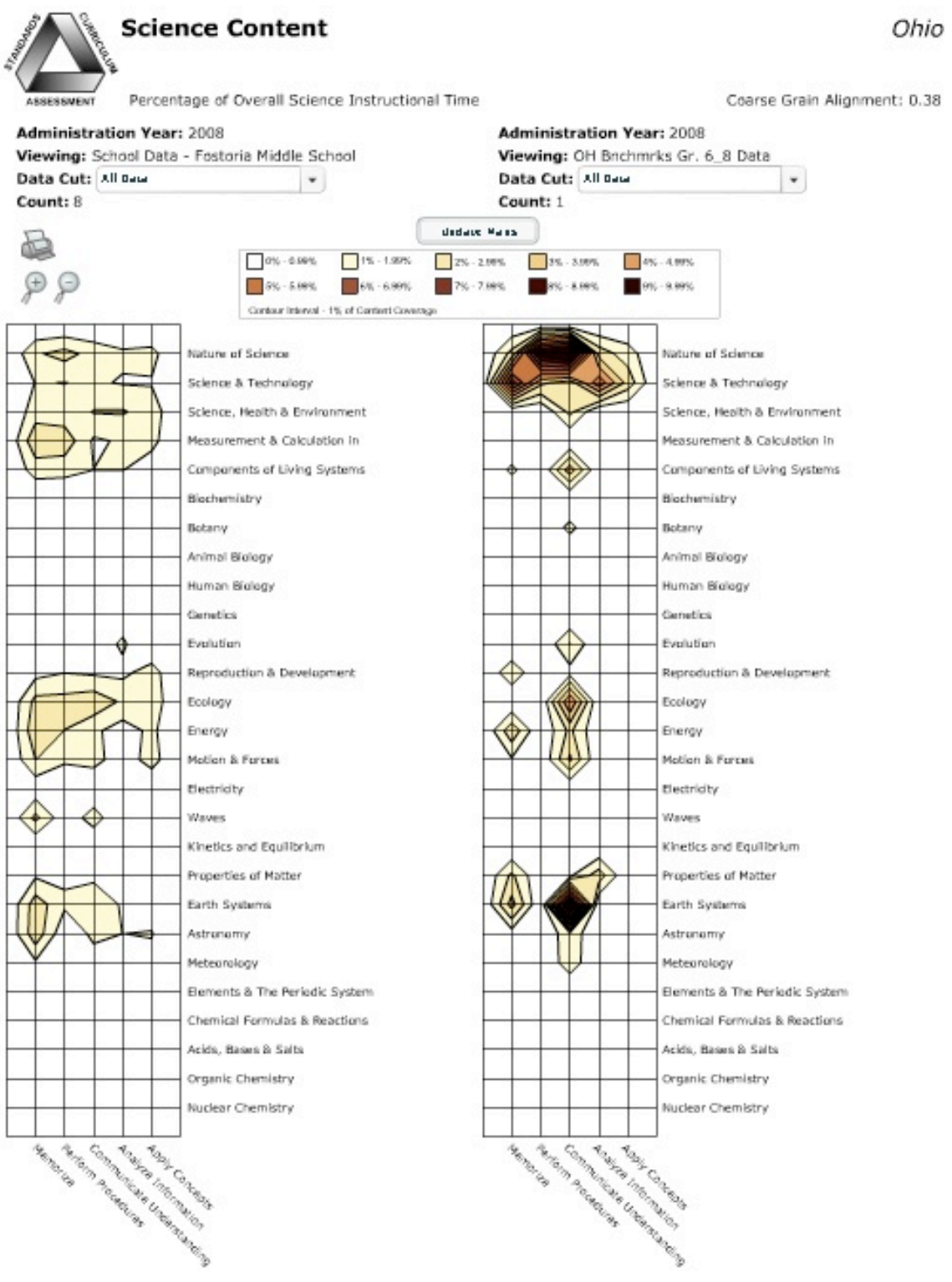
The following is a sequence of questions teachers could use as they view a content map that compares their grade-level instruction to an appropriate state standard (in the example chart below science instruction in relation to the state science standards).

Possible reasons for using the chart:

- If your school wants to examine how instruction compares to the content standards for a specific subject and grade, and how instructional content differs by topic and by level of expectation.
- If teachers want to begin a discussion of how to improve or change their teaching in relation to standards, and to use data as a basis for discussing commonalities and differences in how curriculum is being taught and how standards are related to instruction.

Process for using the data with teachers:

- Ask teachers to predict how the group of them responded to the Instructional Practices questions in the survey. Use printed-out paper sections of the survey and ask teachers to first fill out the sheet individually and then come to consensus in their group.
- Ask the teachers to then look at their actual SEC data. What do they observe?
- Then, have them ask and address this question: Why does their SEC data look the way it does?


Science Content
Ohio
Percentage of Overall Science Instructional Time
Coarse Grain Alignment: 0.38
Administration Year: 2008
Viewing: School Data - Fostoria Middle School
Data Cut: All Data
Count: 8
Administration Year: 2008
Viewing: OH Bnchmrks Gr. 6_8 Data
Data Cut: All Data
Count: 1
Contour Interval - 1% of Content Coverage
Nature of Science
Science & Technology
Science, Health & Environment
Measurement & Calculation In
Components of Living Systems
Biochemistry
Botany
Animal Biology
Human Biology
Genetics
Evolution
Reproduction & Development
Ecology
Energy
Motion & Forces
Electricity
Waves
Kinetics and Equilibrium
Properties of Matter
Earth Systems
Astronomy
Meteorology
Elements & The Periodic System
Chemical Formulas & Reactions
Acids, Bases & Salts
Organic Chemistry
Nuclear Chemistry
Memorize
Perform Procedures
Communicate Understanding
Analyze Information
Apply Concepts

Possible sequence of questions:
Content topics are listed down the right side of each map. Your teacher-reported data is displayed on the left hand map and the state standard is displayed on the right. The colors on the right map represents amount of time teachers allocate to topics. Dark colors represent more time than light colors. Colors on the left map indicate the degree of emphasis of topics in the standard. Darker color represents more emphasis. Lighter colors represent less emphasis.

Comparing topics:

- In terms of time allocated, what topics am I teaching (top 3-4)?
- What topics comprise the major emphasis of the state standards I should be addressing in my instruction?
- What content topics of my instruction area are aligned?
- What topics of my instruction are not aligned?

Cognitive demand categories of instruction are listed along the bottom of both maps. They are cross-referenced with content topics where lines cross.

Comparing cognitive demand categories:

- What are the major focuses of my student expectations for the topics I teach?
- Am I addressing the targeted cognitive demands expected in the state standard?
- Am I addressing cognitive demands for my students less than expected or greater than the state standard?

Teachers can follow this sequence to do an initial self-assessment of alignment to both content and cognitive demand. These questions could be in a template for note taking. Much follow-up will be needed to implement changes in instruction.

Note: Viewing Charts Online and Printing: Some of the charts appear in the SEC online system with a black background. When all of the charts are printed, the background will print white. To capture a chart with a white background, go to print preview.

2. How does instruction vary among teachers within a content area? Within a grade level?

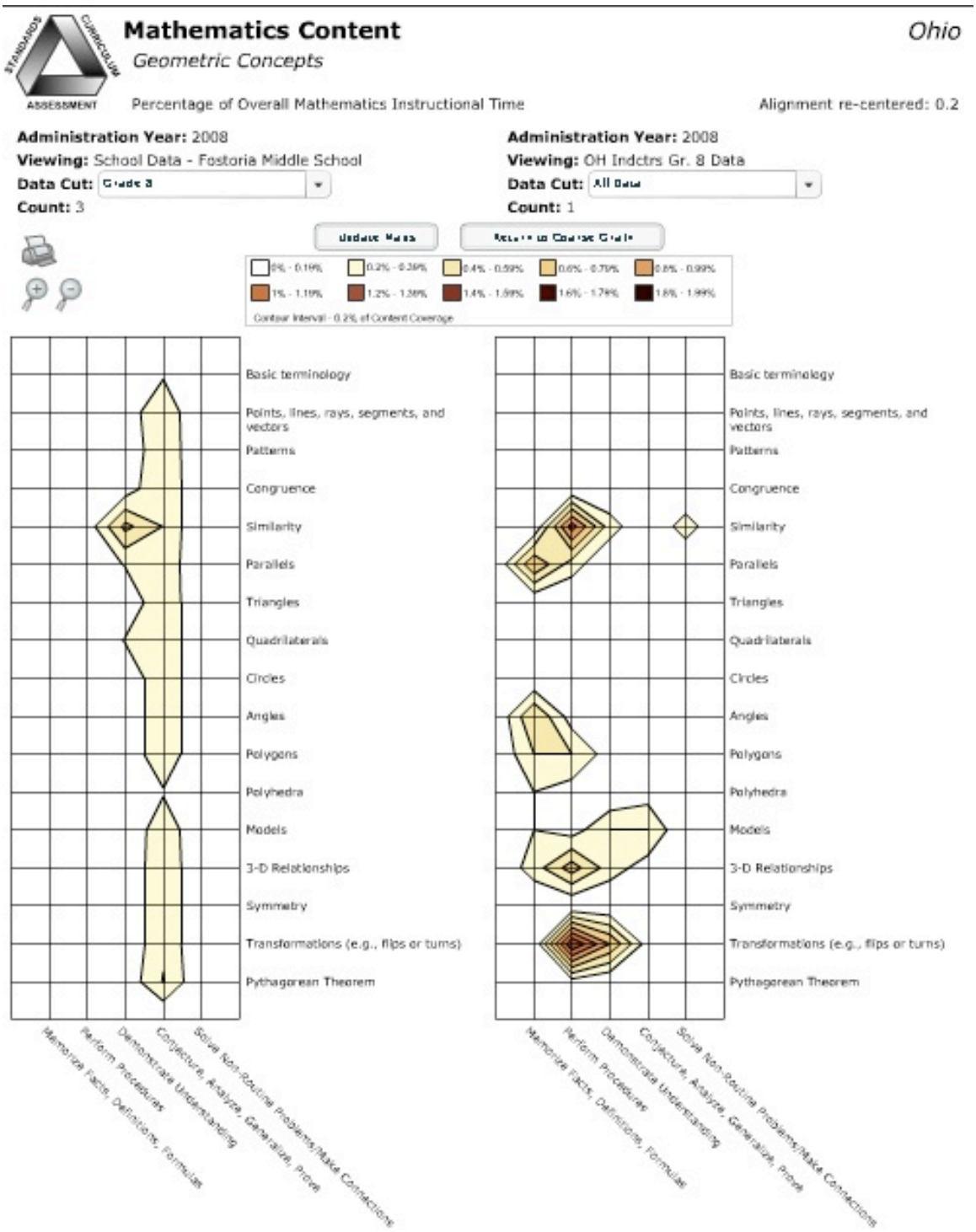
[Assume school-level analysis]

Possible reasons for using the chart:

- If your school wants to examine how instruction can be improved in one specific area (e.g., teaching geometric concepts) and consider explanations for achievement of students including how the standards are being covered.
- If teachers want to begin a discussion of methods of teaching mathematics and to identify what needs they have as a group.

Process for using the data with teachers:

- Ask teachers to predict how the group of them responded to the Instructional Practices questions in the survey. Use printed-out paper sections of the survey and ask teachers to first fill out the sheet individually and then come to consensus in their group.
- Ask the teachers to then look at their actual SEC data. What do they observe?
- Ask the teachers to question and infer why their SEC data looks the way it does.
- Finally, what other available data or information/research could they use to help verify or dispel some of the inferences they may have?


Mathematics Content
Geometric Concepts
Ohio
Percentage of Overall Mathematics Instructional Time
Alignment re-centered: 0.2
Administration Year: 2008
Viewing: School Data - Fostoria Middle School
Data Cut: Grade 8
Count: 3
Administration Year: 2008
Viewing: OH Indctrs Gr. 8 Data
Data Cut: All Data
Count: 1
Update Maps
Return to Course Grain
0% - 0.19%
0.2% - 0.39%
0.4% - 0.59%
0.6% - 0.79%
0.8% - 0.99%
1% - 1.19%
1.2% - 1.39%
1.4% - 1.59%
1.6% - 1.79%
1.8% - 1.99%
Contour Interval - 0.2% of Content Coverage
Basic terminology
Points, lines, rays, segments, and vectors
Patterns
Congruence
Similarity
Parallels
Triangles
Quadrilaterals
Circles
Angles
Polygons
Polyhedra
Models
3-D Relationships
Symmetry
Transformations (e.g., flips or turns)
Pythagorean Theorem
Memorize Facts, Definitions, Formulas
Perform Procedures
Demonstrate Understanding
Conjecture, Analyze, Generalize, Prove
Solve Non-Routine Problems/Make Connections

Possible questions you might ask:

- What is the level of expectations defined in the state standards (map on the right) and how do they compare vertically among the content topics for geometric concepts?
- How does the teacher instruction differ in the grade-level group to the standards group?
- How do you (school-level team) interpret the differences? And what are different interpretations?
- What are the topics on which instruction is less emphasized than the standard (e.g., similarity, transformations)? What are differences among teachers on topics emphasized? What about expectations for students?
- How does the group analyze the degree of variation among teachers in what geometry content is taught in 8^{th} grade classes? Is there change needed? If so, what do you recommend?
- What are the types of tasks we are asking students to complete?

Possible next steps:

- Look at differences in instruction for another specific content area.
- Look at achievement data for this content area on state assessment in math.
- Determine ways that teachers might work together on teaching this topic.
- Decide if you should focus another session on this topic and how to improve instruction or combine with other content areas.

3. What Instructional practices are used the most? What practices are used the least? How does this compare to what practices we say we value?

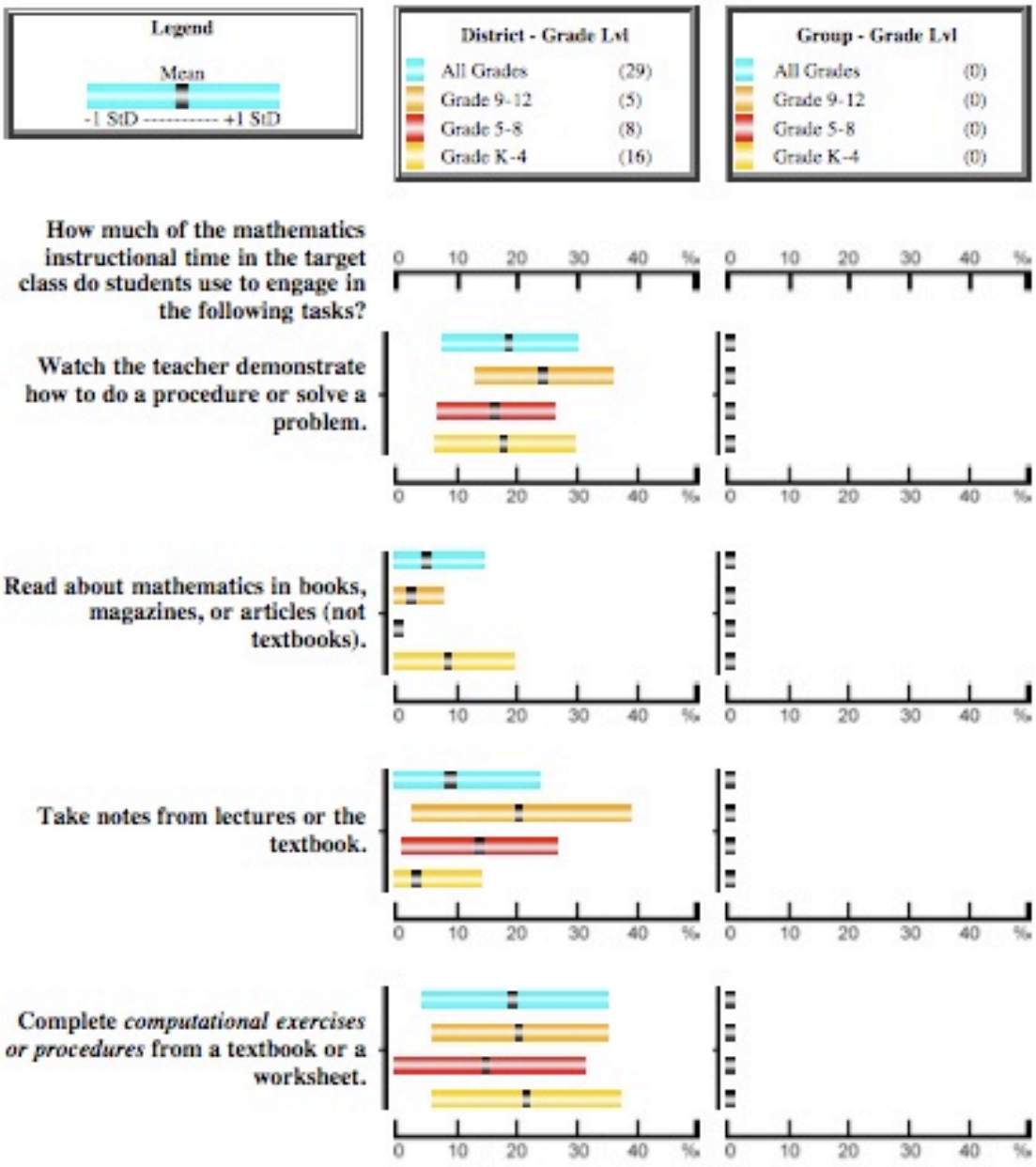
[Assume district- or school-level analysis]
See Appendix on "How to Read a Floating Bar Chart"

Possible reasons for using the chart:

- If your school or district educators are discussing how teachers use instructional time and different practices and want data on differences in how teachers structure and plan class time.
- If your educator group is considering the relationship of instruction to student achievement, or how curriculum content is taught.
- Analyzing the degree to which different practices are used by teachers.

Process for using the data with teachers:

- Ask teachers to predict how the group of them responded to the Instructional Activities questions in the survey. Use printed-out paper sections of the survey and ask teachers to first fill out the sheet individually and then come to consensus in their group.
- Ask the teachers to then look at their actual SEC data. What do they observe?
- Ask the teachers to question and infer why their SEC data looks the way it does.
- Finally, what other available data or information/research could they use to help verify or dispel some of the inferences they may have?


Legend
Mean
-1 StD ---------- +1 StD
District - Grade Lvl
All Grades (29)
Grade 9-12 (5)
Grade 5-8 (8)
Grade K-4 (16)
Group - Grade Lvl
All Grades (0)
Grade 9-12 (0)
Grade 5-8 (0)
Grade K-4 (0)
Your Data
How much of the mathematics instructional time in the target class do students use to engage in the following tasks?
0 10 20 30 40 %
Watch the teacher demonstrate how to do a procedure or solve a problem.
0%
Read about mathematics in books, magazines, or articles (not textbooks).
0%
Take notes from lectures or the textbook.
0%
Complete computational exercises or procedures from a textbook or a worksheet.
0%

Possible questions you might ask:

- What instructional activities in math (middle grades) are used most often among our teachers in school? In the district?
- In the chart above, which questions about activities might teachers interpret differently—e.g. use of manipulatives or use of pairs/small groups? Do teachers want to discuss these responses further?
- The chart above shows instructional activities by grade—what differences do you find by grade? Are these important in your view?
- How do these data on activities compare to teacher responses on instructional content?

Possible next steps:

- Examine the charts on instructional content further and discuss the links to these data.
- Discuss assessment items and student performance in this subject—is there a relationship to emphasis of instructional activities?
- Identify types of activities teachers would like to use or increase in their instruction.

4. What instructional practices are being implemented by teachers? To what degree?

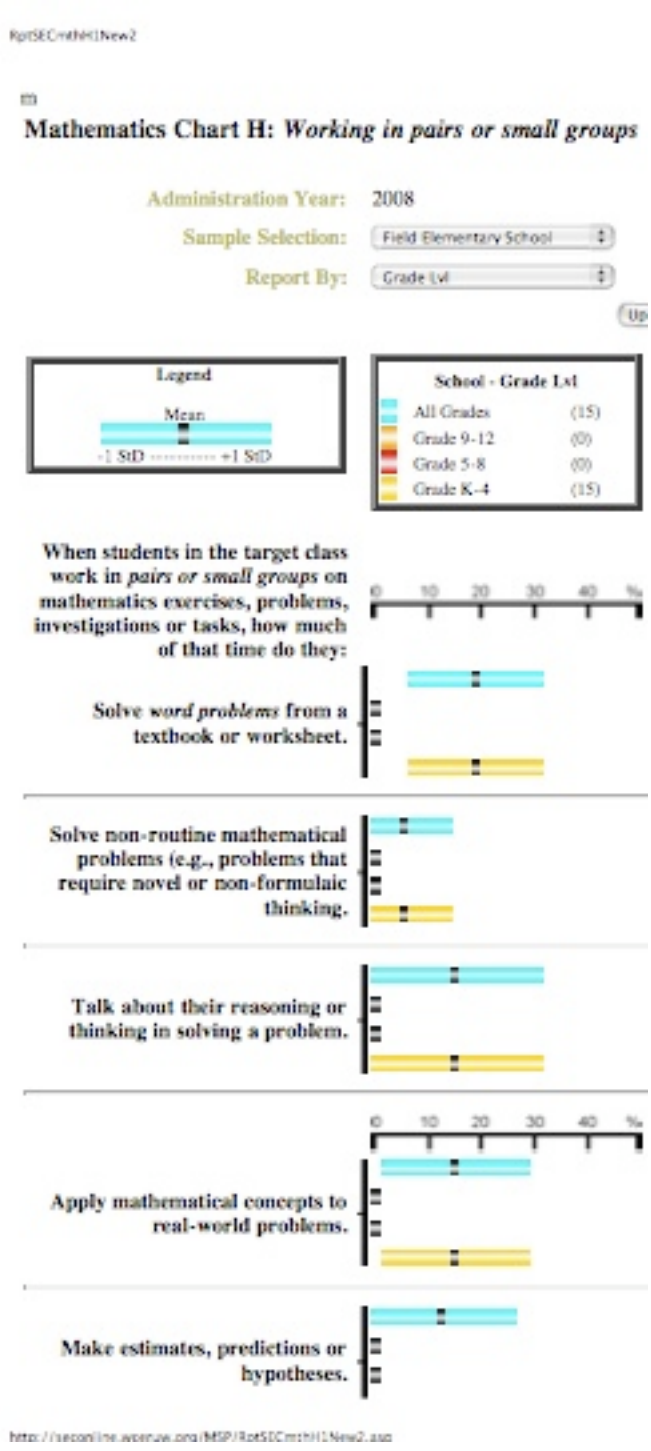
[Assume district- or school-level analysis]

Reasons for analyzing data on a specific method of instruction:

- To look more deeply into teachers' different meaning or use of an instructional practice term (e.g., small groups).
- To examine data in more depth on what happens in class during a common activity and how teachers handle the activity.

Possible questions you might ask:

- What are the most common activities when students work in small groups? How do teachers/classes differ?
- How do teachers and classrooms differ in responses to these items? Are the differences surprising? Are they consistent with your predictions?
- What can teachers learn from each other in discussing the activities they lead and how students respond?


RptSECmthH1New2
Mathematics Chart H: Working in pairs or small groups
Administration Year: 2008
Sample Selection: Field Elementary School
Report By: Grade Lvl
Up
Legend
Mean
-1 StD ---------- +1 StD
School - Grade Lvl
All Grades (15)
Grade 9-12 (0)
Grade 5-8 (0)
Grade K-4 (15)
When students in the target class work in pairs or small groups on mathematics exercises, problems, investigations or tasks, how much of that time do they:
0 10 20 30 40 %
Solve word problems from a textbook or worksheet.
Solve non-routine mathematical problems (e.g., problems that require novel or non-formulaic thinking.
Talk about their reasoning or thinking in solving a problem.
0 10 20 30 40 %
Apply mathematical concepts to real-world problems.
Make estimates, predictions or hypotheses.
http://seconline.wceruw.org/MSP/RptSECmthH1New2.asp

5. What purpose does assessment serve for improving learning? Is assessment an instructional tool?

[Assume district- or school-level analysis]

Every year teachers K-12 examine their state assessment results to look for areas of strength and weakness in student achievement. Teachers may also have an opportunity to view some of the released items. As teachers go through this process, they may ask themselves the following:

- Do I provide students the opportunity to engage with different types of assessments—multiple choice, short answer, open response, portfolios, self-assessment, observations, etc.?
- How often do I provide these opportunities?
- Why do I offer (not offer) certain types of assessments?
- Why do I use some more frequently than others?

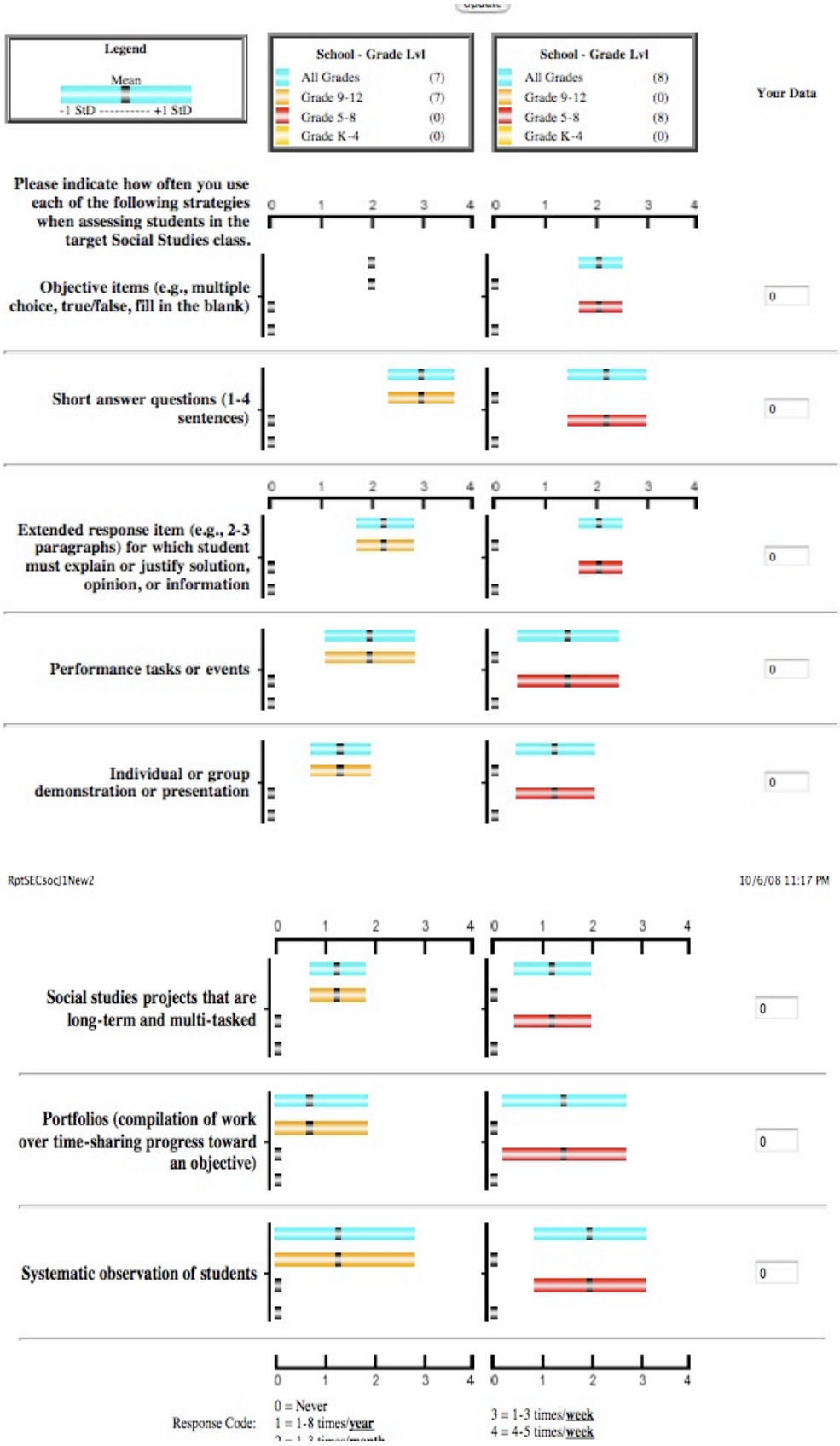
More recently, quarterly, interim, and benchmark assessments have become popular. In some cases, teachers are being asked to create these assessments to be aligned to state standards. This requires teachers to examine the information that is provided to them with different types of assessments. Teachers should also ask themselves, "What is the purpose of this assessment?" If the purpose is to know what students have learned along the way and then to make changes to instruction to meet students needs, then that sounds like formative assessment or, to some degree, benchmark assessments. If the purpose is to examine what students have learned at one point in time, then that is most likely your state assessment.

Formative assessment may be an instructional practice that your school or district is implementing. In this case, you would be thinking about descriptive feedback, observation, peer-to-peer feedback, and self-assessment. How often are teachers using these practices? If this is a districtwide effort, would we hope to see similarities across and between schools?

The SEC allows for teachers to explore the answers to these questions through the teachers' answers to assessment questions in the survey. The answers (assessment data chart) can then be used to facilitate a data-driven discussion with teachers by asking questions about the data.

SEC Charts to examine this question:

- Use of Assessment Strategies—Math, Science, ELA
- Assessments—Social Studies


Legend
Mean
-1 StD ---------- +1 StD
School - Grade Lvl
All Grades (7)
Grade 9-12 (7)
Grade 5-8 (0)
Grade K-4 (0)
School - Grade Lvl
All Grades (8)
Grade 9-12 (0)
Grade 5-8 (8)
Grade K-4 (0)
Your Data
Please indicate how often you use each of the following strategies when assessing students in the target Social Studies class.
Objective items (e.g., multiple choice, true/false, fill in the blank)
Short answer questions (1-4 sentences)
Extended response item (e.g., 2-3 paragraphs) for which student must explain or justify solution, opinion, or information
Performance tasks or events
Individual or group demonstration or presentation
RptSECsocJ1New2
10/6/08 11:17 PM
Social studies projects that are long-term and multi-tasked
Portfolios (compilation of work over time-sharing progress toward an objective)
Systematic observation of students
Response Code:
0 = Never
1 = 1-8 times/year
3 = 1-3 times/week
4 = 4-5 times/week

Possible next steps:

- If you were looking to compare the types of assessments in the classroom to the types of assessment items on the state assessment, then a next step would be to see if similar opportunities are offered to students in both settings. Are students expected to answer open response items on the state assessment and very rarely expected to in the classroom?
- If you were looking at the assessment data to examine the quarterly, benchmark, or interim assessments, then a next step might be to conduct an item analysis of the items in these assessments to make sure they have the depth that is in your state standards.
- If you were looking at assessment for formative assessment practice, then you think about professional development to help support practices such as observation, descriptive feedback, and self-assessment.

6. What is the schools/district climate, and how might teacher beliefs impact student learning?

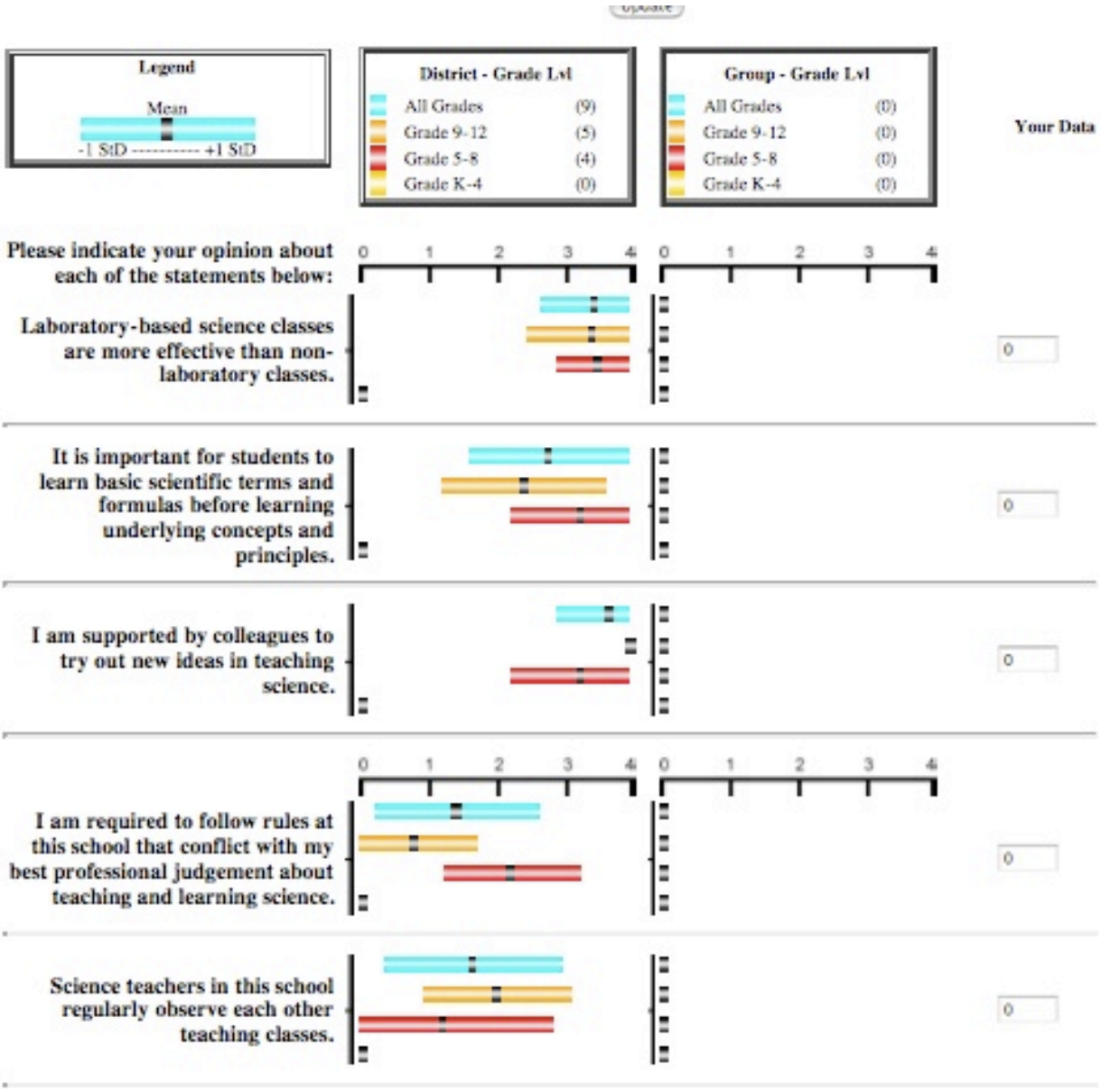
[Assume school- or district-level analysis]

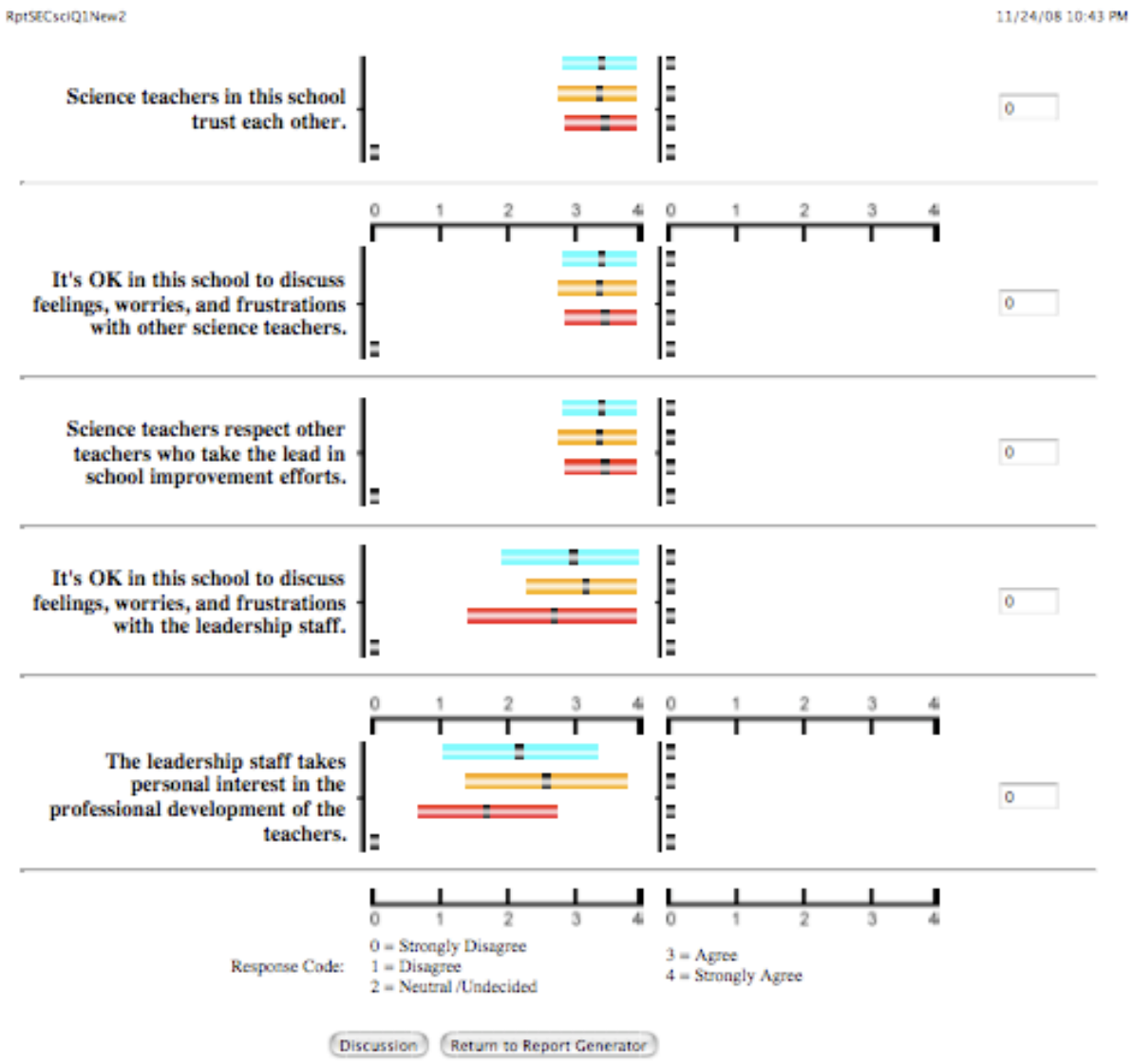
Possible reasons for analyzing chart:

- If we are trying to understand motivation and teamwork of teachers.
- If educators want to reflect on issues that might affect teachers' interest and motivation for improvement.

Questions in examining the data on teacher opinions:

- What are the teacher opinions that are shared in common? (e.g., in chart below, teachers regularly share ideas)
- What are the opinions that vary widely in the school? In the district? (e.g., adequate time to prepare, adequate curriculum materials)
- How do teacher opinions in the school compare to the opinions of teachers across the district?
- What is the importance of these data? What can we learn here that might affect efforts to improve instruction in the school?


Legend
Mean
-1 StD ---------- +1 StD
District - Grade Lvl
All Grades (9)
Grade 9-12 (5)
Grade 5-8 (4)
Grade K-4 (0)
Group - Grade Lvl
All Grades (0)
Grade 9-12 (0)
Grade 5-8 (0)
Grade K-4 (0)
Your Data
Please indicate your opinion about each of the statements below:
0 1 2 3 4
Laboratory-based science classes are more effective than non-laboratory classes.
It is important for students to learn basic scientific terms and formulas before learning underlying concepts and principles.
I am supported by colleagues to try out new ideas in teaching science.
I am required to follow rules at this school that conflict with my best professional judgement about teaching and learning science.
Science teachers in this school regularly observe each other teaching classes.


RptSECsciQ1New2
11/24/08 10:43 PM
Science teachers in this school trust each other.
It's OK in this school to discuss feelings, worries, and frustrations with other science teachers.
Science teachers respect other teachers who take the lead in school improvement efforts.
It's OK in this school to discuss feelings, worries, and frustrations with the leadership staff.
The leadership staff takes personal interest in the professional development of the teachers.
0 1 2 3 4
Response Code:
0 = Strongly Disagree
1 = Disagree
2 = Neutral /Undecided
3 = Agree
4 = Strongly Agree
Discussion
Return to Report Generator

7. In what types of professional development have teachers participated in the past year and to what degree have they impacted instruction?

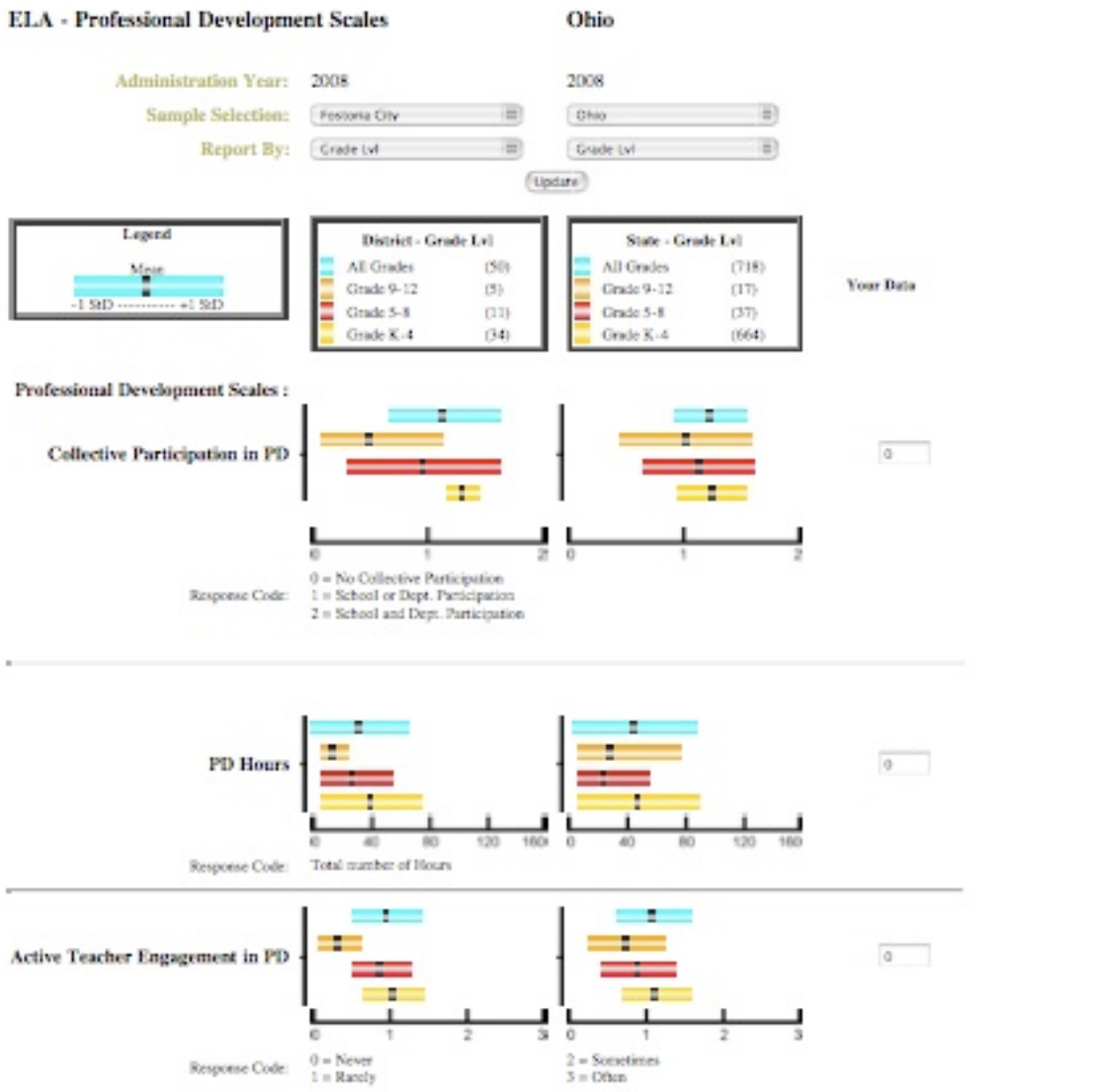
[Assume district-level analysis]

Possible reasons for analyzing data:

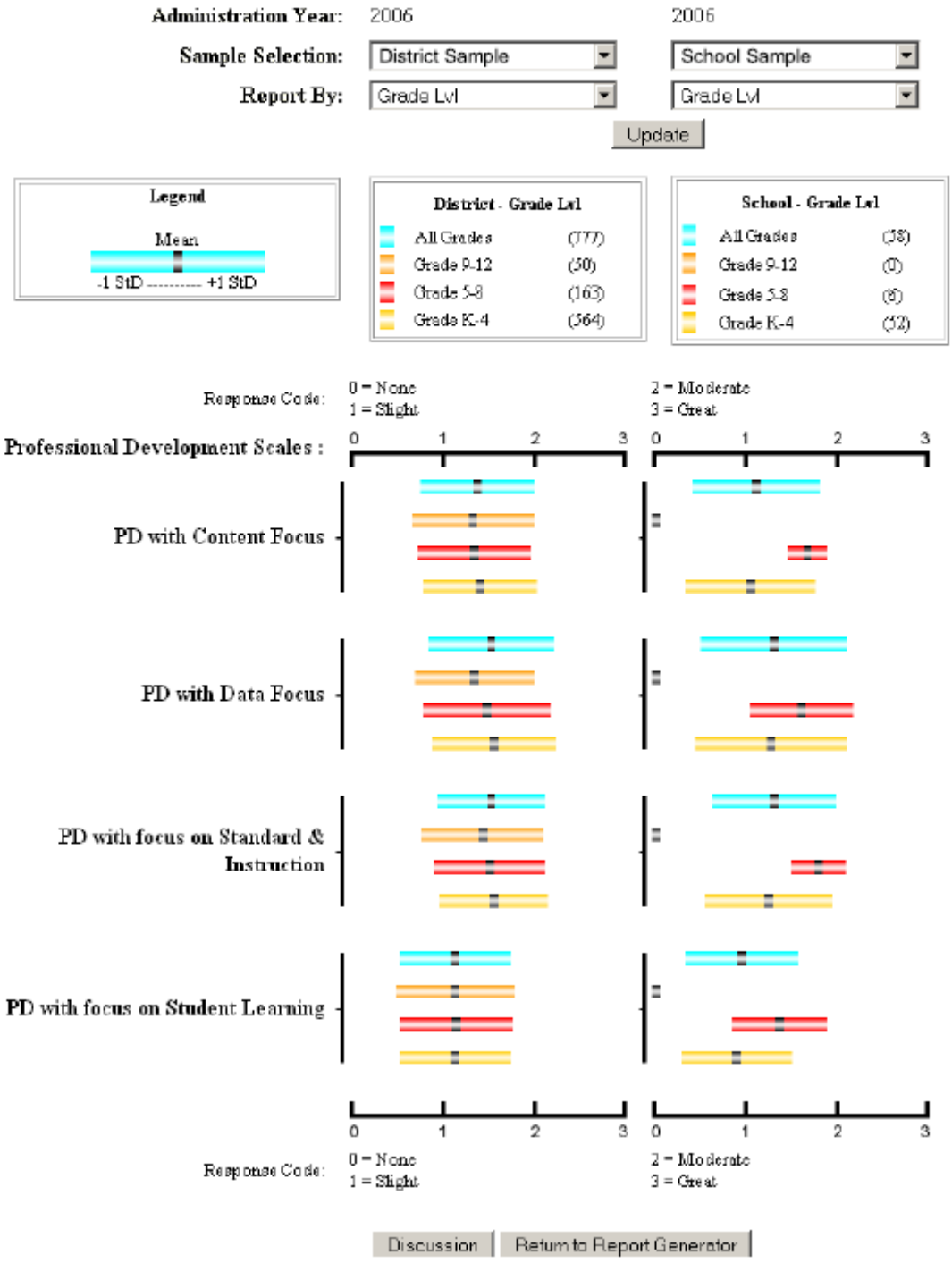
- If the school or district wants to assess current professional development teachers are receiving—both amount/time per teacher and the quality of professional development.
- If planning for professional development should be based on data about current practices.

Possible questions for discussion:

- How does professional development in our school compare to the criteria reported?
- How do you interpret the degree of variation among teachers in their responses? Is the level of variation surprising? What accounts for differences among teachers?
- How do teachers' responses in the school compare to the overall district responses?
- What decisions might be made about further professional development using these data?


ELA - Professional Development Scales
Ohio
Administration Year: 2008 2008
Sample Selection: Fostoria City Ohio
Report By: Grade Lvl Grade Lvl
Update
Legend
Mean
-1 StD ---------- +1 StD
District - Grade Lvl
All Grades (50)
Grade 9-12 (5)
Grade 5-8 (11)
Grade K-4 (34)
State - Grade Lvl
All Grades (718)
Grade 9-12 (17)
Grade 5-8 (37)
Grade K-4 (664)
Your Data
Professional Development Scales :
Collective Participation in PD
0 1 2
0 = No Collective Participation
Response Code: 1 = School or Dept. Participation
2 = School and Dept. Participation
PD Hours
0 40 80 120 160
Response Code: Total number of Hours
Active Teacher Engagement in PD
0 1 2 3
Response Code: 0 = Never
1 = Rarely
2 = Sometimes
3 = Often

ELA - Professional Development Scales



8. What is the level of formal preparation of teachers in the subject? How do teachers in the school compare?

[Assume district- or school-level analysis]

Possible reasons for using the chart:

- What is the level of subject area preparation of teachers? What are differences within the district or school?
- How does the curriculum being taught relate to how well teachers are prepared?
- What should be the focus of professional development?


ELA - Reading Chart N: FORMAL COURSE PREPARATION
Ohio
Administration Year: 2008 2008
Sample Selection: Whitehall City Ohio
Report By: Grade Lvl Grade Lvl
Update
Legend
Mean
-1 StD ---------- +1 StD
District - Grade Lvl
All Grades (3)
Grade 9-12 (0)
Grade 5-8 (3)
Grade K-4 (0)
State - Grade Lvl
All Grades (737)
Grade 9-12 (18)
Grade 5-8 (37)
Grade K-4 (682)
Your Data
Please estimate the total number of courses (quarter or semester) you have taken at the undergraduate and/or graduate level in each of the following areas:
0 1 2 3 4 5 6 7 8 9
English/American literature
Writing, composition, speech, and theater
Teaching of English, language arts or reading
Response Code:
0 = 0 courses
1 = 1-2
2 = 3-4
3 = 5-6
4 = 7-8
5 = 9-10
6 = 11-12
7 = 13-14
8 = 15-16
9 = 17+

9. What is our purpose for assigning homework? Should we have a homework policy?

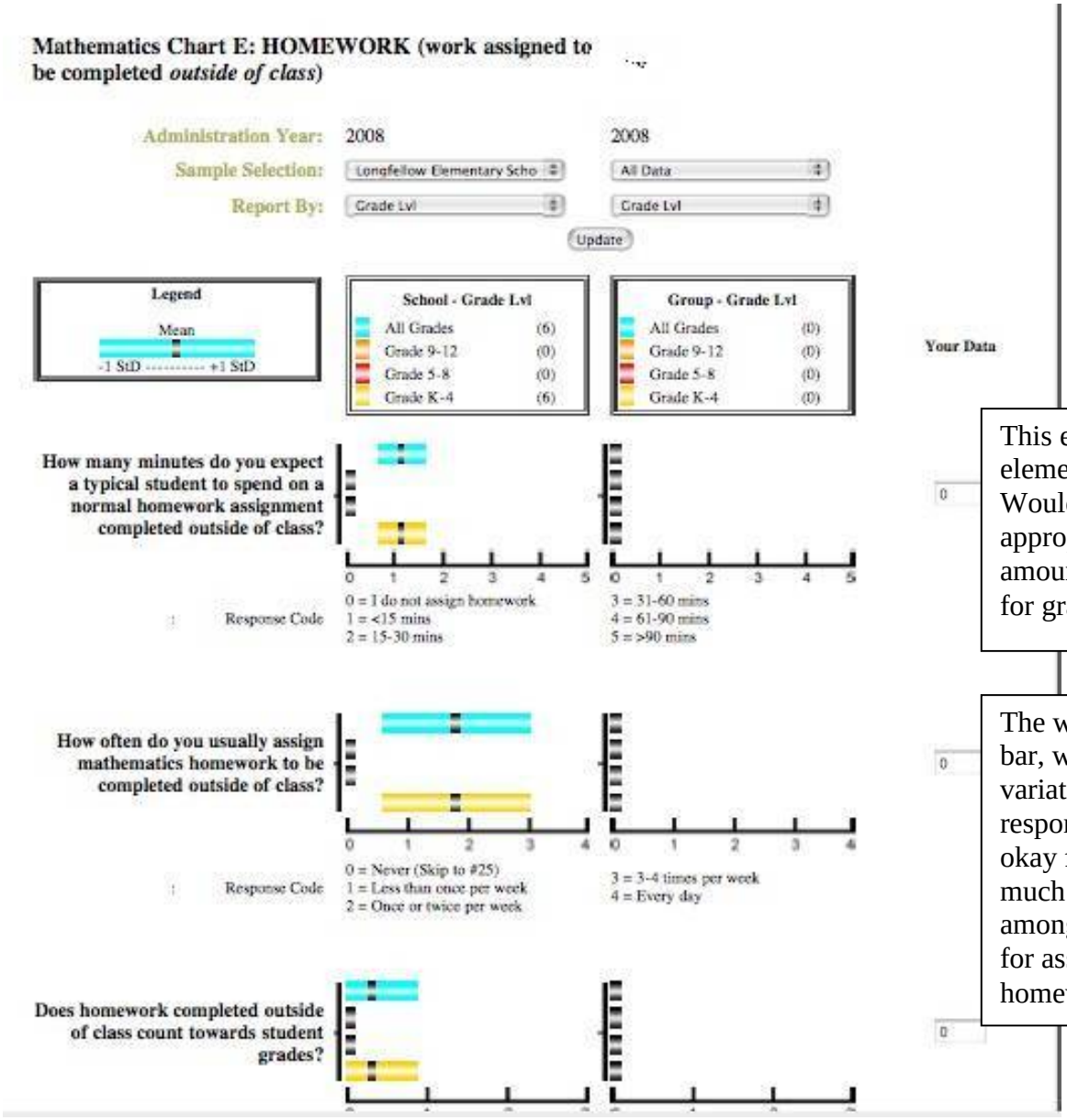
[Assume school- or district-level analysis]

Possible reasons for using the chart:

- If you are looking into developing a homework policy in your school or within grade levels, then this chart starts the discussion off around how we are currently using homework.
- If you are adopting formative assessment practices, you may use this chart to see how well such practices are being implemented.

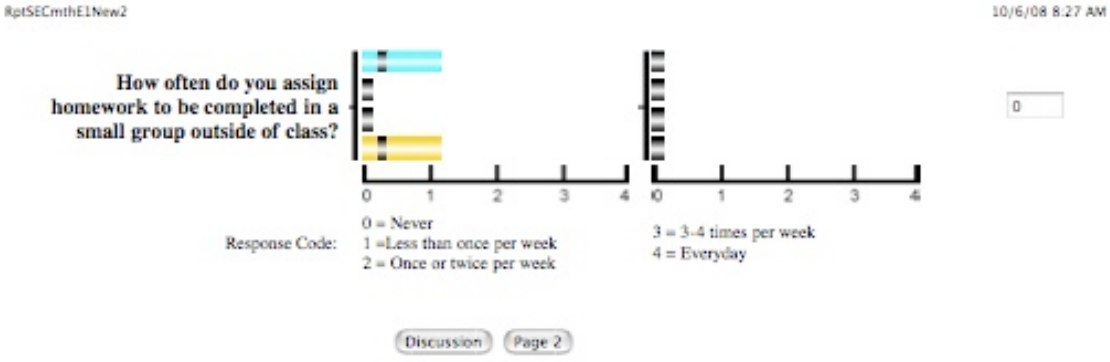
Process for using the data with teachers:

- Ask teachers to predict how the group of them responded to the homework questions in the survey. Use-printed out paper sections of the survey and ask teachers to first fill out the sheet individually and then come to consensus in their group.
- Ask the teachers to then look at their actual SEC data. What do they observe?
- Ask the teachers to question and infer why their SEC data looks the way it does.
- Finally, what other available data or information/research could they use to help verify or dispel some of the inferences they may have?



This example is elementary. Would this be an appropriate amount of time for grades k-4?

The wider the bar, we see more variation in responses. Is it okay for this much variation among teachers for assigning homework?



Possible questions you might ask:

- What is our purpose for homework? Do we all agree on the purpose we have?
- What are the implications for having different purposes for homework?
- What if some teachers think of homework as more formative (do not grade it and provide specific feedback) and other teachers think of homework as summative (give grades and little to no feedback other than "good job!" or "nice work!")
- What are the types of tasks we are asking students to complete?
- Do we grade homework? Why?
- How often do we assign homework and is the amount of time appropriate for the grade level that you teach?

Possible next steps:

- Look at different types of assessment questions from the state assessment.
- Look at research about homework.
- In grade-level teams have a meeting focused on the quality of homework assignments.
- Ask teachers to share their homework assignments.
- Look at research about providing specific feedback to students on homework.

10. How can schools look further into the SEC data to ask and answer questions about where and how classroom instruction can be improved?

[Assume district- or school-level analysis]

A key question for schools to address is whether their students have had an opportunity to learn what state standards say they are expected to know and be able to do. This is a particularly critical question if students at your school are not performing well on state assessments in specific content areas.

Let's take a look at how the SEC data helps us answer this question. Let's assume for this exercise that your middle school did not meet the achievement targets on the mathematics test.

Part I: Examining State Standards

Where do state standards suggest we should spend our instructional time?

The first thing we want to look at is what students at that grade level are expected to know and do with what they know. As part of the SEC process, teams of content specialists have coded state standards. The state standards are graphed on a tile chart or a contour map that shows both the topics taught and the cognitive expectations for students on the topics. On the contour map below, the x-axis or vertical line shows the 16 major mathematics topics that are taught in K-12, and the y-axis or horizontal line shows the five cognitive demands that tell you what students are expected to do with their knowledge of the topics. The color at the intersections shows how much emphasis the content standards give to each topic. The darker the color, the more emphasis has been given to that topic at the cognitive demand level indicated.

When we look at this state's standards to answer the following questions, we can make a number of observations.

A. Which topics are most emphasized in this grade on these standards? Which topics are least emphasized or not included at all?

- Number Sense/Properties/Relationships, Measurement, and Basic Algebra have the darkest colors and therefore the most emphasis.
- Operations, Geometric Concepts, Advanced Geometry, Data Displays, and Probability have less emphasis than the first three topics mentioned but more emphasis than the remaining topics.
- Consumer Applications, Advanced Algebra, Analysis, and Trigonometry have no emphasis.

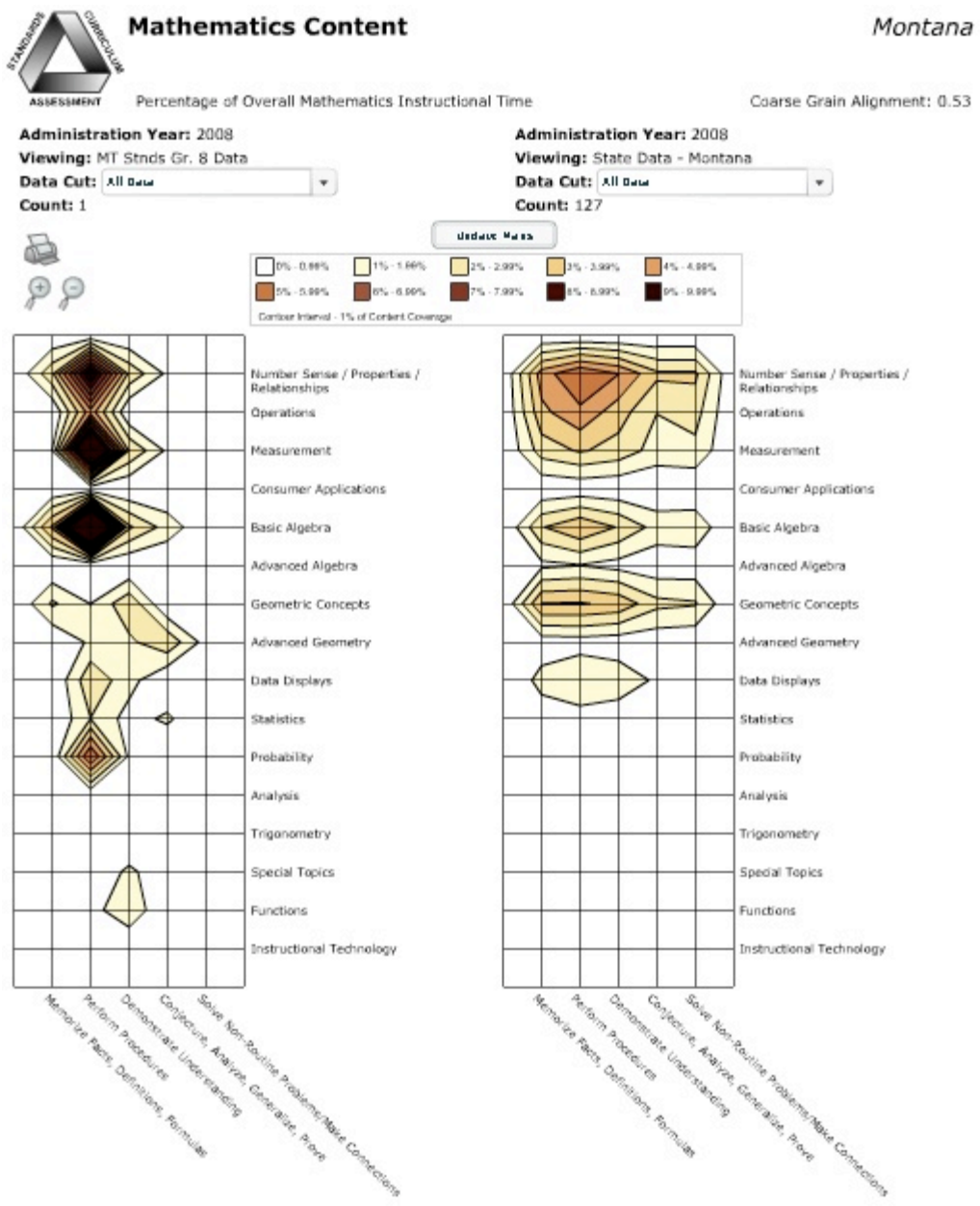
B. What cognitive expectations for students do these standards emphasize for

each topic?

- Perform Procedures has the most emphasis.
- Memorize Facts, Definitions, Formulas has some emphasis in Number Sense/Properties/Relationships and in Basic Algebra.
- Demonstrate Understanding has some emphasis in Geometric Concepts, Basic Algebra, Measurement, and Number Sense/Properties/Relationships.
- Conjecture, Analyze, Generalize, and Prove has some emphasis in Advanced Geometry only.

C. What cognitive expectations receive the most and which receive the least emphasis in the standards?

- Solve Non-Routine Problems/Make Connections has very little emphasis on six topics and no emphasis on the remaining six topics.
- Memorize has some emphasis on two topics, very little emphasis on two topics, and no emphasis on the remaining seven topics.
- Conjecture, Analyze, Generalize, and Prove has some emphasis on one topic, little emphasis on six topics, and no emphasis on five topics.



Montana graphs are located on this webpage
http://www.ccsso.org/projects/Surveys%5Fof%5FEnacted%5FCurriculum/SEC%5FMeetings/

Plenary Session - Sept. 9

Implementation of Data-Driven Improvement Model: MT SEC Project

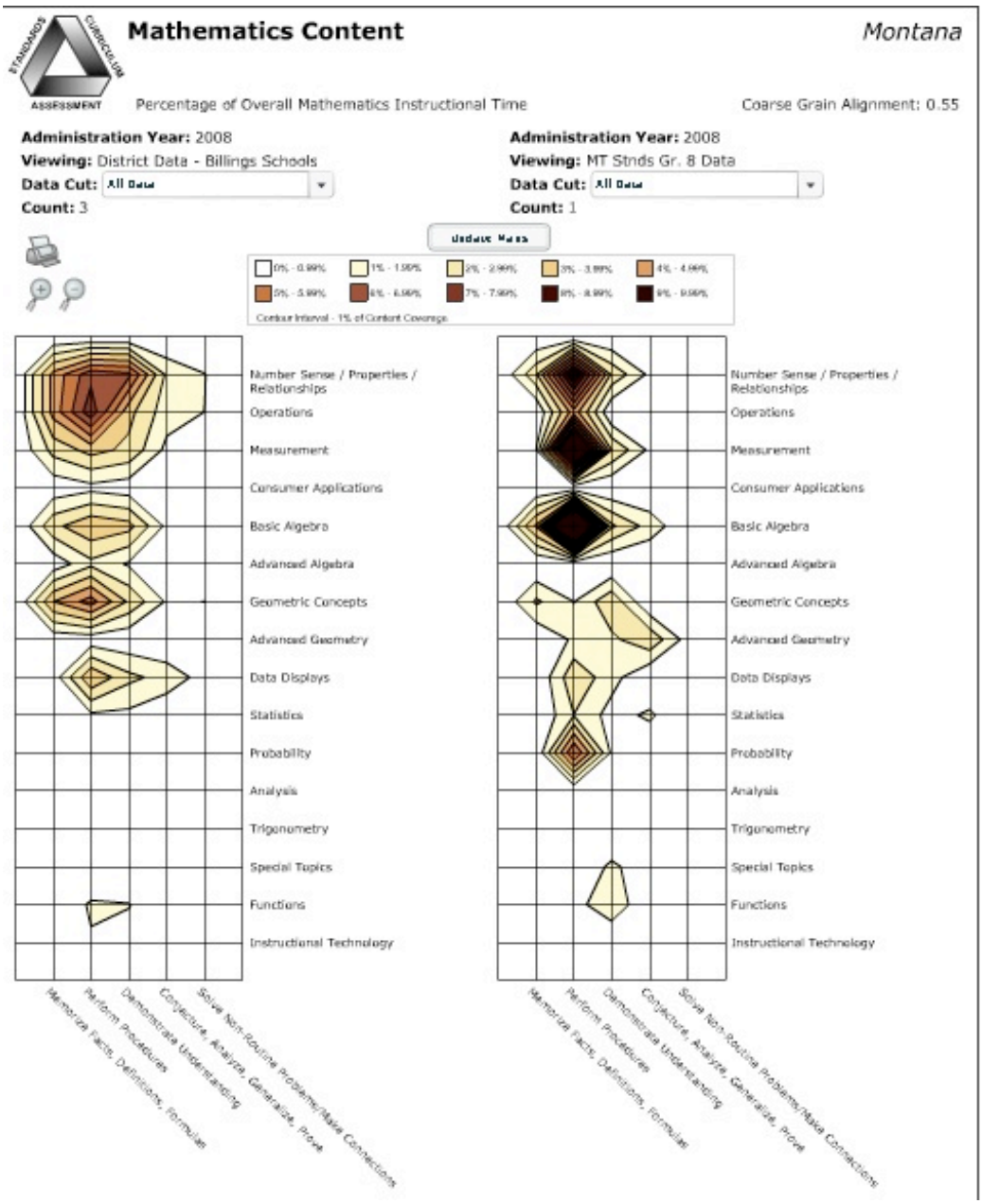
Part 2: Comparing Our Instruction with State Standards

Is our classroom instruction aligned with state standards?

Now let's examine how closely teachers' instruction was aligned with these state standards. The results of the SEC Instructional Content survey provide school teams and individual teachers the data to answer this question. On the survey, teachers were asked to report what topics they taught, how much time they spent on each, and what cognitive expectations they had for each topic. The results are posted online in a tile graph and a contour graph.

Let's explore what a team can learn from their data. Before you look at your data, you might begin the discussion by predicting where you would see good alignment with the state standards and where you might not. After this discussion, you would want to make sure everyone has a consistent understanding of how to read the graphs. There are additional tutorials that support you in reading and interpreting the graphed data.

Now teachers are ready take a look at their data. The following graph shows how much time the 8th grade team reported they spent on each mathematics topic listed on the graph and what expectations they had for how students would use the knowledge compared to the state standards.


Mathematics Content
Montana
Percentage of Overall Mathematics Instructional Time
Coarse Grain Alignment: 0.55
Administration Year: 2008
Viewing: District Data - Billings Schools
Data Cut: All Data
Count: 3
Administration Year: 2008
Viewing: MT Stnds Gr. 8 Data
Data Cut: All Data
Count: 1
Update Maps
0% - 0.99%
1% - 1.99%
2% - 2.99%
3% - 3.99%
4% - 4.99%
5% - 5.99%
6% - 6.99%
7% - 7.99%
8% - 8.99%
9% - 9.99%
Contour Interval - 1% of Content Coverage
Number Sense / Properties / Relationships
Operations
Measurement
Consumer Applications
Basic Algebra
Advanced Algebra
Geometric Concepts
Advanced Geometry
Data Displays
Statistics
Probability
Analysis
Trigonometry
Special Topics
Functions
Instructional Technology
Memorize Facts, Definitions, Formulas
Perform Procedures
Demonstrate Understanding
Conjecture, Analyze, Generalize, Prove
Solve Non-Routine Problems/Make Connections

When we look at their data, we can make a number of observations about the following questions.

A. On what topics have these teachers spent the most instructional time? How does that align to state standards?

- Teachers spent the most time on Number Sense/Properties/Relationships and Operations. State standards emphasized Number Sense/Properties/ Relationships but not Operations.
- Teachers spent the next most time on Basic Algebra and Geometric Concepts. State standards emphasized Measurement and Basic Algebra next.

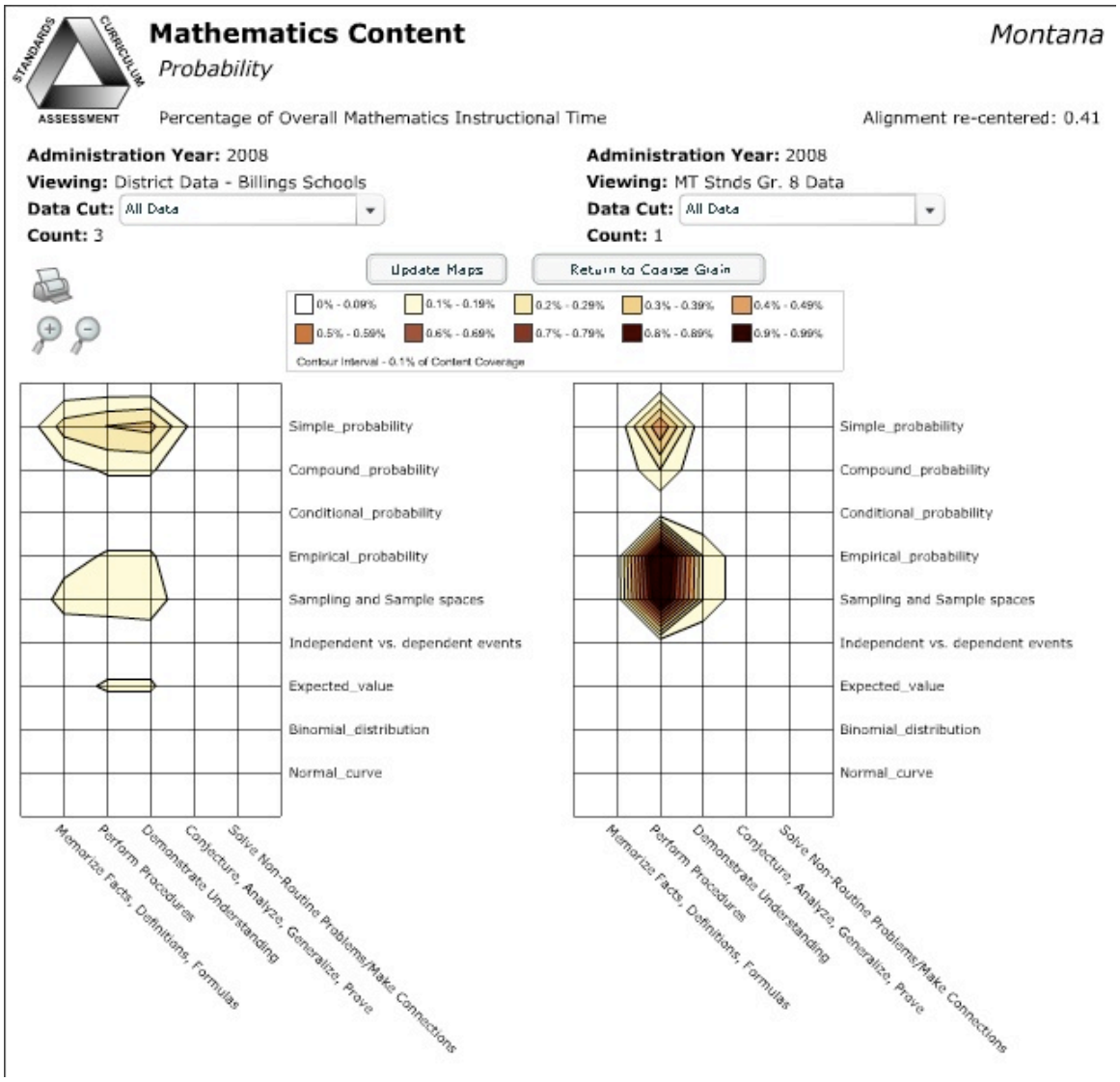
B. On what topics have these teachers spent the least instructional time? How does that align to state standards?

- Teachers appeared to spend about the same amount of time on 10 of the topics. Of these 10, four were not included in state standards (Consumer Applications, Advanced Algebra, Analysis, Trigonometry).
- Probability was one of the 10 not given much emphasis, whereas state standards gave it more emphasis.
- Measurement was given a little more emphasis in instruction but a lot more emphasis on state standards.

C. What cognitive expectations for students did teachers have in their instruction for each topic taught? How does that align to state standards?

- Teachers had an even distribution of cognitive expectations for eight of the topics, including three of the topics that were not included in the state standards. The distribution across the state standards was not evenly distributed.
- Teachers had a heavy emphasis on Perform Procedures and Demonstrate Understanding on Number Sense/Properties/Relationships as did the state standards.
- Teachers never had dark, intense color on any of the topics, whereas the state standards had a heavy emphasis on Perform Procedures on Basic Algebra, Measurement, and Number Sense/Properties/Relationships.
- Teachers' cognitive expectations looked closely aligned to state standards in Basic Algebra and Number Sense/Properties/Relationships.
- Teachers cognitive expectations looked less closely aligned with Operations, Geometric Concepts, Advanced Geometry, and Probability.

The contour maps that we have been examining are called coarse grain charts because they show the broadest mathematics topics. For each of these topics, there is a corresponding fine grain chart that shows a further breakdown of topics. For example, the following chart shows the breakdown of Probability into nine topics.



By asking the same questions you explored on the coarse grain chart, you will note that whereas the teachers evenly distributed their instruction across the five cognitive expectations, state standards emphasized Perform Procedures in all five of the topics included in the standards and Demonstrate Understanding in two of the topics. You will also note that state standards include the topic Empirical Probability but that teachers do not teach that topic.

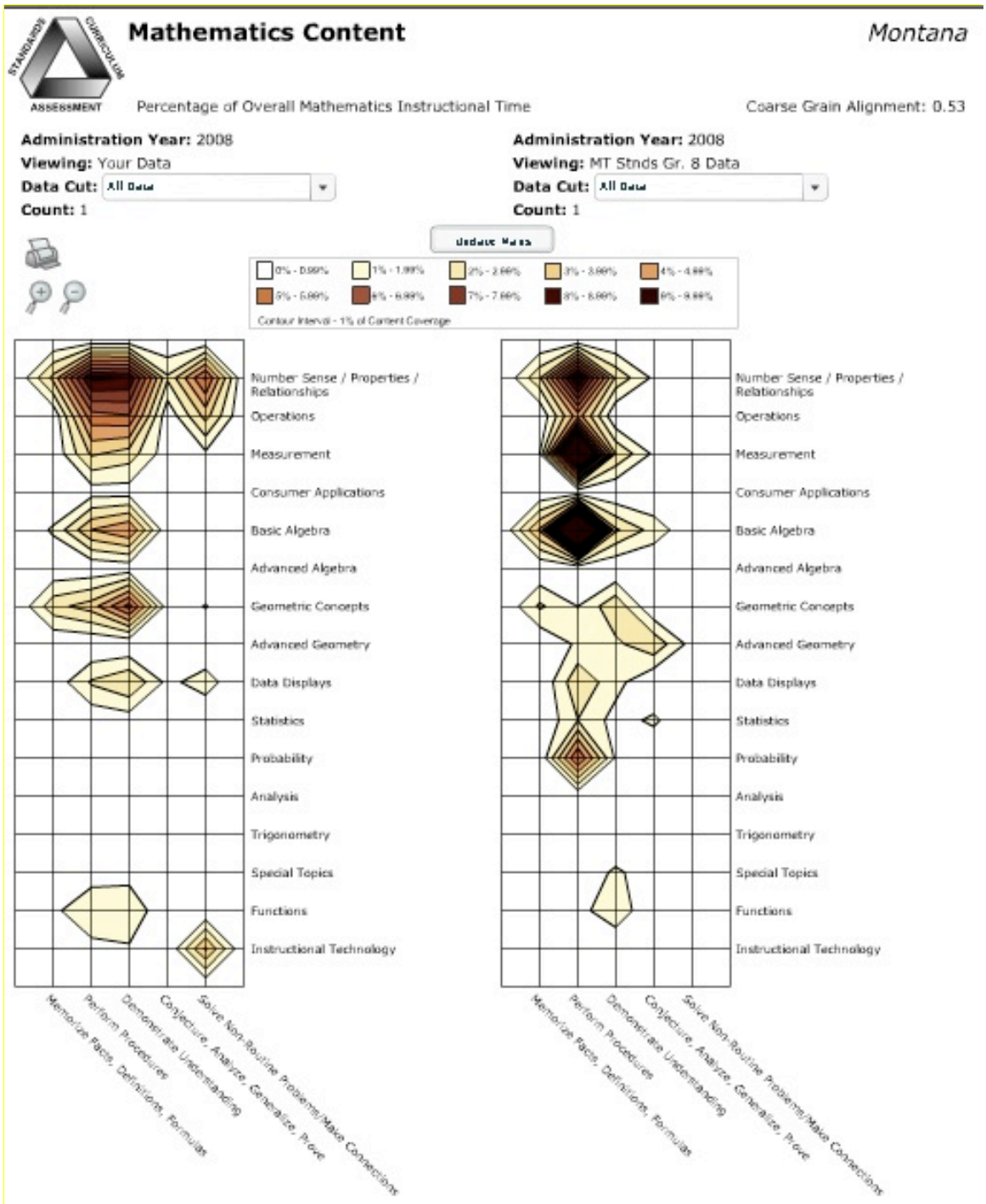
If you examined the re-centered alignment numbers for each of the fine grain comparisons, you would be able to determine the differences in alignment for each of the main topic areas.

Part 3: Comparing My Instruction with State Standards

Is my classroom instruction aligned with our state standards?

The aggregate results for a team of teachers will likely look different than for an individual teacher. Teachers will want to see how close their own instruction is to state standards and to their team's instruction. Teachers will want to take a few minutes to see what they can learn from looking at their own individual data (which is confidential unless the teacher chooses to share it) and answer the following questions:

- What am I teaching that is aligned with our state standards?
- Am I teaching anything that is not emphasized on state standards?
- What am I not teaching that state standards indicate I should be teaching?
- Are my cognitive expectations for students aligned with the cognitive expectations indicated in the standards? If not, where is the misalignment?


Mathematics Content
Montana
Percentage of Overall Mathematics Instructional Time
Coarse Grain Alignment: 0.53
Administration Year: 2008
Viewing: Your Data
Data Cut: All Data
Count: 1
Administration Year: 2008
Viewing: MT Stnds Gr. 8 Data
Data Cut: All Data
Count: 1
Update Maps
0% - 0.99%
1% - 1.99%
2% - 2.99%
3% - 3.99%
4% - 4.99%
5% - 5.99%
6% - 6.99%
7% - 7.99%
8% - 8.99%
9% - 9.99%
Contour Interval - 1% of Content Coverage
Number Sense / Properties / Relationships
Operations
Measurement
Consumer Applications
Basic Algebra
Advanced Algebra
Geometric Concepts
Advanced Geometry
Data Displays
Statistics
Probability
Analysis
Trigonometry
Special Topics
Functions
Instructional Technology
Memorize Facts, Definitions, Formulas
Perform Procedures
Demonstrate Understanding
Conjecture, Analyze, Generalize, Prove
Solve Non-Routine Problems/Make Connections

Part 4: Next Steps

What do we need to change about our instruction as a result of this data?

After a team has analyzed their SEC data, they will want to reflect on these questions:

- Are their reasons that a teacher may spend more or less time on a topic than their standards indicate?
- What is the impact of teaching not being aligned to state standards?
- What is the impact of cognitive expectations not being aligned to state standards?

Then the team will want to develop a game plan based on their data analysis that would address the following questions:

- What do we need to change about our instruction as a result of this data?
- How would we monitor that our instruction is aligned with state standards?
- How would we monitor that students are reaching a proficient performance on state standards?

It is the game plan that schools put into place after they have analyzed their SEC and achievement data that will ensure the time and effort put into the SEC process will result in improved student achievement.

Appendix

How to Read a Floating Bar Chart:
Floating bar charts, like those reported in the document, are the selected SEC format to view data on instructional practices and classroom activities, as well as other teacher survey responses. Each bar shows the variation of response + or -1 standard deviation of the mean, with the mean being designated by the black bar in the middle. One standard deviation away from the mean in either direction on the horizontal axis accounts for somewhere around 68 percent of the people in the group represented by the count of respondents (http://www.robertniles.com/stats/stdev.shtml).

The legend or response code for these charts is typically found at the bottom of the chart.

At the far right-hand side you see white boxes with "0" in the box. Teachers will see their actual response code in this location.

Administrators will see overall group data but will not be able to see data from an individual teacher.

Some disaggregations:
By *grade level* is the most commonly used disaggregation. There are other disaggregations such as by *student achievement level (teacher reported), student percent minority, student percent LEP/ELL, class size, amount of teacher professional development.* The data user selects the type of disaggregation to be applied to each chart to be generated.