Guide for Building Professional Learning Communities to Improve Instruction and Raise Achievement

Module 4: Data-Based Inquiry

December 2012
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Supporting School and District Improvement with Professional Learning Communities
Professional Learning Community (PLC) Guidance

The Professional Learning Community Guidance Document: Instructional Team Guidelines and Responsibilities for Establishing and Maintaining Professional Learning Communities is intended as a reference tool to frame the work of developing and strengthening instructional teams at the school level. While state regulation (603 CMR 2.03) indicates that schools striving to increase their effectiveness ensure that teachers have time in which to collaborate around instruction and learning, the way that collaborative time is structured is left at the discretion of the districts and schools themselves. It is they who must establish, support, and oversee the work of the teams in the manner that best suits their district’s specific needs. What is key is that team time for teachers exists and is focused on instruction and learning.

Establishing and strengthening effective instructional teams is challenging work. For that reason, the PLC Guidance document provides examples and frameworks to help inform the work of teachers, school leaders, and district leaders, based on prevailing research on professional learning communities.

The Department created the PLC Guidance document in conjunction with the Center for Collaborative Education, the National Institute for School Leadership (NISL) representatives and a professional Working Group from districts and schools. The goal was to collaboratively create guidance that it is framed in a manner that makes sense to those who are closest to the work.

The PLC Guidance delineates one way—not the only way or the best way, but one way—that the work of structuring instructional teams can be envisioned. This vision unfolds in the six stages as part of a modified cycle (see diagram).

Those who use this document in the field are also encouraged to tailor it as they see necessary to meet the specific needs of their district, schools and teachers.

It is hoped that the PLC Guidance document is a useful framework for furthering the development of Professional Learning Communities statewide, in service of providing high quality learning opportunities for all students and ensuring that they are able to achieve at their highest potential.

For more information on PLC Guidance and other district support resources, visit http://www.doe.mass.edu/sda/ucd/ or email districtassist@doe.mass.edu
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Module 4 Expected Outcomes

By the end of this module, you will be able to:

• Understand how Data-Based Inquiry can be a powerful tool to help drive decision-making and help schools achieve better results
• Describe and implement each step of the data-inquiry cycle
• Identify possible sources of data for your school and use protocols to analyze data and make decisions
• Identify resources from other DESE initiatives to help move your PLC and data inquiry work forward

Module 4 Essential Questions

How can teachers and principals translate large amounts of classroom, school, state, and district data into useable information to improve practice?

How can we establish structures that will promote a continuous process of data inquiry in our school or district?

How can we effectively identify and target challenges that our school/district faces and make the right decisions to address them?

Module 4 Vocabulary

Clarifying Questions – Narrower questions generated in response to the analysis of the initial data set and often require the collection and analysis of additional data.

Data-Based Inquiry – A deliberative process in which teachers, administrators, and other relevant stakeholders collect, examine, and analyze a range of data relating to problems and challenges that a school or district face, and develop action plans to address them.

Focusing Questions – Broad questions which provide a starting point to help a team identify the data it will need to begin its inquiry.

Inference – A conclusion, explanation, or conjecture that is drawn from a data set

Observation – Factual interpretations and statements about known quantities.
Introduction
In professional learning communities, people are always asking questions about how a school or district is doing so they can improve. For example: Are effective interventions in place for students at risk? Is the time scheduled for team meetings adequate and productive? What do student work and statewide test scores reveal about equity for all the different subgroups within the school? This constant questioning or inquiry occurs in classrooms with students, at leadership team and full faculty meetings, and at times when parents and the community are involved. Data-based inquiry and decision making is a deliberative process in which teachers, administrators, and other relevant stakeholders collect, examine, and analyze a range of data relating to problems and challenges that a school or district faces, and develop action plans to address them. The focus of inquiry is always on improving teaching and learning for all students. Data-based inquiry and decision making is not a quick-fix solution to a school’s challenges; rather, it requires time and a rethinking of how we use the time we have. When used appropriately and consistently, this process results in higher student achievement and an improved school climate.

Woodland Academy

When Patricia Padilla became the principal at Woodland Academy in Worcester, she was aware of the power of professional learning communities and knew that when they were structured well, they could lead to improved student achievement. She began to put the structures in place to support PLCs at Woodland. An important part of that effort was the establishment of grade level “data teams.” She assigned Margaret Welch, the school’s focus instructional coach, to meet with and support the work of the teams. Margaret established meeting schedules and helped the teams to develop norms, set agendas, determine roles, and learn to use meeting protocols effectively.

Teachers continue to meet in grade level data teams each week. This year, a decision was made to add the role of process observer to the previously established rotating roles of facilitator, note-taker, and time keeper. The teams meet weekly for 45 minutes and the agendas rotate on a four week schedule as follows:

- Meeting # 1 - Team members look at data relevant to the grade level and make and share observations. Margaret often has to remind teachers to stay with descriptive comments only.
- Meeting # 2 - Based on the prior week’s observations, teachers identify student learning gaps and their causes, problem-solve, and create a plan that contains “action steps” that will be implemented by all team members.
- Meeting # 3 - Each teacher brings samples of student work to the meeting that demonstrates that the new actions are making a difference. Using a protocol, teachers look at the student work.
- Meeting # 4 - Teachers use a protocol to have a text-based discussion of a reading or article relating to the action plan.
The Data Inquiry Cycle

The Data-Based Inquiry and Action Cycle drives the effective use of data to answer critical questions about teaching and learning that result in school improvement and higher achievement for all students. This process is particularly useful in schools because it allows groups of teachers and administrators to work together to confront and solve challenges. This practice, outlined in the graphic below, includes starting with a vision for what teaching and learning should look like in a school or district, and collecting and analyzing data to gauge how aligned is the school or district with that vision. The District Data Team Toolkit, found here: [http://www.doe.mass.edu/apa/ucd/ddtt/toolkit.pdf](http://www.doe.mass.edu/apa/ucd/ddtt/toolkit.pdf), is a robust tool that can guide data teams through the inquiry process. The inquiry-cycle chart below suggests a cyclical process of data-based inquiry and decision making. Because it is an ongoing process, you may revisit components at different points.

**Data-based Decision Making**

**Whole School Assessment**

- **Set the vision**
  - Assess progress
    - Collect and analyze data
    - Tune the action plan
  - Action plan
    - Identify solutions for cause of challenge
    - Develop and implement an action plan to solve the challenge
- **Collect and analyze data**
  - Use multiple forms of data
  - Identify successes and challenges
    - Prioritize challenges
      - Translate priority challenge into a problem statement
- **Confirm/disconfirm each possible cause**
  - Collect and analyze data
  - Determine most possible cause of priority challenge
- **Determine causes of the priority challenge**
  - Brainstorm all possible causes

**Setting the vision and benchmarks for measuring progress**

Data-based inquiry is always based on the school's articulated vision of what effective instruction and student learning should look like, as well as the benchmarks that have been set to measure the school's progress in reaching the vision.
Collecting Data
Successful, highly efficient organizations continuously tap rich sources of data available to them to make informed decisions and solve problems. To get a comprehensive picture of how they are doing, schools should gather multiple data sources (e.g., leading and lagging quantitative indicators, MCAS or other state or standardized test results, formative assessments, student work, surveys and interviews, review of documents, etc.) that will provide a comprehensive picture of the school and students that are served. The data can be disaggregated by subgroups to provide a deeper analysis of student learning. Schools should then ask challenging questions about the data collected such as: “What strengths and challenges does the data reveal?”, “What is the data telling us about our efforts to reach our goals?”, or “What can we do about what the data reveals?” In addition to examining MCAS results (see, http://www.doe.mass.edu/mcas/) to assess student learning, we emphasize to schools and districts that they should not overlook collecting and analyzing the most important data—actual student work. Collecting samples of student work is a powerful way of gaining a picture of how students and teachers are doing. It provides data about students’ levels of proficiency and enables teachers to gather evidence of students’ progress over time, monitor the effectiveness of their own efforts, and reflect on ideas for revising classroom practices to address instructional gaps.

Analyzing Data
A thoughtful and rigorous analysis of data is key to a successful inquiry process. It can be easy to unknowingly approach data with the answer already in our minds, consciously or unconsciously seeking evidence that supports what we already believe to be true. Approaching data with a truly open mind takes practice and discipline. The District Analysis and Review Tools (DART) available here, http://www.doe.mass.edu/apa/dart/default.html, is a good place for schools/districts to begin looking at a wide range of data.

The first step in data analysis is the objective description of what the data say. What patterns and trends are evident in the data? It is very important to focus on this first step before making inferences or drawing conclusions from the data, because clarifying questions often need to be posed and additional data collected before valid inferences can be made. Colleagues on a district or school-based data team can play an important role in helping each other use language that is as specific and objective as possible when discussing information and data. For example, helping each other distinguish between observations and inferences:

Observation: Factual interpretations and statements about quantities, e.g., “Over half the principals report...”; the presence of specific information and/or numerical relationships between ideas, e.g., “Over 90% of the district’s schools have teams...”; or patterns, e.g., “most principals report that their teams are focused on...” An observation captures an unarguable fact and may be indicated by phrases such as I observe that..., some patterns/trends that I notice..., or I am surprised to see...

Example: About one third of our students performed below proficient in mathematics.
**Inference:** A conclusion, explanation, or conjecture that is drawn from a data set, such as using a smaller set of data to make broader generalizations or predictions. An inference reflects the meaning that the observer is making from the data, and may be indicated with phrases like *I predict..., I think..., because..., or therefore..., or by imprecise qualifiers like smarter, adequate, or poorly.*

*Example: About one third of our students are not on track to meet the mathematics criteria for graduation.*

Both observations and inferences play crucial roles in the data analysis process. What is important is to distinguish between the two. The team should be sure to rigorously examine the data for patterns, trends, and outliers that can be factually explained, prior to making any inferences or conclusions about what those patterns may mean.

**Identifying Successes and Challenges**

In this step of the data-driven inquiry and action cycle, a group engages in deeper analysis of the data and collaborates to begin using this new perspective to inform strategic action. Team members participating in the process will work together to examine the data and identify and list: (1) the school’s successes, or areas in which the school is doing well, and (2) the challenges, or areas in which there is a need to improve. Once the challenges list has been identified, faculty and administrators select the consensus priority challenges that, if addressed, will most lead to improved student learning and achievement.

**Determine Causes of the Priority Challenges & Confirm/Disconfirm Each Possible Cause**

Next, the team will work together to identify the causes of the priority challenges facing the school or district. This is a key step in the data-based inquiry cycle. If administrators and faculty do not identify the real cause(s) of a challenge, they will most likely not identify and implement a solution that will result in improved student learning. Challenge areas are typically assigned to study or inquiry groups. Inquiry groups hypothesize the causes for each identified challenge, and then collect additional data to confirm or disconfirm the most likely cause(s). At the end of this step, based on the data collected, and the group’s analysis of the data, the group will identify and come to consensus about a real cause(s) of the priority challenges and begin to develop an action plan to address it.

**Action Plan**

Based on the inquiry group's determination of the cause(s) of the priority challenge, the team develops a proposed action plan that is presented to the school’s instructional leadership team (ILT) and/or faculty for discussion and approval. An action plan is a strategic series of steps designed to ensure that an identified strategy is implemented. For each step, the plan outlines the necessary resources and measures of implementation, as well as an owner who will ensure it is accomplished and a deadline by which the step is expected to be completed. An action plan can be a valuable resource to guide the implementation of certain strategies, and provide a basis for monitoring the progress of those strategies. One of the most important parts about this transition from analysis to
action is taking time to make sure all members of a group are clearly in agreement on the problem being addressed, and that an effort is made to connect the problem to research and to other district efforts to solve the same problem. For example, the Massachusetts Tiered System of Support (MTSS), [http://www.doe.mass.edu/mtss/default.html](http://www.doe.mass.edu/mtss/default.html), is a great resource to help teams understand what support systems are already in place and available as they begin to develop their plan of action. Being purposeful during this step helps a team avoid repeating past mistakes and strengthens its ability to take effective action. The outcomes of this process are sustained because they are based on data and solutions are developed by teachers and administrators representing multiple perspectives in the school.

**Assess Progress**

During the data inquiry cycle, schools should assess the impact of the action plan on improving student learning through collecting and analyzing data, and make any needed mid-course corrections that will enhance success. This step helps to refine/refocus the school’s work and repeat the inquiry process until the goals are achieved.

Taking action means nothing if the district data team does not take time to reflect on the impact of the work. From the outset, a district should have a plan to analyze and evaluate the evidence generated by implementation of the designated strategies. The evaluation plan should help the team answer these questions:

- To what extent have new skills, knowledge, and expertise been acquired by the targeted adults and/or students?
- To what extent are these new skills, knowledge, and expertise being put to use effectively by the targeted adults and/or students?
- To what extent have the adults and/or students shifted their habits or beliefs in a way that impacts learning?

Since *what gets measured gets done*, the team shouldn’t wait until the end of implementation to draft an evaluation plan. Instead, the team should establish the most important evidence to measure during the action planning phase and include it in the finished action plan.

These measures of implementation and change will be used to indicate if the strategy has had the desired impact, and therefore they should be articulated clearly and meaningfully. In short, the measures should be bold yet achievable, and help a team answer the following questions:

- What did the district or school attempt to change and why?
- What did the district or school do to try to make the change?
- What results were achieved? What will happen next?
• What effect(s) did the action steps have on the habits, beliefs, and ways of working of those involved?

An evaluation plan can guide the overall evaluation process, where the team reflects on, and reports publicly, the extent to which new skills, knowledge, and expertise have been acquired by the targeted adults and/or students, and the extent to which they are having an impact on student achievement and organizational culture.

It outlines the specific measures that will be monitored, the evidence to be collected, and the date(s) for analysis, and can be a useful tool for keeping a team organized and focused on the desired change the district is trying to bring about.

**Data Sources**

Among the data school and district teams may want to review in order to develop actions plans for improvement are information regarding:

• Attendance, Retention, and Suspension
• Licensing and highly qualified faculty and staff
• Perception on school climate and organizational health (students, faculty, and parents).
• MCAS scores, including AYP, CPI, SGP, advanced/proficiency and pass rates, and district benchmark formative assessments
• Achievement, AP enrollment, mobility and course passing rates
• Students who dropped out and current school students who are not on track to graduate
• Student work and Teacher work (Unit Plans, Lesson Plans, Classroom observations etc...)

**Student Work**

One of the most powerful practices that school-based teams can engage in is looking at student work. Looking collaboratively at student work is a process in which teachers primarily, but also administrators, parents, students, and members of the community, look at student and/or teacher work with the goal of improving student learning. To structure the process and create a safe, caring environment, teams can use several protocols to facilitate the conversation. Through the use of protocols, teachers clarify problems, identify evidence to support opinions, share perspectives, and reflect on their practice. Teachers often find that protocols help them mine the wealth of riches that student work contains. You can find a list of protocols and their descriptions in the Tools section below. Teacher teams have noted many benefits to looking at student and teacher work, including: gaining a more comprehensive understanding of what students know and are able to do over time, embedding professional development in teachers’ daily practices to improve student achievement, building a sense of community, fostering a culture that collaboratively assesses the quality and rigor of teacher work, and developing shared, public criteria to assess student work. Consider the example of a high school, cross disciplinary PLC meeting:
“Shelby, a high school health/science teacher, provided two samples of a persuasive essay she had assigned as the culminating project for a mental health unit on violence and violence prevention. Shelby was not satisfied that the essays had captured what she had hoped her students would learn from the unit. Her colleagues in the meeting, representing a wide range of subject fields, had all participated in professional development aimed at strengthening “writing across the curriculum.” In examining the student essays, they began to realize that they had an incomplete grasp of what it meant for students to produce a persuasive essay — and for teachers to assign and assess one. A math teacher mused, “What comes to mind is how well do the students understand what is meant by a ‘persuasive essay’?” Seconds later, she added, “...because I’m not clear what is meant by a persuasive essay.” Those dual themes — what students understand and what the teachers understand as a “persuasive essay” — were picked up throughout the discussion, culminating in this exchange:

English teacher: Do you think maybe the kids didn’t get it? 
Shelby: Do you think maybe the teacher didn’t get it?! [Laughter]

In their 40-minute discussion of the two essays, both Shelby and her colleagues gained new insight into the students’ writing and their own instructional practice while also reinforcing a spirit of mutual support and community.”

Student work is one of the most authentic data sources that teachers can use to inform their decisions. Through sharing different points of view, looking at student work collaboratively expands how teachers examine what their students know and are able to do, and helps them gain insights into their own practice.

Teacher Work

The link between student and teacher work is clear, and its potential for improving teacher practice and by extension whole school practice, is at the heart of data-based inquiry. Looking at student work inevitably demands that teachers look at their own practice, including the demands they make of their students. As teachers review and analyze student work including scores from their own formative and summative assessments, results from projects, labs and other authentic or performance tasks, they will also discuss
and analyze the assignments themselves, including the directions, requirements, and rubrics used to score them. Developing common assessments and rubrics, conducting lesson studies and collaborating to create interdisciplinary curriculum units are three effective practices of teacher teams within a PLC.

Common Assessments & Rubrics
One of the practices of teachers in effective professional learning communities is developing common assessments, as well as the rubrics used to score them. These are either formative or summative assessments developed by a team of teachers, typically from the same content area, who are responsible for teaching the same or similar content. Common assessments can be a powerful tool for aligning curriculum with standards, for reaching consensus on priorities for instruction and assessment, for pacing curriculum implementation, and for generating discussion and building common language among educators and students. They can also be powerful tools for preparing students for statewide assessments and can provide a common context for reporting student performance. Common assessments can also be a powerful tool specifically for teachers within a PLC who regularly engage in looking at assessment and other student work data. Results from these assessments will always have implications for teacher practice, and potentially school-wide implications for teaching and learning. Rick Dufour cites the following arguments in favor of common assessments developed by teams of teachers: “Team-developed common assessments are more efficient, more equitable, and more effective in monitoring and improving student learning. They can inform and improve the practice of both individual teachers and teams of teachers, and can build the capacity of the team to achieve at higher levels. [Common assessments] are also essential to systematic interventions when students do not learn.”

As teachers work together to develop common assessments, they should also create the rubrics they will use to score them. Rubrics are scoring guidelines used to evaluate students’ performance through the use of a detailed description of performance levels. They are used to get consistent scores across all students, and they allow students to be more aware of the expectations for performance and consequently improve their performance. Because rubrics provide descriptions of each score level, it is easier for different faculty to use a rubric to grade consistently across students, thus making the PLC practice of looking collaboratively at data easier and more accurate. There is evidence in the research to show that when constructed well, common rubrics can increase the objectivity and consistency of assessments, help students evaluate their progress and work by providing them with much more informative feedback about their understanding of the content, and provide teachers with critical feedback regarding the effectiveness of a lesson or assignment.

“Most educators can teach an entire career and not know if they teach a particular concept more or less effectively than the teacher next door because the assessments they generate for their isolated classrooms never provide them with a basis of comparison. Most educators can assess their students year after year, get consistently low results in a particular area, and not be certain if those results reflect his or her teaching strategies, a weakness in the curriculum, a failure on the part of teachers in earlier grades to ensure
students develop a prerequisite skill, or any other cause. In short, most educators operate within the confines of data, which means they operate in the dark. But in a PLC, collaborative teams create a series of common assessments, and therefore every teacher receives ongoing feedback regarding the proficiency of his or her students, in achieving a standard the team has agreed is essential, on an assessment the team has agreed represents a valid way to assesses what members intend for all students to learn, in comparison to other students attempting to achieve the same standard. That basis of comparison transforms data into information. When teachers are presented with clear evidence their students are not becoming proficient in skills they agreed were essential, as measured on an assessment they helped to create, and that similar students taught by their colleagues have demonstrated proficiency on the same assessment, they are open to exploring new practices. When the performance of their students consistently prevents their team from achieving its goals, they are typically willing to address the problem. In fact, we consider team-developed common formative assessments one of the most powerful motivators for stimulating teachers to consider changes in their practice.”

Rick Dufour, Becky Dufour, and Bob Eaker

**Lesson Study (add info on ubd)**

“Lesson study helps teachers make the transition from being objects of research to actual researchers in the classroom.” --Patsy Wang-Iverson, Research for Better Schools

Another important practice of teachers in effective PLCs is the Lesson Study. This is a process wherein teachers systematically examine their practice, with the goal of becoming more effective. This examination centers on teachers working collaboratively on a small number of ‘study lessons’ and involves planning, teaching, observing, and analyzing the lessons. Lesson Study is a constructivist professional development model that is collaborative in nature, so it is at the heart of PLC work. It is also a research-based practice that is teacher-directed, classroom-based, student-centered, data-driven, goal-oriented, and relevant as it provides a ‘real-time’ study of students.

The lesson study process closely aligns with the data-inquiry cycle in that teams of teachers will collect and analyze data as a way to move students towards a clearly articulated vision of what teaching and learning looks like. Teams of teachers wanting to conduct lesson studies begin by developing and deciding on goals. As a team, teachers identify both short-term and long-term goals for their students, and then note the gaps that exist between their students' performance and/or skills sets, and their goals. Teachers then work together to plan a lesson based on a core unit of study. This lesson is called the Research Lesson. One team member volunteers to teach the lesson while the rest of the team observes the classroom, gathers data, and notes how well students understand the main goal of the lesson. Shortly after the teaching session, team members meet to reflect on the lesson together, debrief the data collected on students, and revise the lesson based on that data. The next step in the process involves another volunteer teacher from the team teaching the revised lesson to another group of students. Team members observe the lesson again, and meet to discuss and refine it again. This process may be repeated one more time depending on the information the observing team gathers about how students respond to the revised lessons. Finally, the lesson study team writes a summary of what was learned.
about student thinking through the research lesson. This information is shared with others and contributes to the collective understanding of how our students learn. Teams often share their revised (and potentially perfected) lessons with others in their school, and/or district.

The point of lesson study is to observe student learning, not to comment on teaching. Teachers who are observing the developing lesson ask questions about student learning. For example, are a majority of students staying engaged in the lesson? If not, at what point do they disengage? Is the vocabulary working for EL students? What other words might convey the concept without confusing English learners? In addition, lesson study helps to reinforce the following effective PLC practices: collaborative planning, discussing goals for students and content, researching available units, lessons and resources, building implementing and observing lessons together, collecting data, collaboratively analyzing data, and implementing changes to practice to improve learning and teaching.

**Interdisciplinary Curriculum – put in ubd**

In PLCs made up of teachers from different content areas, team members may want to design curriculum units together across their different disciplines. In fact, interdisciplinary curriculum design is another important practice of effective PLCs. When teachers work together to design units, projects, and assessments, students are better able to connect disciplines and find relevance both between and among different subjects. For example, in a Social Studies unit on medieval warfare, students can find the ‘Math’ it takes to accurately launch and adjust catapults on the battlefield. In a Biology class on bacteria and diseases, students can calculate and predict infection rates among different population groups. With careful planning and collaboration, teachers can provide students with very rich and meaningful experiences with related (and sometimes unrelated) content. Using the Common Core State Standards, and some of the model units already created and listed here, [http://www.doe.mass.edu/candi/commoncore/](http://www.doe.mass.edu/candi/commoncore/), teachers can begin to develop ideas about how to collaborate and develop units and or projects that address Standards across content areas.
Case Study

During the 2001-2002 school year, North Adams Public School District, a small urban district in Western Massachusetts, organized a district-wide professional development program for its elementary and middle schools using a data-based inquiry and decision making process to develop a culture of inquiry. Consisting of three elementary schools, one middle school, and one high school, the district serves 2,260 students, of whom 93 percent are white and 39 percent are eligible for free or reduced lunch.

Inclusion at Greylock Elementary School

On the basis of the data analysis, the Greylock data team hypothesized that its school's current inclusion model contributed to the low math scores for both regular and special education students. The data team brought this idea to the school's leadership team, which agreed to use the data-based inquiry and decision making process to explore the issue. The leadership and data teams then collected additional data on student achievement to determine whether their hypothesis was correct. They used standardized tests and report card grades; measures of engagement (such as attendance); teacher perceptions of parent involvement; students' learning styles; professional development and common planning time for teachers; and the amount of pull-out time for all services given to students by staff other than the regular classroom teacher, such as special education instructors, speech therapists, occupational therapists, and Title I teachers.

Greylock teachers found the following:
1. Sixty-nine percent of individualized education plan students were below grade level in math and reading achievement;
2. Seventy-four percent of regular education students were at grade level in math and reading achievement;
3. Half of the individualized education plan students had multiple classroom pull-outs;
4. Eighty-three percent of individualized education plan students were classified as visual and kinesthetic learners, whereas 79 percent of regular education students were rated as visual learners and 39 percent as kinesthetic learners.

Greylock teachers noted that although regular education students achieved at higher levels than students with individualized education plans, teachers' subject matter expertise in math and science affected both inclusion students' and regular education students' performance. The data showed that teachers had different subject area strengths and had difficulty meeting the needs of all learners in their weaker areas.

As a result of this process, faculty decided to restructure the school and combine grades K–2 and 3–5 to allow teachers to team-teach. That way, teachers could teach to their strengths, develop a collaborative school culture, and better meet the needs of inclusion students. Even though faculty developed this idea with the support of the principal, there was still a process of give and take before all teachers accepted the change.
## Tools for Understanding:

### Protocols: for Organizing & Analyzing Data

<table>
<thead>
<tr>
<th>Tool/Resource</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question Formulation</td>
<td>Protocol used to formulate a focusing question derived from an issue of importance to your school or district.</td>
</tr>
<tr>
<td>Protocol</td>
<td></td>
</tr>
<tr>
<td>Data Driven Dialogue</td>
<td>A protocol that builds awareness and understanding of the participant’s viewpoints, beliefs, and assumptions about data while suspending judgments.</td>
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<tr>
<td>ATLAS – Looking at Data</td>
<td>Protocol that allows teams to analyze and interpret data and draw implications for their respective practice.</td>
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### Protocols: for Looking at Student Work

<table>
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<tr>
<th>Tool/Resource</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>ATLAS – Learning from Student Work</td>
<td>Learning from Student Work is a tool to guide groups of teachers discovering what students understand and how they are thinking.</td>
</tr>
<tr>
<td>Collaborative Assessment Conference</td>
<td>This protocol allows teachers to look at student work and determine what it reveals about the student and how these relate to the teacher’s goals for this student. In addition, the teacher’s classroom practice is also discussed.</td>
</tr>
<tr>
<td>Describing Students’ Work</td>
<td>Protocol that allows a teacher to focus on the work of one student as a way to better understand that student’s way of thinking.</td>
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### Protocols: to Facilitate Teacher Work

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<th>Tool/Resource</th>
<th>Description</th>
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<tbody>
<tr>
<td>Consultancy Protocol</td>
<td>This protocol is used to get feedback on a set of questions or concerns posed by a teacher on certain aspects of teacher or student work.</td>
</tr>
<tr>
<td>Tuning Protocol</td>
<td>Protocol used to get feedback on whether a plan (lesson, project, agenda, etc...) is aligned, or in tune, with its established goals and objectives.</td>
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<tr>
<td>Lesson Study Protocol</td>
<td>Protocol meant to facilitate the lesson observation and debriefing process involved in a lesson study.</td>
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### Videos: Data Inquiry Cycle

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<tr>
<th>Tool/Resource</th>
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<tr>
<td><strong>Looking at Student Work: A Window into the Classroom</strong></td>
<td>Teachers at Norview High School in Norfolk, Virginia, demonstrate the collaborative examination of student work and discuss its value and implications for teaching practice. <a href="http://www.learner.org/vod/vod_window.html?pid=1285">http://www.learner.org/vod/vod_window.html?pid=1285</a></td>
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<tr>
<td><strong>Reflecting on Teaching Practice: Student Work, Teacher Work, and Standards, Part I — Math</strong></td>
<td>A tenth-grade math teacher from San Bruno, California, presents a sample of student work from her classroom to a group of teachers, administrators, and a facilitator. The group uses a &quot;tuning protocol&quot; to examine this work, give the teacher feedback, and discuss its implications for her teaching practice. <a href="http://www.learner.org/vod/vod_window.html?pid=1285">http://www.learner.org/vod/vod_window.html?pid=1285</a></td>
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<tr>
<td><strong>Middle School Data Discussion – 5 Stage Protocol</strong></td>
<td>Data team at Wright Middle School discussing using data collected to make instructional decisions including strategies and student performance. <a href="http://pinterest.com/pin/110830840800525480/">http://pinterest.com/pin/110830840800525480/</a></td>
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### Articles : Using Data for Text-Based Discussion find new articles

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<tr>
<td><strong>&quot;Using Data to Improve Student Achievement,&quot; by Jay Feldman</strong></td>
<td>Feldman outlines the steps of the Data Inquiry and Decision Making process, talks about its importance to improving schools and uses a case study to highlight the process in action. Educational Leadership February 2003, Volume 60, number 5</td>
</tr>
<tr>
<td><strong>&quot;Answering the Questions that Count,&quot; by David Ronka, Mary Ann Lachat, Rachel Slaughter and Julie Meltzer</strong></td>
<td>This article encourages schools to use essential questions to help them both gather and analyze student data in order to make effective decisions about challenges that schools face. Educational Leadership December 2008, January 2009, Volume 66, number 4</td>
</tr>
<tr>
<td><strong>&quot;Data Inquiry and Analysis for Educational Reform,“ by Howard H. Wade</strong></td>
<td>This article provides a roadmap for schools in the beginning stages of a data inquiry cycle. It outlines some of the types of data that schools can use and gives examples of how schools can begin to use the data and what administrators can do to overcome barriers and help their schools use data appropriately. Eric Digest 153, December 2001</td>
</tr>
<tr>
<td><strong>&quot;Looking at Student Work for Teacher Learning, Community, and School Reform,“ by Judith Warren Little, Maryl Gearhart, Marnie Curry, and Judith Kafka</strong></td>
<td>In this article, The authors describe several projects that have enabled teachers to leave the isolation of their own classrooms and think together about student work in the broader contexts of school improvement and professional development. Phi Delta Kappa International, Inc., November 2003</td>
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