NATIONAL INSTITUTE FOR URBAN SCHOOL IMPROVEMENT

MODULE

2

Mining Data

Academy 1: Mining Meaningful Data

Participant Handouts

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Academy 1: Mining Meaningful Data

This Academy helps participants develop their skills to analyze data over time to adjust and improve their strategies for instructional improvement. The activities in this module begin with personal reflection by participants on values and beliefs about the identification, collection and use of data for school improvement. It continues with a brief overview of the new accountability systems, moves to current methods being used by school systems and how this affects all students, and ends with an activity that requires participants to continue their reflection on tracking data that they can use to prepare for subsequent activities. Participants use data from their own school or another school in their state to begin to examine the link between data and practice changes.

Module Outcomes

As a result of the activities and information shared at this Leadership Academy, participants will:

- Clarify their reasons or rationale for using data to change practice.
- Identify and align meaningful data to renew their school improvement efforts to be more culturally responsive.
- Determine what data should be used to guide practice.
- Use school wide improvement survey and other forms of displaying outcomes to analyze data.

Agenda

We constructed this Leadership Academy to occur within a 3-hour timeframe with 15 minutes or so for breaks and other time adjustments. The times listed below are approximate but reflect the time these activities and lecturettes have previously taken. Facilitators should be flexible, read their audience, and work to achieve the overall purpose and outcomes.

TIME	EVENT
15 min	Introductions and Greetings
30 min	Activity 1: Mining Report Card Data
20 min	Lecturette 1: Mining System-wide Data
30 min	Activity 2: Diverse Instructional Data
10 min	Break
15 min	Lecturette 2: Identifying Evidence that will Change Practice
20 min	Activity 3: Using Data to Support School Improvement
30 min	Leave-taking and Feedback

Safety and School Environment

Safe and Orderly School Features

Your School	does	does not
• allows after-school programs	X	
• requires student uniforms	X	
• encourages community programs in school building.	X	
• conducts home visits	X	
• has a closed campus		X
• requires parental conferences	X	

Safety and Discipline

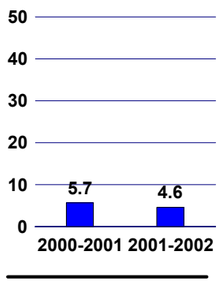
Safe schools are a top priority for parents, teachers, and communities.
Your school's safety and discipline record for the 2002-2003 school year is:

Type of Incident	Number of Incidents Reported	Action Taken				
		In School Suspension	Out of School Suspension	Expulsion	Referred to Law Enforce.	Other
Substance Abuse - Drugs	13	3	10		1	
Substance Abuse - Alcohol	1		1			
Substance Abuse - Tobacco	4		4			
Assaults/Fights	4		4		4	
Habitually Disruptive Students						
Dangerous Weapons	11		11		1	
Other Violations of Code of Conduct	138	24	114		6	

Student Attendance and Time Spent in Classroom

2002-2003	Your School
Length of School Year	175 days
Enrollment	1,472
Average Daily Attendance	1,247
Student Dropouts	4.6%
Students Per Total Staff	10.1
Annual Number of Teacher Days Scheduled without Student Contact	10

Dropout Rate



Student Information Over Time

	2000-2001	2001-2002	2002-2003
Student Average Daily Attendance	80.6%	67.1%	84.7%
Student Dropouts	5.7%	4.6%	
Safety and Discipline Total Incidents Reported	468	288	171
Student Enrollment Stability		83.2%	85.3%
Students Eligible for Free Lunch		907	904

OVERALL ACADEMIC PERFORMANCE RATINGS
- Excellent
- High
- Average
- Low
- Unsatisfactory

SCHOOL IMPROVEMENT RATINGS
- Significant Improvement
- Improvement
- Stable
- Decline
- Significant Decline

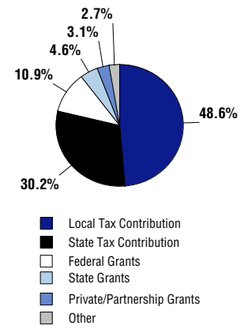
N/R - Data not reported to State

Taxpayers' Report

Sources of School District Revenue 2002

Local Tax Contribution	$269,831,937
State Tax Contribution	167,307,647
Federal Grants	60,256,577
State Grants	25,414,523
Private/Partnership Grants	17,030,350
Other Discretionary Income	14,844,452
Total School Dist Revenue	$554,685,486
Total 2002 District Revenue Per Pupil =	$8,149

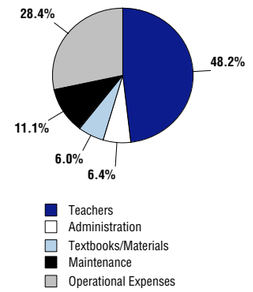
District Source of Funds 2002



District Use of Funds 2002

Teachers	$252,392,380
Administration	33,356,846
Building & Facilities Maintenance	57,986,922
Operational Expenses	148,879,896
Textbooks/Materials	31,451,517
Total	$524,067,561

District Use of Funds 2002



District Debt and Capital Construction & Equipment

Total Outstanding Bonded Debt	$440,027,909
Average Annual Percentage Interest Rate on Debt	5.29%
Amount Raised from Most Recent Bond	$305,000,000
Amount Spent on New Buildings During Last 2 Years	$127,142,084

Voter Approved Funding Changes

Your community did [ ] / did not [X] hold an election in November 2001.
The following items have been approved by voters:

TABOR Override	Bond	Mill Levy Increase
[ ]	[ ]	[ ]

Abraham Lincoln High School
2285 South Federal Boulevard . Denver, CO 80219 . 303-727-5000
0880 / 0010

For more information and further details about this report, visit www.state.co.us/schools
Colorado Department of Education . 201 East Colfax Ave. Denver, CO 80203
12/03/2003

ABRAHAM LINCOLN HIGH SCHOOL

DENVER COUNTY 1

School Accountability Report
2002-2003 School Year

School Performance Summary

Overall Academic Performance * Participation Noted	Low*
Academic Improvement:	Stable

How Abraham Lincoln High School Compares To Nearby High Schools

School	Academic Performance
D P S Night High School	Low
Colorado'S Finest Alternative High School(1)	Average
Sheridan High School(2)	Low
John F Kennedy High School	Low
Englewood High School(1)	Average
Center For Discovery Learning Charter School(3)	Low
South High School	Low
Alameda High School(3)	Low
Denver School Of The Arts	Excellent
West High School	Low

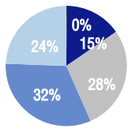
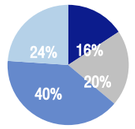
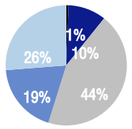
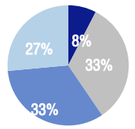
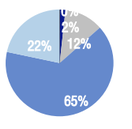
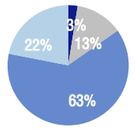
1 Located in Englewood 1 School District.
2 Located in Sheridan 2 School District.
3 Located in Jefferson County R-1 School District.

For more information on additional schools, visit
www.state.co.us/schools

Student Performance

Colorado students are assessed once a year in order to measure their performance on state academic content standards, using the Colorado Student Assessment Program (CSAP). The chart below shows the results for grades 9 - 10 in the subject areas for reading, writing and math for all students tested.

CSAP 2003 Spring

	Grade 9	Grade 10	GRADE 11 - ACT School	GRADE 11 - ACT State
Reading			13.80	19.28
Writing			11.97	18.05
Math			15.17	18.93

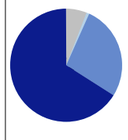
% Advanced | % Proficient | % Partially Proficient | % Unsatisfactory | % No Score

Note: Percentages may not add to 100 due to rounding

Percent of Students Scoring Proficient and Advanced

	Your School	District	State
Grade 9-10 Reading	15%	40%	66%
Grade 9-10 Writing	9%	28%	51%
Grade 9-10 Math	2%	10%	29%

Student Test Scores Used For Calculating Overall Academic Performance



Test Scores Used	66.1%
Test Scores not used due to:	
Language	27.0%
Alternative Assessment	0.8%
New Student	6.1%

Each school in the State received a rating of "Excellent", "High", "Average", "Low", or "Unsatisfactory" for student academic performance in school year 2002-2003 using the CSAP results printed above. Every student in this school who took these tests was included in the calculation used to assign a rating, except for students who do not speak English, whose special needs require that they spend less than 45% of their time in a regular classroom, or who enrolled in the public school after February 1 of this school year. Your school's rating was determined by the percentage of students performing in each of the Advanced, Proficient, Partially Proficient, and Unsatisfactory levels. These percentages were weighted and combined across grade levels and academic areas. These weights reward performance at the Advanced and Proficient levels over performance at the Partially Proficient and Unsatisfactory levels. The ratings were assigned after calculating the weighted total for each academic area and grade level for each school and comparing this school to all other high schools for the 2002-2003 school year.

Overall Academic Performance for the 2002-2003 school year ..... Low*

* Participation Noted

School History

	2002-2003	2001-2002	2000-2001
Overall Academic Performance	Low*	Low	Unsatisfactory
School Improvement	Stable	Stable	

* Participation Noted

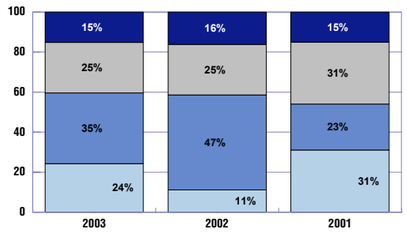
Each school receives a school improvement rating of Significant Improvement, Improvement, Stable, Decline, or Significant Decline. This rating in based upon the change in student academic performance from the previous year. Each school can improve its rating next year by improving student performance on the 2003-2004 CSAP.

Reading Proficiency Levels

Grades 9-10

Percent Proficient and Advanced

2003	15%
2002	16%
2001	15%

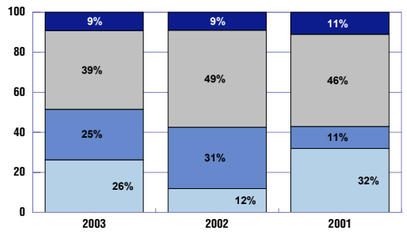


Writing Proficiency Levels

Grades 9-10

Percent Proficient and Advanced

2003	9%
2002	9%
2001	11%

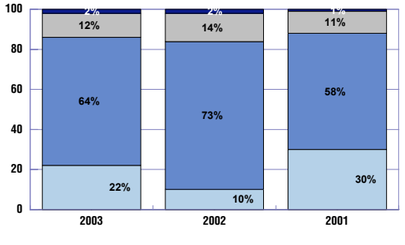


Math Proficiency Levels

Grades 9-10

Percent Proficient and Advanced

2003	2%
2002	2%
2001	1%



% Advanced | % Proficient | % Partially Proficient | % Unsatisfactory | % No Score

Note: Percentages may not add to 100 due to rounding

About Our Staff

School Employment

Each year, your district reports to the Colorado Department of Education on the number of adults who work in your school, as well as the type of work they do. Last year, your school employed:

	Your School Full Time	Your School Part Time	District Full Time	District Part Time
Teachers	88	1	4,339	205
Paraprofessionals	0	24	91	2,169
Administrators	4	0	328	2
Other Professionals*	10	8	1,023	170
School Support	20	0	1,386	10
Total Staff	155		9,723	

* School counselors and librarians are included in the Other Professionals category.
Your school employed 3/0 FT/PT counselor(s) and 2/0 FT/PT librarian(s) last year.

Students per Teacher Ratio

	Student Enrollment	Students per Teacher
Grade 9	659	28.4
Grade 10	340	15.1
Grade 11	276	12.3
Grade 12	197	9.3

Professional Experience of Teachers

	Your School	District
Average years of teaching experience	11	9
Percent of teachers teaching the subject in which they received their degree(s)	62%	55%
Teachers' average days absent	5.6%	5.0%
Number of teachers who left school/district last year	20	617
Teachers with tenure	55	2,613
Teachers without tenure	34	1,931
Number of professional development days	6	7

Salaries

	Your School	District	State
Average Teacher Salary	$46,498	$43,450	$42,680
Average Administrator Salary	$76,935	$78,731	$72,481

Principal: Scott Mendelsberg
Number of years as Principal at this school: 0 (New Hire 2003/2004)
Number of years as Principal at any school: 3

Abraham Lincoln High School
2285 South Federal Boulevard . Denver, CO 80219 . 303-727-5000

For more information and further details about this report, visit **www.state.co.us/schools**
Colorado Department of Education . 201 East Colfax Ave. Denver, CO 80203

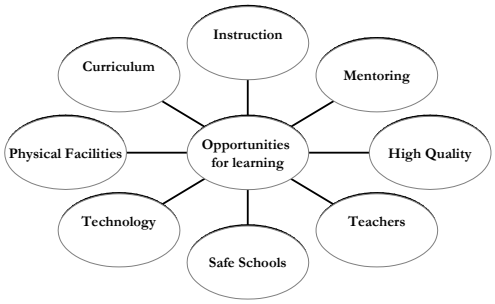
N/R - Data not reported to State

Lecturette 1:
Mining System-Wide Data

What is the Question?

Why are students failing or how is the system failing the students?

System-Wide Opportunities to Improve Chances for Learning



Accountability

- Accountability for student achievement crosses all boundaries of the system – classroom, school, and district levels.
- An effective accountability system does not assume that one assessment meets everyone's information needs.

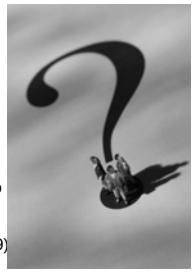
If we seek to improve student performance we must focus on the work or learning experiences we provide to students (Schlechty, 2002).

How are the learning experiences provided by our district, school or classrooms failing these students?

Questions for Selecting Meaningful Data

- What evidence would demonstrate that we are fulfilling the commitments embedded in our mission statement?
- Do we have any existing, ongoing goals that lack baseline data from which to measure progress?

Holcomb (1999)



Questions for Selecting Meaningful Data

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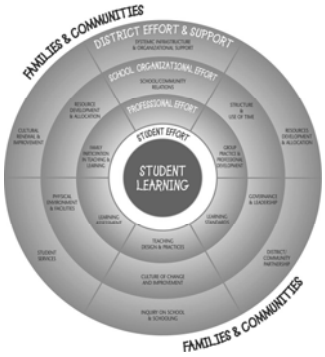
Holcomb (1999

SYSTEMIC CHANGE FRAMEWORK



Evidence Continuum

Evidence Continuum

What types of evidence are available to evaluate student achievement? Place your suggestions on the continuum. Informal evidence includes such things as the information that teachers intuitively collect on a day-to-day basis from students. Formal evidence, as used in this context, typically provides a type of score that communicates a student's standing relative to others who have taken the same assessment.

Student Performance Evidence Inventory

Use this evidence available to teachers, schools and districts for supporting change and improvement. Add to the provided lists with your own evidence collection methods and ideas.

Contextual Data	**Formative Data**	**Summative Data**
parent education level special program enrollment attendance record discipline record primary language	teacher-made tests exhibitions department level tests grade-level tests observations	surveys graduation rate classroom behavior principal/coach observations parent feedback

(Fox, 2001)

Lecturette 2:
Mining Classroom Data

Schools as Communities

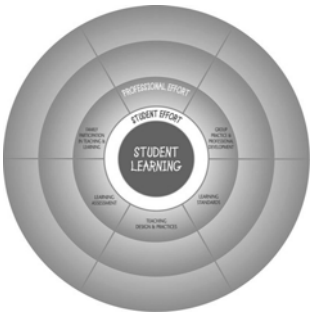
- Building the capacity of school personnel to function as a professional learning community offers the most powerful strategy for school improvement.
- The path to change in the classroom lies within and through teacher's professional communities.

DuFour, R. (1997). Moving toward the school as a learning community. *Journal of Staff Development, 18(1).*

How do Teachers Affect Student Learning?

- Relying solely on results of state-wide tests to change teaching practices of a teacher does not produce extensive change in the classroom
- Professional development produces more effective teachers, and more extensive change.

Systemic Change Framework



Roles of Teachers in Systemic Change:

- Group Practice and Professional Development
- Learning Standards
- Teaching Design and Practices
- Learning Assessment
- Family Participation in Teaching and Learning

Data Do Not Consist of Only Test Scores

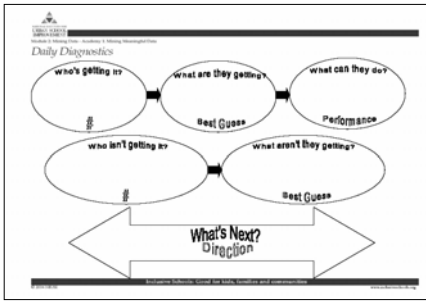
If this is the case, then what are data?

Data are the work students and teachers do every day, collected to serve specific purposes, potential uses, and answer different questions.

Evidence

It is imperative that educators consider the specific information needs to identify and use appropriate assessments or measures.

Daily Diagnostics



School Improvement Data Matrix

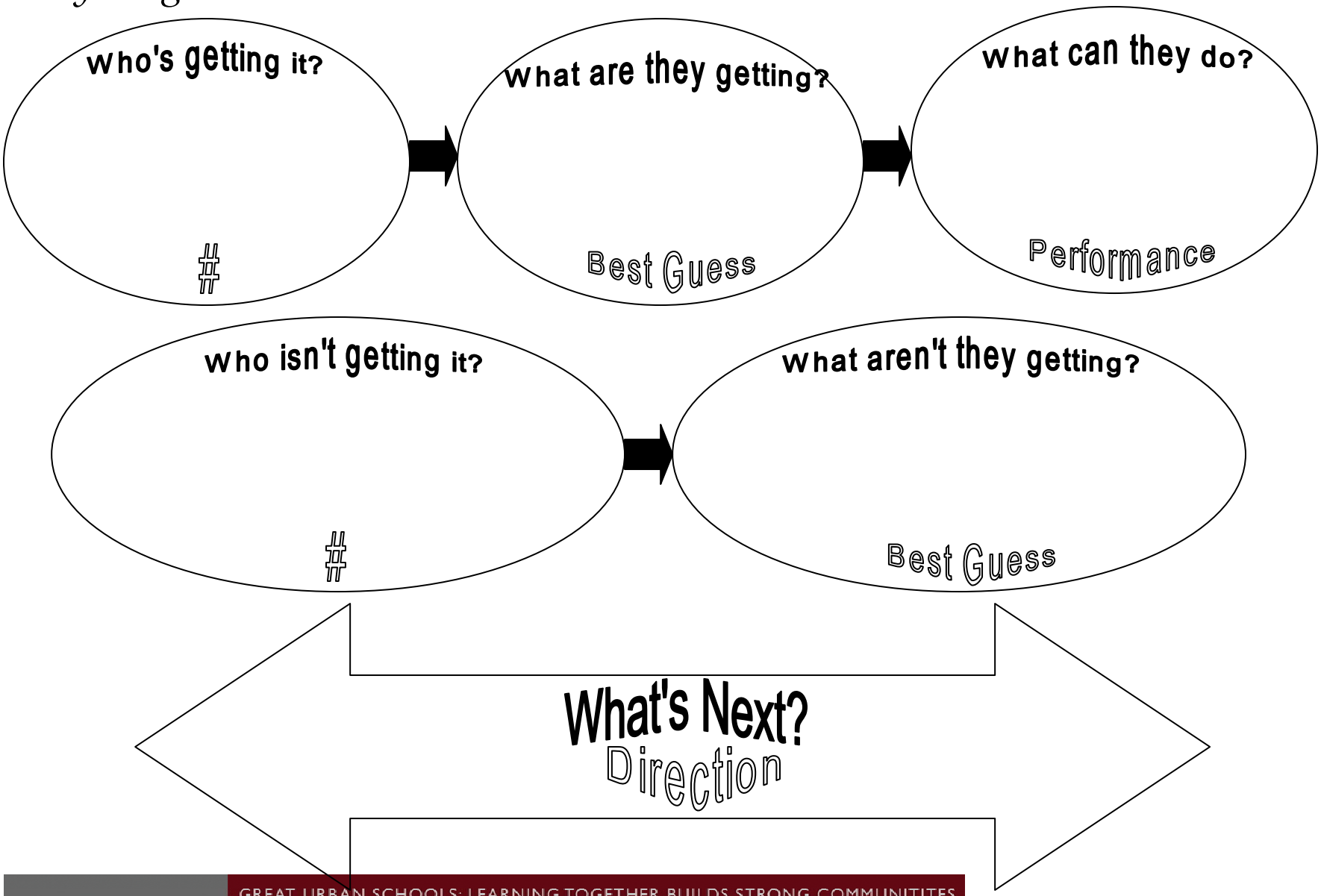
School Improvement Data Matrix

What improvement would you like to make or see happen? How does the improvement play a part in the Systemic Change Framework?

Classroom/School Improvement Issues	Indicators of Success	Data Sources
Increase parent involvement in classroom activities	• Increased number of parents participate in field trips • More parents volunteer in classroom • Increased amount of time parents spend in classroom	• Written record of parent participation • List of parents involved in classroom activities

Adapted from Danielson, C. (2002) Enhancing student achievement. Alexandria, VA: Association for Supervision and Curriculum Development.

Daily Diagnostics



Self Assessment

This is a non-graded, anonymous self-assessment. You have 10 minutes to complete the following questions taken from the content of this academy. After that time the group will have the opportunity to share answers. Note that occasionally we collect these self-assessments to measure the effectiveness of the academy.

1. Describe how more than one form of evidence may support a single school improvement issue, and explain how doing that is more meaningful than using only one form of evidence.

2. Why is it important to use a form or other visual display system for displaying data that may affect a school improvement issue?

Academy Evaluation

Data Mining Academy 1: Mining Meaningful Data

I am a

- ❍ General Ed Teacher
- ❍ Administrator
- ❍ Special Ed Teacher
- ❍ Parent
- ❍ Paraprofessional
- ❍ Other

_____

I am affiliated with a(n):

- ❍ Elementary School
- ❍ Middle School
- ❍ Secondary School

If I were on the next academy planning team, I would ...

Please let us know how useful you found the topics and activities:

Activity 1: Mining Report Card Data

Poor				Great
1	2	3	4	5

Activity 2: Diverse Instructional Data

Poor				Great
1	2	3	4	5

Activity 3: Using Data to Support School Improvement

Poor				Great
1	2	3	4	5

Self Evaluation

Poor				Great
1	2	3	4	5

Three things I learned that made me go... AH HA!

1. _____
2. _____
3. _____

As a result of my participation in this academy, I am going to ...

NATIONAL INSTITUTE FOR URBAN SCHOOL IMPROVEMENT

Resources

Ancess, J. (2000). The reciprocal influence of teacher learning, teaching practice, school restructuring, and student learning outcomes. *Teachers College Record, 102*(3), 590-619

This article discusses the reciprocal and dynamic relationship of teacher learning, teaching practice, school restricting, and student outcomes in three high performing public secondary schools for at-risk students. Student outcomes include improvement in student graduation rates, course pass rates, college admission rates, and academic course- taking rates. The article describes each school's context and the inquiry process that stimulated teacher learning; triggered changes in teaching practice, school organization, and student outcomes; expanded teacher learning; and extended improved outcomes to a wider population of students. It describes how the interaction of these variables produced practitioner knowledge that teachers used to benefit of student outcomes. It discusses how in each of the three schools teachers' learning was initially driven by their aspirations for specific student effects, which led them to develop and implement practices that drew on their school's culture, and their knowledge of their students, successful practice, and their content area. In each case teachers made changes in their teaching practice and in school and curricular organization. This article also identifies a set of contextual conditions that support this change process. Lastly, the article presents implications for researchers, reformers, and practitioners who aim to improve student outcomes by changing teacher practice and school organization. The article is based on findings from a five-year multiple-case study of how three high schools connect disenfranchised students to their future.

Brimijoin, K., Marquissee, E., & Tomlinson, C.A (2003). Using data to differentiate instruction. *Educational Leadership, 60*(5), 70-73

Part of a special issue on using data to improve student achievement. An overview of how one teacher uses assessment data to differentiate instruction is presented. The teacher uses multiple methods of data collection and believes her role as data collector is to determine students' prior understanding and achievement, track their responses to moderate challenges, and measure their outcomes against expected performance goals. She uses a wide array of pre-assessments when teaching new content and uses assessment to modify instruction so that each student is appropriately challenged. To prepare for state standards testing, she asks students to select topics that need more work and sets up centers to serve students' needs. In addition, this teacher uses assessment to target learner needs.

Brown, K. & Capp, E., Robert (2003). *Better data for better learning. Leadership, 33*(2), 18-19

A standards-based assessment program at Rocklin Unified School District in Rocklin, California, uses technology to link assessments directly to standards, producing timely reports that teachers and administrators can use to monitor student progress and hone the curriculum. The four steps involved in this program include distributing assessments to students, scanning their answers into

the classroom computer, using Web technology to collate the data, and using the data to quickly identify potential areas of concern.

Cabrera, A.F., Colbeck, C.L., & Terenzini, P.T. (2001). Developing performance for assessing classroom teaching practices and student learning. *Research in Higher Education, 43*(3), 327-354

Several states are requiring instructions to document changes in student outcomes. Regional and specialized accrediting agencies are also changing their review criteria from measuring inputs to assessing indicators of student learning. This article describes the results of an evaluation project that sought to develop performance indicators of learning gains for undergraduate engineering students. Specially, the study investigated the relationship between classroom practices and students' gains in professional competencies. More than 1,250 students from 7 universities participated. Findings show that the instructional practices of Instructor Interaction and Feedback Collaborative Learning, and Clarify and Organization are significantly and positively associated with gains in students' self-reported gains in problem-solving skills, group skills, and understanding of engineering as an occupation. The indicators meet several conditions recommended by the assessment literature. They are (1) meaningful to the user, (2) reliable and valid, and (3) index observable behaviors rather then subjective impressions.

Mason, Sarah (2002). *Turning Data into Knowledge: Lessons from Six Milwaukee Public Schools*. Wisconsin Center for Education Research, April 2002.

McTighe, J. & Thomas, R..S (2003). Backward design for forward action. *Educational Leadership, 60*(5), 52-55.

Part of a special issue on using data to improve student achievement. Schools can integrate improvement initiatives at the school and district levels by using a three-stage backward design process that looks back to key concepts and essential questions that underlie content standards. School improvement planning should begin with a consideration of desired learning results, making students' understanding of key concepts and searching for answers to provocative questions the primary goals of teaching and learning. The second stage of backward design involves school teams in analyzing multiple sources of data, rather than a single test, to assess whether students have achieved the desired learning. The final stage requires teachers to plan learning experiences that help students understand key concepts and requires school improvement teams to generate action plans to obtain the desired student achievement results.

NEA Foundation for the Improvement of Education Spring 2003 No. 5

Popham, J.W. (2003). The seductive allure of data: Using data to improve student achievement. *Educational Leadership, 60*(5), 48-51

This article examines how teachers can use classroom data to improve teaching and learning, focusing on how to determine if data is reliable and useful. Topics include designing instructionally useful educational test and analyzing data from standardized achievement tests.

Schmoker, M. (2003). First things first: Demystifying data analysis. *Educational Leadership, 60*(5), 22-24

If teachers are to determine which data can be used to improve teaching and learning, then they need to overcome experts' tendencies to complicate to use and analysis of student achievement data. Teachers can set the stage for targeted and collaborative efforts that can pay immediate dividends in terms of achievement gains if they know how many students are succeeding in the subjects they teach and the areas of strength or weakness within those subjects. However, the extended, district-level analyses and correlation studies that some districts conduct can result in over analysis and overload. This overload problem could be resolved by developing a simple temple for a focused improvement plan with annual goals for improving students' state assessment scores.

Taylor, B.M., Peterson, D.S., Pearson, P.D., & Rodriguez, M.C. (2002). Looking inside classrooms: Reflecting on the 'how' as well as the 'what' in effective. *Reading Teacher, 56*(3), 270-280

This article discusses a subset of findings from year 1 of a larger national study on school reform in reading (Taylor, Pearson, Peterson, & Rodriguez,2001) funded by the Center for the Improvement of Early Reading Achievement (CIERA). The purpose of the larger study was to evaluate the impact of all aspects of school reform on student performance. The purposes of the present, more focused analysis are to (a) describe the teacher practices we observed in the classrooms, particularly those that are derived from the research of the last four decades; (b) examine the relationship between teachers' practices and students' growth in reading achievement; and (c) provide vignettes that vividly describe what those practices look like in action.

Taylor, L.K. & Shawn, J.(2003). The long and winding road to accountability. *Leadership, 32*(3), 32-33.

The writers describe the Monrovia Unified School District's accountability system. This system involves data analysis and target-setting, monitoring progress, reports on progress, oral reports to the board of education, liaison support, and teacher evaluation. The accountability system has had an effort on instructional leaders and staff and has fostered an awareness of specific student needs, encouraged professional conversations about student work and instructional successes, and focused efforts across activities. Moreover, it has benefited students, as illustrated by improvements in student work, student engagement, and instruction.