Surveys of Enacted Curriculum

Tools for Aligning Instruction, Standards, & Assessments

“SEC Basics”
Surveys of Enacted Curriculum

SEC Collaborative Leader Training and Project Planning Meeting

Tempe
January 26-27, 2009
New Member Orientation

- **What?** … are the Survey of Enacted Curriculum tools?
- **How?** … are data collected, analyzed, reported?
- **Why?** … are SEC data useful to educators, leaders, researchers?
- **Now what?** … how do we implement locally and lead the use of SEC in schools?
New members: Session topics

- What is SEC? -- Rolf Blank
- What Collaborative does, Tools
- How to use SEC data charts– Jennifer Unger
- Introducing SEC locally and educator orientation to survey – Gary Money
State I Gr. 7 Mathematics Standards (2003)
All Content Areas

State I Gr. 7 Mathematics Assessment (2003)
All Content Areas

Alignment Index:
Re-centered

0.21
0.35

Number Sense
Operations
Measurement
Algebraic Concepts
Geometric Concepts
Data Analysis
Instructional Technology

Recall
Procedures
Demonstrate
Generate
Apply

Contour Interval = 2%
Re-centered Alignment uses aggregated data for each content area to perform calculation.
During the past 12 months, how much time have you spent engaged in professional development activities focused on English language arts, reading, or literature?

Workshops or in-service about teaching or learning English language arts, reading, or literature

Summer institutes or conferences about teaching or learning English language arts, reading or literature

<table>
<thead>
<tr>
<th>Group - Grade K-4</th>
<th>Group - Grade K-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 4</td>
<td>(11)</td>
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<tr>
<td>Grade 3</td>
<td>(248)</td>
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<tr>
<td>Grade 2</td>
<td>(234)</td>
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<td>Grade 1</td>
<td>(258)</td>
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<td>Grade 4</td>
<td>(16)</td>
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<td>Grade 3</td>
<td>(36)</td>
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<td>Grade 2</td>
<td>(40)</td>
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<tr>
<td>Grade 1</td>
<td>(43)</td>
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</tbody>
</table>

Response Code:

0 = not applicable
1 = 1-5 hours
2 = 6-15 hours
3 = 16-35 hours
4 = 36-60 hours
5 = 60+ hours
### K-12 Mathematics Content

**Basic Algebra** NAEP

#### Sample Selection:
- NAEP 05 Frmwrk Gr. 8
- NAEP 2007 Gr. 8

#### Report By:
- All Data

<table>
<thead>
<tr>
<th>Topic</th>
<th>2005 Coverage</th>
<th>2007 Coverage</th>
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</thead>
<tbody>
<tr>
<td>Absolute value</td>
<td></td>
<td></td>
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<tr>
<td>Use of variables</td>
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<tr>
<td>Evaluation of formulas, expressions, and equations</td>
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<tr>
<td>One-step equations</td>
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<td>Coordinate planes</td>
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<td>Patterns</td>
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<td>Multi-step equations</td>
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<tr>
<td>Inequalities</td>
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<tr>
<td>Linear and non-linear relations</td>
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<tr>
<td>Rate of change/slope/line</td>
<td></td>
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<tr>
<td>Operations on polynomials</td>
<td></td>
<td></td>
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<tr>
<td>Factoring</td>
<td></td>
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<tr>
<td>Square roots and radicals</td>
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<tr>
<td>Operations on radicals</td>
<td></td>
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<tr>
<td>Rational expressions</td>
<td></td>
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<tr>
<td>Multiple representations</td>
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</tr>
</tbody>
</table>

#### Student Expectations

1. Memorize Facts, Definitions, Formulas
2. Perform Procedures
3. Demonstrate Understanding
4. Conjecture, Analyze, Generalize, Prove
5. Solve Non-Routine Problems/Make Connections
6. Multiple representations

- **Not Covered**
- **< 0.5%**
- **< 1.0%**
- **< 1.5%**
- **>= 1.5%**
Key Question addressed by SEC Tools/Data

How can Educators obtain reliable, valid data to determine Alignment of instruction with required standards and assessments?
Surveys of Enacted Curriculum

- Standards
- Assessment
- Curriculum
The SEC Data-set

SUMMARY MEASURES

Content / Practice / Climate / Prof. Dev.
SEC Data Applications

- **Alignment analysis** – degree of consistency of Instruction, Standards, Assessments
- Instructional improvement in schools
- Needs assessment/ Evaluation
- Indicators – monitoring change over time
Surveys of Enacted Curriculum

The **intended** curriculum: State content standards—What students should learn

A neutral content grid with cognitive demand

The **enacted** curriculum: What teachers teach

The **learned** curriculum: Student outcomes based on school learning

The **assessed** curriculum: State (and other) assessments—tested learning
Welcome to SEC On-Line

The Surveys of Enacted Curriculum web site.

The purpose of this site is to encourage teacher reflection and conversation about classroom practice and instructional content.

About the Survey

Using a survey data collection and reporting model, teachers can compare their own practice and instructional content to responses by other teachers around the country and within their school or district.

Participating states, schools and districts are able to make use of aggregated teacher reports (individual teacher responses are disclosed only to the teacher) to develop a baseline of information about teacher practice in mathematics, science and English language arts, or to inform professional development or school improvement planning efforts.

Registration Guide
INSTRUCTIONAL ACTIVITIES IN MATHEMATICS

Listed below are questions about the types of activities that students in the target class engage in during mathematics instruction. For each activity you are asked to estimate the relative amount of time a typical student will spend engaged in that activity during classroom instruction over the course of a school year. The activities are not necessarily mutually exclusive; across activities your answers will undoubtedly greatly exceed 100%. Consider each activity on its own, estimating the range that best indicates the relative amount of instructional time that a typical student spends over the course of a school year engaged in that activity.

<table>
<thead>
<tr>
<th></th>
<th>How much of the total mathematics instructional time do students in the target class spend on:</th>
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</thead>
<tbody>
<tr>
<td>25</td>
<td>Watch the teacher demonstrate how to do a procedure or solve a problem.</td>
</tr>
<tr>
<td>26</td>
<td>Read about mathematics in books, magazines, or articles (not textbooks).</td>
</tr>
<tr>
<td>27</td>
<td>Take notes from lectures or the textbook.</td>
</tr>
<tr>
<td>28</td>
<td>Complete computational exercises or procedures from a textbook or a worksheet.</td>
</tr>
<tr>
<td>29</td>
<td>Present or demonstrate solutions to a math problem to the whole class.</td>
</tr>
<tr>
<td>30</td>
<td>Use manipulatives (e.g., geometric shapes or algebraic tiles), measurement instruments (e.g., rulers or protractors), and data collection devices (e.g. surveys or probes).</td>
</tr>
<tr>
<td>31</td>
<td>Work individually on mathematics exercises, problems, investigations or tasks.</td>
</tr>
<tr>
<td>32</td>
<td>Work in pairs or small groups on mathematics exercises, problems, investigations or tasks.</td>
</tr>
<tr>
<td>33</td>
<td>Do a mathematics activity with the class outside the classroom.</td>
</tr>
<tr>
<td>34</td>
<td>Use computers, calculators, or other technology to learn mathematics.</td>
</tr>
<tr>
<td>35</td>
<td>Maintain and reflect on a mathematics portfolio of their own work.</td>
</tr>
<tr>
<td>36</td>
<td>Take a quiz or test.</td>
</tr>
</tbody>
</table>
Multi-State Collaborative

- Build Knowledge of leaders
- Share Strategies
- Produce joint products, tools
SEC Collaborative offers

Core Components of SEC tools/services

1) Surveys with teachers – report instruction
2) Alignment analysis – content code standards and assessments
3) How to use Data – knowledge, skills
4) Leader development – 2-3 meetings/yr
4) In-state workshops: a) orientation
   b) use of data
States /Districts Active with SEC Tools and Data: 2001 - present

- Alabama
- Arkansas
- California
- Delaware
- Idaho
- Illinois
- Indiana
- Iowa
- Kansas
- Maine
- Massachusetts
- Michigan
- Minnesota
- Mississippi
- Missouri
- Montana
- New Hampshire
- New York
- North Carolina
- Ohio
States /Districts Active with SEC Tools and Data : 2001 - present

- Oklahoma
- Oregon
- Pennsylvania
- Tennessee
- Texas
- Utah
- Vermont
- Virginia
- West Virginia
- Wisconsin
SEC Collaborating Organizations

- Council of Chief State School Officers
  www.SECsurvey.org

- Wisconsin Center for Education Research
  www.SEConline.org

- Learning Point Associates
  www.SECsupport.org

- TERC Using Data Project
  www.ra.terc.edu/DEC
SEC Collaborating Organizations

- Measured Progress
  www.measuredprogress.org

- The College Board
  www.collegeboard.com
SEC Collaborative

States, Districts

CCSSO – SEC Collaborative Management
   Rolf Blank, Carlise Smith

WCER – Surveys, Reporting, Alignment analysis
   John Smithson, Alissa Minor, Eric Osthoff

Training & Technical Assistance
   Carolyn Karatzas, Consultant, CCSSO
   Diana Nunnaley, TERC
   Gary Money, Maren Harris, Learning Point Associates
   Lani Seikaly, Hillstreet & Main
   Jennifer Unger, The Groupworks

   Michael Erhlinghaus, Measured Progress
SEC by the Numbers: ’07-08

12,100  SEC Teacher Surveys  (30 states)
   Math
   Science
   ELAR
   Soc Stud
   ELD  (SEC ELL Consortium)

140   Standards or Assessment documents
      Alignment analysis
SEC by the Numbers (2)

• By Comparison

  1996    207    Science Teachers (5 states)
  1999    626    M/S Teachers (11 states)
  2005   5,414    E, M, S teachers
  2006  10,200    E, M, S teachers
  2007  10,400    E, M, S, SSSt (27 states)
SEC Collaborative

How SEC Collaborative works for members

- Training and Assistance to project leaders
- Project Planning w/ budget– meet local objectives
- Each state/district makes decisions on services & project plan
- Multi-state benefits of collaborative
  e.g., learning from experience, sharing ideas, training
Accomplishments
SEC Collaborative 07-08

- Link SEC Data, Tools, Process to School Improvement initiatives
- September 08 Using Data to Improve Instruction
- Leader Training curriculum/materials
- Orientation, Data use training and Leader training based on *SEC Leader Development Standards (07)*
- Website developments, improvements (SECsurvey.org; SEConline.org)
- SEC ELL Consortium project (US ED EAG)
- SEC Self-Guided Tour – with SEConline.org
More Accomplishments
SEC Collaborative

- SEConline.org operating in 4 subjects
- Developing SEC ELL new component
- NAEP Alignment content analysis – 2007 Math available
- Ohio SEC project
  - Fostoria case study on implementation
  - Follow-up database – to track local use of SEC
  - Validity study—longitudinal data analysis for teachers and students
  - Training materials development
Goals SEC

- State/local projects—From pilots to broad application, local leadership training
- Integrate SEC tools/data with Improvement Initiatives, especially data-driven [note-- Joint Proposal to NSF]
- Research/Evaluation --Broader use of Surveys in research, and use in Alignment studies
- Assist States in planning with Service delivery agencies; SEC team with CACs & Labs
- Develop and implement new tools and services to assist users (e.g. SEC ELL to SEConline.org system)
- Improve dissemination/marketing of SEC
Survey Sections

- School & Class Description
- Instructional Activities
  - General
  - Problem Solving Activities
  - Pairs & Small Group Work
  - Use of Hands-on Materials
  - Use of Calculators/Computers & other Ed. Tech.
- Assessment Use
- Instructional Influences

- Instructional Readiness
- Teacher Opinions
- Professional Development
  - Types, Frequency
  - Content, Active,
  - Collegial, Coherence

- Instructional Content
  - Topic x Cog. Demand
Steps in SEC Development

- R&D studies curriculum-- Early ‘90s
- Models: TIMSS, NAEP, Analyze assessment
- OTL interest of States, Porter/Smithson research, CCSSO Science Assessment project
- State collaborative – Develop surveys-’98-’01 (NSF)
  11-State field study, Reports, Alignment, USI
- Use of data experiment – DEC (NSF/ROLE:‘01-04)
- Evaluation: MSP RETA PD Study (‘02 – 05, NSF)
- English/Language Arts survey (‘03 – 04)
- Current projects: 15 States, 4 Districts, 5 MSPs
Questions Addressed by SEC Data

- How can in-depth data on content of instruction be collected and reported—not topic checklists, to analyze teaching content in relation to standards, assessments, achievement?

- How can methods of teaching practices be compared across classrooms, schools, districts, and states?

- How can enacted curriculum data be reported in a manner to encourage use by teachers to improve instruction?
Key Education Questions (cont’d)

- How can we measure the effects of standards-based initiatives on instructional practices and curriculum in classrooms?
- How can we analyze effectiveness of professional development on changes in teachers’ instructional practices? (i.e. determine the quality of professional development)
What if... [for Intro of SEC to Educators]

- You could use data on instructional quality and content to guide professional development?
- You could have consistency across grade levels?
- You could know how well aligned your state standards were to the state assessment?
- You could compare how you teach content compared to how others across the nation teach?
- You could use anonymous teacher data to start a powerful school discussion about what the teacher needs are?
Uses a multi-dimensional language for describing instructional content

SEC Instructional Content

Topics by Cognitive Demand
(Expectations for Student Learning)
### Categories of Cognitive Demand

<table>
<thead>
<tr>
<th>Topics</th>
<th>Memorize</th>
<th>Perform Procedures</th>
<th>Communicate Understanding</th>
<th>Solve non-routine problems</th>
<th>Conjecture/Generalize/Prove</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Step Equations</td>
<td></td>
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<tr>
<td>Inequalities</td>
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<tr>
<td>Literal Equations</td>
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<tr>
<td>Lines / Slope and Intercept</td>
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<tr>
<td>Operations on Polynomials</td>
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<tr>
<td>Quadratic Equations</td>
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</tbody>
</table>
## Science content matrix

<table>
<thead>
<tr>
<th>Topics</th>
<th>Categories of Cognitive Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of Science</td>
<td>Memorize facts, definitions</td>
</tr>
<tr>
<td>Meas/Calc. in Science</td>
<td></td>
</tr>
<tr>
<td>Life Science</td>
<td></td>
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<tr>
<td>Physical Science</td>
<td></td>
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<tr>
<td>Earth Science</td>
<td></td>
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<tr>
<td>Chem/Biol/ Physics (HS)</td>
<td></td>
</tr>
</tbody>
</table>
Memorize  
Perform  
Communicate  
Conjecture  
Connect

State J Grade 8  
Mathematics Instruction

Number Sense  
Operations  
Measurement  
Algebraic Concepts  
Geometric Concepts  
Data Analysis  
Instructional Technology

Content Maps
Surveys of Enacted Curriculum

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The **enacted** curriculum: What teachers teach

The **learned** curriculum: Student outcomes based on school learning

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Survey results are also reported for individual survey items, and disaggregated by seven distinct categories: grade level, level of student achievement, amount of teacher professional development, percent minority, percent female, percent LEP and class size.
Survey results can be summarized using a collection of Instructional Practice and Characteristics Scales.

Results are displayed using floating bar charts to report mean and standard deviation results to describe variations in teacher responses.

Legend

- Mean
- -1 Std
- +1 Std
- Bar spans 2/3 or more of responding teachers
State | Gr. 7 Mathematics Standards (2003)
All Content Areas

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SEC Websites

CCSSO, SEC Collaborative
www.SECsurvey.org

WCER, SEC Online Survey and Reports
www.SEConline.org