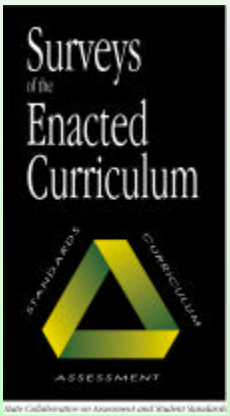

Surveys of Enacted Curriculum: Tools and Services to Assist Educators

Council of Chief State School Officers
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Surveys of Enacted Curriculum: Tools and Services to Assist Educators

Prepared by

CCSSO SEC Collaborative Project

2005

SEC Project partners include: State Departments of Education, Council of Chief State School Officers, Wisconsin Center for Education Research, Learning Point Associates/NCREL, and TERC Regional Alliance

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COUNCIL OF CHIEF STATE SCHOOL OFFICERS

The Council of Chief State School Officers (CCSSO) is a nonpartisan, nationwide, nonprofit organization of public officials who head departments of elementary and secondary education in the states, the District of Columbia, the Department of Defense Education Activity, and five U.S. extra-state jurisdictions. CCSSO provides leadership, advocacy, and technical assistance on major educational issues. The Council seeks member consensus on major educational issues and expresses their views to civic and professional organizations, federal agencies, Congress, and the public.

DIVISION OF STATE SERVICES AND TECHNICAL ASSISTANCE

The Division of State Services and Technical Assistance supports state education agencies in developing standards-based systems that enable all children to succeed. Initiatives of the division support improved methods for collecting, analyzing and using information for decision-making; development of assessment resources; creation of high-quality professional preparation and development programs; emphasis on instruction suited for diverse learners; and the removal of barriers to academic success. The division combines existing activities in the former Resource Center on Educational Equity, State Education Assessment Center, and State Leadership Center.

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SEC Tools: What are Surveys of Enacted Curriculum?

The Council of Chief State School Officers (CCSSO) partnered with Andrew Porter and John Smithson of Wisconsin Center for Education Research (WCER) to develop an advanced, in-depth approach to collecting and reporting data on the "enacted curriculum" in K-12 math and science, i.e. the actual subject content and instructional practices experienced by students in classrooms. The set of tools are called the Surveys of Enacted Curriculum (SEC). We have conducted research and testing of enacted curriculum survey tools with schools and teachers. As a result, we are now able to offer the survey tools and a range of related data services to states and districts. The two organizations are collaborating with the Learning Point Associates and TERC Regional Alliance to disseminate the SEC tools and services to education systems and to assist schools, districts, and states in using these new tools for improving K-12 education.

The Surveys of Enacted Curriculum are designed to provide reliable, comparable data that are collected at the classroom level with teachers and students. The Surveys are available for English Language Arts, Mathematics, and Science at the elementary, middle, and high school levels. The SEC data analysis and reporting tools are intended to assist teachers, administrators, and policymakers with planning for instructional improvement in several ways:

1. Align curriculum with standards and system-wide assessments.
2. Monitor indicators of instruction and relationship to student achievement.
3. Analyze differences in instruction and content across schools and classes, and identify improvement strategies through school leadership teams.
4. Evaluate effects of initiatives, such as professional development, in changing math and science practices.

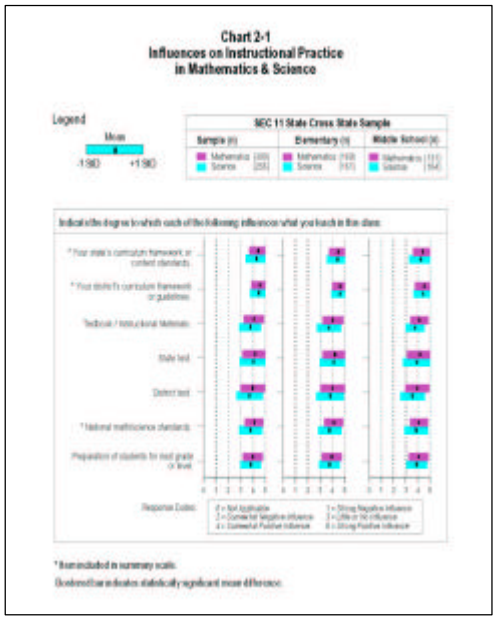
The SEC tools and services have been developed with assistance from many educators and researchers. The data collection instruments were field-tested in several hundred schools. The research and development process has been supported by states, the National Science Foundation, and the U.S. Department of Education.

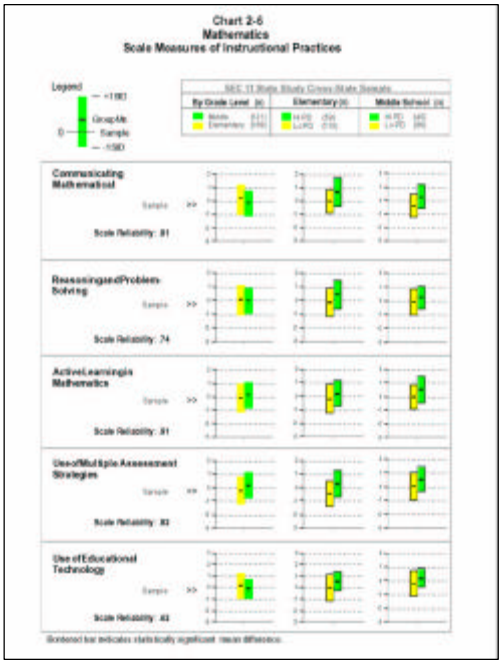
Services Available

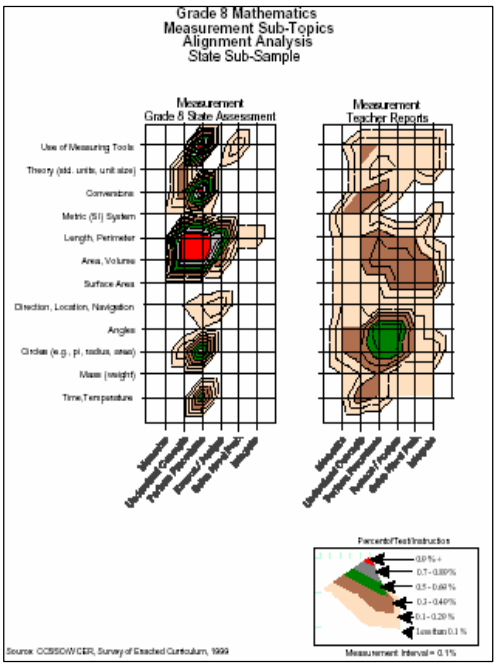
Teacher and student surveys: The survey instruments are designed for self-report by teachers at elementary, middle or high school levels. Two major components of the teacher surveys are: a) Subject content of instruction, and b) Instructional activities and teacher preparation. Student survey items assist in validation, and are typically administered to a sub-sample of classes. A school system could choose sections of the teacher surveys for their specific needs. The complete survey requires average of 1.5 hrs. for a teacher to complete. An on-line, web-based survey system is available.

Data collection, input, and analysis: Field tests and prior data collection show distinct advantages of survey administration on-site. Teachers and administrators should receive orientation beforehand on the intended uses of data for evaluation and school improvement. Paper survey forms can be used, with data input through a scanner. The web-based survey provides an alternative data entry, analysis and reporting mode. Data analyses focus on differences in curriculum content and instructional practices across classrooms, schools, and districts. Between teacher comparisons are possible. Item profiles and scales are analyzed by characteristics of schools (e.g., level, enrollment, reform initiative, student demographics) or by teacher characteristics (e.g., high professional development in subject vs. low professional development).

Reporting formats useful to educators: User-friendly graphics and charts have been developed to facilitate comparison of math and science instruction with state standards or local goals for improvement. School leadership teams, curriculum specialists, administrators, and policymakers can use the survey data reports to track effects of initiatives on classrooms, or identify areas of improvement efforts. The CCSSO/WCER analysis and report methods include analysis of alignment of instruction with state or local assessment instruments.







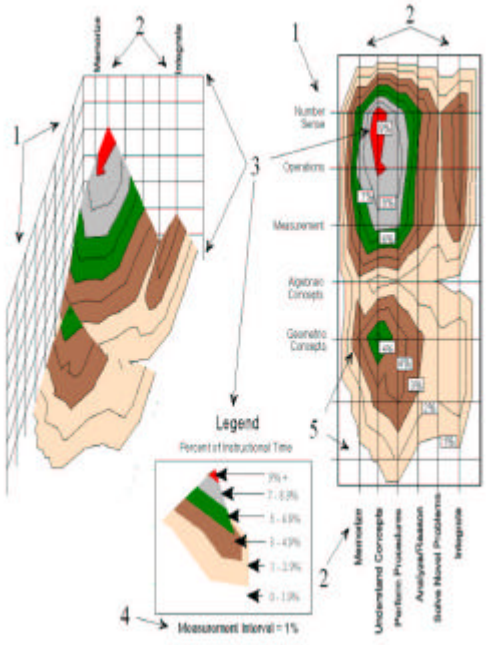
Designs for professional development and assistance to schools: The SEC collaborative provides models for workshops with teachers and school leaders based on use of enacted curriculum data and reports. Our designs include strategies for leadership in analysis of data within schools and methods of using cooperative inquiry-based approaches for improving instruction (see CCSSO website for links to presentations on several models: www.SECsurvey.org). CCSSO is leading a three-year study, with support from the National Science Foundation, to test the effects of using enacted curriculum data with school teams as a strategy for professional development to improve instruction in math and science. The model is being tested with 40 middle schools in large, urban districts. Other models for using the curriculum data and integrating with existing professional development are available.

- All of the SEC tools and services, and our list of publications, can be reviewed on the CCSSO SEC website — http://www.SECsurvey.org
- An online, web-based version of the Surveys and reports is now available through Wisconsin Center for Education Research — http:///www.SEConline.org
- Learning Point Associates established a website for increasing access of SEC for local educators http://www.SECsupport.org/
- The SEC mathematics and science instruments and materials are also available on compact disc—**SEC-CD**— to provide locally-directed surveys and applications (Contact CCSSO publications, 202/336-7016; www.CCSSO.org/Publications)

Topics Covered by Surveys. The major concepts underlying the designs for the Surveys were drawn from state and national content standards, state initiatives in science and mathematics education, and prior research studies on classroom instructional practices and curriculum content. Each of the following topics can be addressed with the results of the Enacted Curriculum Surveys. The response data on each topic can be used to analyze instruction by the

amount of time spent teaching, differences among schools and classrooms, or by characteristics of students or differences in preparation of teachers.

- Active Learning in Science
- Problem Solving in Mathematics
- Instructional Activities in classrooms, e.g., small groups, manipulatives, investigations
- Mathematics and Science Content in Classrooms (see adjacent "content map" reporting format)
- Multiple Assessment Strategies in Math and Science
- Use of Education Technology and Equipment
- Teacher Preparation in Subject
- Quality of Professional Development
- Influences of Policies and Standards on Practice
- Alignment of Content and Standards / Assessments



SAMPLE SECTIONS FROM SURVEY: MIDDLE SCHOOL MATHEMATICS

Time on Topic	*Middle School Mathematics Topics*	*Expectations for Students in Mathematics*					
<none>	Number sense / Properties / Relationships	Memorize	Understand Concepts	Perform Procedures	Analyze / Reason	Solve Novel Problems	Integrate
0 1 2 3	Place value	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
0 1 2 3	Whole numbers	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
0 1 2 3	Operations	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
0 1 2 3	Fractions	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
0 1 2 3	Decimals	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
0 1 2 3	Percents	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
0 1 2 3	Ratio, proportion	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
0 1 2 3	Patterns	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
0 1 2 3	Real numbers	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
0 1 2 3	Exponents, scientific notation	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
0 1 2 3	Factors, multiples, divisibility	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3
0 1 2 3	Odds, evens, primes, composites	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3	0 1 2 3

Research and Development

Survey Methodology

The curriculum surveys and data analysis services being offered were developed through CCSSO's State Collaborative on Assessment and Student Standards (SCASS) on Surveys of Enacted Curriculum, and through research and development conducted by Porter and Smithson at the Wisconsin Center. A multi-state team of educators, assessment specialists, and researchers worked with project leaders at CCSSO and WCER to write, review, and field test math and science surveys over a four-year period (1994-1998). The development work for math and science was supported by states and the National Science Foundation. The development of the English language arts version of the surveys and reports was developed in 2002-03 through support of states, U.S. Department of Education, and Learning Point Associates/ NCREL.

The surveys are based on state and national standards for content and teaching, as well as prior well-tested survey instruments, including TIMSS, NAEP, and National Survey of Science and Math Education (Horizon Research). Survey instruments were thoroughly field tested to ensure reliability and validity of the data.

A large field study was conducted with schools and teachers in 11 states to test and improve both the survey instruments and the data reporting methods and formats. More than 600 teachers completed self-report surveys that covered the subject content they taught and the instructional practices they used in their classes. From 2001-04, a CCSSO-led team conducted an experimental design study with 40 urban middle schools to develop and test a professional development model for improving instruction in math and science through use of Data on Enacted Curriculum (Blank, 2004)

Teachers participating in the Surveys report on a full school-year of teaching in English language arts, science or math. The data are analyzed and reported using pre-designed and tested charts and graphs found to be accessible and useful to educators as well as researchers. The survey method was validated by comparing teacher survey results, which require recall of instructional content and practices for a full school-year, with teacher reports using daily logs, independent observation, and teacher survey reports. This study found that data reported about curriculum content in teacher surveys covering a whole year were highly correlated with the data from daily logs of instructional content (Smithson and Porter, 1994).

Findings from Research and Development

Results from existing studies with Surveys of Enacted Curriculum show that educators can use the surveys and methods of analyzing data to address several kinds of problems and needs (Blank, et al., 2001; Porter, 2002; Blank, 2004). Specifically, the research studies show that SEC instruments and reports do address educators' needs for comparable, reliable data and analyses of math and science instruction. The results show that the data:

- Demonstrated a high degree of variation in instructional time, practices and content of math and science from state to state, from school to school, and within schools.
- Curriculum taught in math and science differed according to amount of standards-based professional development in schools and level of implementation of state reform initiatives.
- The method of surveying teachers using a "content matrix" based on standards, and then analyzing content of assessments using the same tool, showed strong potential for application in districts and states for measuring progress of standards-based math and science.
- The comprehensive design of the surveys proved useful in analyzing the relationship of curriculum content and pedagogy to level of preparation of teachers, professional development, and school conditions for teaching.

(See, Blank, Porter, & Smithson, *New Tools for Analyzing Teaching, Curriculum and Standards in Mathematics & Science,* CCSSO, 2001).

To view this report and other SEC reports and materials, go to the CCSSO website: http://www.ccsso.org/projects/Surveys of Enacted Curriculum.

Applications – Needs of Educators Addressed by SEC

For education decision-makers, we group applications of SEC Tools and Services into five categories; no doubt other groupings are possible. We find that these five categories address the main types of needs and problems in K-12 education for which these tools and services are appropriate and helpful:

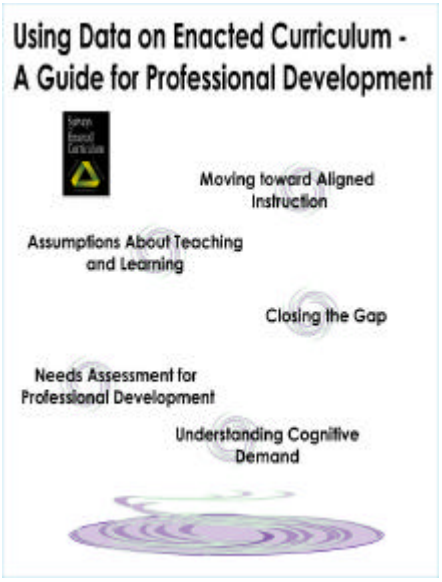
1) Monitor indicators of instruction and relationship to student achievement

Data are collected using standard, self-report teacher surveys across classrooms and schools to allow comparison of science and math instructional practices and subject content. Standard instruments and survey items are used. A web-based survey and data collection is now being tested, but paper forms are available. Data can be analyzed by characteristics of schools (e.g., level, enrollment, reform initiative) by grade level within a school or across schools, or by teacher characteristics (e.g., high professional development in subject vs. low professional development).

Student achievement data from local or state assessments can be reported along with the curriculum and instructional data from SEC tools. Repeat administration and use of the surveys allows schools and districts to analyze extent of change or improvement in instructional practices, and achievement, over time (e.g., annual survey or every two years). Monitoring of change in practices can be school or by teacher (if teachers are identified).

Components of SEC for this application are:

- Planning (local leaders gain information about surveys and services, plan their use)
- Orientation of Users (introduce surveys to administrators and teachers, demonstrate data uses)
- Data Collection with Surveys (on-line or paper)
- Analysis and Report on Instruction and Achievement Results (analyze teacher responses on practices and subject content; guide for data interpretation; graphics for data display)
- Repeat data collection and reporting annually, or biennially.



2) Obtain survey instruments to collect enacted curriculum data

Districts or states may want to obtain the SEC survey instruments and collect and analyze the data using the data analysis methods and formats developed by CCSSO and WCER. The surveys are available on a SEC-compact disc (CD) as well as the analysis and report format, and they will be available on the CCSSO website.

Options:

- Purchase SEC- CD (from CCSSO Publications)
- Access the CCSSO/WCER on-line SEC web-based surveys and report system http://www.SEConline.org

Local districts or states would administer the surveys and conduct analysis of data using the models and data software provided on the CD or by gaining access to the on-line version of the tools.

3) Align curriculum with standards or assessments

Almost every state, and many districts, has developed content standards for student learning. The enacted curriculum surveys can provide a database for monitoring the degree to which classroom curriculum is moving toward the standards. States and districts are finding that one of the key benefits of the SEC tools is the capacity for analyzing the degree of intersection between the science and math subject curriculum content as taught in classrooms and content as tested on statewide or district-wide assessments. Procedures have been developed for content coding the assessments into the same content matrix used for the teacher survey providing teacher-reported data on what is taught. A mapping software from MS Excel is used to portray the degree of alignment between instructional content and assessed content. We recommend that districts organize a workshop for schools and teachers to analyze and interpret the results.

Components:

- Planning
- Orientation of users
- Data collection
- Analysis and report, including Alignment analysis
- Interpretation of data through Workshop with school leadership teams and teachers

See Porter and Smithson's recent paper (2002) for explanation of the SEC content coding and alignment methodology and procedures.

4) Analyze differences in instruction among schools and classrooms, and assist school leadership teams to identify instructional improvement strategies

CCSSO, WCER, and TERC recently conducted a project with 40 middle schools aimed toward developing a model for improving instruction in math and science with use of the enacted curriculum data (Blank, 2004). The project was supported by a grant from National Science Foundation.

The model involved school leader teams, teacher surveys, data reports for each school, school-based workshops, and technical assistance. The professional development leadership and technical assistance was provided by TERC Regional Alliance, and the model was based on their prior work on data-driven instructional improvement (Love, 2000). In year 2 and 3 of the study, the team collected data from teachers to measure the extent of change in instructional practices and curriculum content.

Components:

- Planning
- Orientation of users
- Data collection
- Analysis / Report-- S-M Instruction, Alignment
- Interpretation of data / PD Workshop
- Technical assistance (visits to schools over 18 month period, follow-up workshops)
- Repeat data collection and analysis after 2 years

5) Evaluate standards-based initiatives, e.g., professional development, to assess needs, determine effects, and assist planning

Educators and decision-makers need reliable tools for evaluating the effects of initiatives aimed toward improving teaching practices and increasing student learning. The enacted curriculum surveys can provide a tool for identifying needs, determining effects on curriculum, or planning programs. In science and math, many states and districts have developed professional development models to improve teachers' knowledge of subject content and their skills in teaching math and science. Methods of evaluating change in practices that provide valid, comparable results are difficult to design and implement.

The SEC tools provide efficient survey-based methods of collecting data on current teaching practices, characteristics of teachers, and information on their professional development experiences, and then tracking change over time through repeat administrations of surveys. The effects of initiatives can be compared across schools and districts, and differing characteristics of teachers.

Components:

- Planning
- Orientation of users
- Data collection
- Analysis / Report-- S-M Instruction and Experience of teachers with initiative
- Interpretation of data in Workshop (survey reports provide key step in improving PD process)
- Repeat data collection and analysis at end of initiative, or after one year or two years experience

Operational Plan-- Assisting education systems to use SEC tools and services

Educators or administrators may have obtained information about the SEC tools and services in a variety of ways. Requests from education systems to obtain SEC tools and services can be made through one of three routes:

Direct contact inquiry for information or assistance to one of the staff at CCSSO or WCER by phone, email, or letter. In response, we would:

- Discuss the requested services, and needs to be met, with users by phone or email
- Email sample materials and descriptions of services
- Negotiate arrangements to use surveys and services, determine method of support and payment, set schedule for providing services, send contract to user (see attached spreadsheet analysis of costs)
- Project manager (from CCSSO or WCER) will be assigned to each participating site

Purchase SEC-CD (containing all survey instruments, reports, papers, and professional development materials); or purchase hard-copy report or other publications from CCSSO.

- Contact CCSSO publications office by phone or through CCSSO website

Access On-line, Web-based SEC system - Steps in conducting data collection and receiving reports:

- School users review surveys and report options; make decisions on grades, subject, sections to be used; and complete request form on-line (sent to central server/ data manager for processing)
- Manager confirms requested services and arrangements, and transmits contract amount
- Method of payment (e.g., purchase order or credit card) returned by user
- Access code provided by manager to user for web surveys
- Procedures and schedule relayed to user
- Names and credentials of staff/consultants, and contact information are provided for partners that will provide assistance with local analysis/interpretation, technical assistance or workshop services
- Teachers complete surveys on-line within designated time period
- On-line feedback to users with comparison of individual responses with total sample
- Data analysis based on pre-designed format conducted centrally, if requested and paid
- Analytical report delivered by email attachment – based on school/district responses

Costs

Estimates of the costs for obtaining SEC tools and services under each category are available from CCSSO. The cost estimates for each separate component are available as well. We encourage users to select the model or application that fits local or state needs and to arrange for the components needed in their system. See the CCSSO website for cost breakdown of the SEC tools and services-- http://www.SECsurvey.org.

For assistance in planning for your district or state, contact Rolf K. Blank, CCSSO Director of Education Indicators, rolfb@ccsso.org (202/336-7044), or one of the contacts with our partner organizations.

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