SCALE Quality Indicator System

Norman L. Webb
Wisconsin Center for Education Research
Annual Meeting of the American Educational Research Association
Montreal, April 11, 2005
Purposes for the Indicator System

1. monitor the progress of the four partner school districts

3. to judge the degree SCALE attains specified benchmarks; and

5. report information to NSF to comply with the MIS requirements.
SCALE Evaluation Indicator System

**Input**
- Context
- District
- School
- Teacher

**Capacity**
- Project SCALE
- University

**Action**
- Opportunity To Learn
  - Student Disposition To Learn

**Student Outcomes**
- Student Achievement
- Student Participation
SCALE Main Goals Drive the Development of the SQIS

Goal 1  Students experience deep, conceptually based instruction
Teachers
Schools
Student achievement and participation

Goal 2  Students annually engage in an extended scientific investigation

Goal 3  Teachers participate in STEM-IHE professional learning

Goal 4  Education of all students becomes more equitable
Main components of the SQIS

1. Student Achievement
2. Student Participation
3. Instructional Activities
4. Teachers (Background and Knowledge)
5. Teacher Professional Learning
6. School
Sample Indicator
Rate of Change in Percent Proficient by Grade
Madison Metropolitan School District

<table>
<thead>
<tr>
<th>Grade</th>
<th>Mathematics</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 4</td>
<td>-2.80</td>
<td>-5.10</td>
</tr>
<tr>
<td>Grade 8</td>
<td>-0.10</td>
<td>-1.60</td>
</tr>
<tr>
<td>Grade 10</td>
<td>-0.80</td>
<td>-0.80</td>
</tr>
</tbody>
</table>
Sample Indicator
Rate of Change in Percent Proficient
Grade 4 by Ethnicity
Madison Metropolitan School District

<table>
<thead>
<tr>
<th>Grade 4</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Am Indian</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>3.30</td>
</tr>
<tr>
<td>Black</td>
<td>3.30</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-2.00</td>
</tr>
<tr>
<td>White</td>
<td>-2.00</td>
</tr>
</tbody>
</table>
Sample Indicator
Inquiry-Based Learning Scale

Scale Points
- Rarely/Never (1)
- At Least Once a Month (2)
- At Least Once a Week (3)
- 2-3 Times a Week (4)
- Almost Daily (5)

Denver (N=68)
- Mean 2.74
- S.D. .607
- r .84
Sample item on the Inquiry-based Learning Scale

2. How often did students in a typical class last year explain their reasoning, whether written or verbal?

<table>
<thead>
<tr>
<th>Location</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denver (N=68)</td>
<td>3.41</td>
<td>.909</td>
<td>2 of 15</td>
</tr>
<tr>
<td>Madison (N=333)</td>
<td>3.42</td>
<td>.990</td>
<td>1 of 14</td>
</tr>
</tbody>
</table>
Challenges

- Development of Reliable and Valid Instruments
- Aggregation of data in a meaningful way
- Have district buy-in