**IMSP Evaluation Framework Component 1 - CCSSO PD Outcomes**

<table>
<thead>
<tr>
<th>Evaluation Outcome Area</th>
<th>Questions for consideration</th>
<th>Measures for consideration</th>
<th>Advice</th>
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</table>
| A. Quality of PD Activity | Go beyond the traditional:  
• Did they like it?  
• Was the room the right temperature?  
• Were there enough diet drinks?  
• Was their time well-spent? How will you know this?  
• Were the activities consistent with goal? Were the goals clearly ‘explained’?  
• Did the material make sense?  
• Will it be useful?  
• Was the leader knowledgeable and helpful?  
• Was the content appropriately and clearly linked to standards—both for teachers (CAS) primarily, and students (ILS)  
• Was the course taught at the appropriate level? Innovatively?  
• Was the course linked to teachers’ classrooms? Innovatively  
• Was the content presented with effective pedagogy?  
• How were the best practices for instruction modeled? Which ones? How well? Innovatively?  
• How were the challenges to quality identified/addressed/resolved? How quickly?  
• What was the quality of the institute organization and presentation? (CPS); To what extent are teachers’ experiences in the program’s professional development opportunities of high quality? (PNNM); How could these experiences be improved? (PNNM)  
• In what ways could the professional development opportunities offered through this program be enhanced to further address teachers’ needs and/or provide them with support? (PNNM)  
• Was an effective learning environment provided? (CPS) | 1. CCSSO Evaluation Tools for Professional Development:  
2. CCSSO PD Program Quality Rubric:  
See especially these reports on the use of the PDAL: http://www.pdal.net/inc/docs/MSP_PDStudy.pdf  
5. Course Evaluations* | Check the professional development standards in the National Science Education Standards and the NCTM, Principles and Standards for School Mathematics as useful references for evaluating professional development.  
How does the Appendix B definition of professional development expand the scope of your partnership design?  
Consider coherence factors: such as the coherence and alignment of curricular resources, current/future classroom facilities, to School Improvement goals, and needs whether teacher-identified or from student achievement analysis.  
*Course evaluations will have to be treated significantly more innovatively than the traditional student evaluations of courses. |
<table>
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<tr>
<th>B. Change in Teacher Content Knowledge</th>
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<tbody>
<tr>
<td>From PSSM: How can teachers learn what they need to know (p. 370)</td>
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<tr>
<td>From IMSP-Benchmarks</td>
</tr>
<tr>
<td>50 percent cumulative increase in specific scientific, mathematical, and engineering (SME) content expertise, including pedagogical content knowledge and leadership qualifications to be demonstrated through at minimum pre- and post-test methodologies, etc.</td>
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</tbody>
</table>

| Did participants acquire the intended knowledge and skills? Innovatively? |
| To what extent and with what quality are teachers implementing their new content knowledge and skills (e.g., increased use of inquiry-based science instruction, mathematics problem-solving strategies, etc.)? (PNNM) |
| To what extent have teachers’ attitudes about sc/math and teaching s/m? |


1Primarily designed for teachers, could be used for students. No tests available for life science.  
2Available for middle and elementary math teachers, and middle school science (4 content domains; life, physical and earth/space) developers suggest use for determining teacher knowledge growth over time, and to identify areas of weakness that can be addressed w/further PD  
3Looks at science and pedagogical content knowledge, but in very limited content areas: Force and motion, Plate tectonics, flow of matter and energy in living systems. For middle school teachers.  
4Mathematics content only, elementary number and operations, algebra, geometry  
5Examples from Rachel Shefner Develop strong Action Research scaffolding
C. Change in Instructional Practices or Curriculum

i. classroom level of the teacher as a participant and in the classrooms they teach

ii. school building level, collectively

iii. district level

iv. at the IHE

- 50 percent cumulative increase in confidence, effectiveness, and utility of pertinent science, mathematics and engineering teaching skills, technologies, and applications to be demonstrated through self-reflective journals, interviews, and action research, and data trends, etc.

- 50 percent cumulative increase in application of findings, evaluation of personal utility, and development of critical questioning skills for analysis of pertinent scientifically based educational research for teaching and learning mathematics and science to be demonstrated through scaffolded reflections, journals, interviews, etc.

- 50 percent cumulative increase using measures identified for sustained excellence and support of content expertise in high-need LEAs, including:
  - 50 percent increase in administrative programmatic support measures for scheduling, preparation, and evaluating the quality mathematics and science teaching and learning, to be demonstrated through pre-post surveys and interviews, etc.
  
  - 50 percent increase in collaborative decision-making measures between participating teachers and administrators to improve the quality of mathematics and science teaching and learning, with specific focus on deliberate collegial connections to professional development among professional staff and resolution of issues associated with teaching and learning settings, to be demonstrated through pre-post surveys and interviews, etc.

- Did participants effectively apply the new knowledge and skills?

  - How did the partnership activities impact participants in their roles as teacher leaders and/or as classroom teachers? (CPS)
  
  - How did the partnership activities contribute to teacher leaders’ ability to support math and science inquiry in schools and classrooms? (CPS)
  
  - How did participation contribute to building a professional learning community? If so, how did specific activities contribute to building this community?
  
  - How do participants plan to tap into this community in their roles as teacher leaders?

- Did participants effectively apply the new knowledge and skills?

  - How did the partnership activities impact participants in their roles as teacher leaders and/or as classroom teachers? (CPS)
  
  - How did the partnership activities contribute to teacher leaders’ ability to support math and science inquiry in schools and classrooms? (CPS)
  
  - How did participation contribute to building a professional learning community? If so, how did specific activities contribute to building this community?
  
  - How do participants plan to tap into this community in their roles as teacher leaders?

- i. SLPAI: Science Lesson Plan Analysis Instrument
  http://hub.mspnet.org/index.cfm/14244

- i. video coding tool
  (Heather Hill)
  http://sitemaker.umich.edu/lmt/faq_about_video_codes

- i, ii, iii SEC
  i., ii RTOP^2
  http://hub.mspnet.org/index.cfm/8678

- i. Journal entries, analysis through coding
  ii. Principal Survey^3,
  Local Systemic Change through Teacher Enhancement: Principal Questionnaire
  From Horizon Research
  i. Inside the Classroom Observation and Analytic Protocol^4, also from Horizon
  i,ii,ii 2005-06 Local Systemic Change Classroom Observation Protocol^5

- 1Not to be used in isolation but can capture info on CK, PCK and impact on teaching practice. Used in pilot study on measuring teacher change thru program instruction

- ^2 Observation protocol specifically designed to detect “reform”; but developers do not necessarily equate reform w/quality

- ^3 SEC has a principals survey, but there are difficulties? Does it get at what we want?

- ^4 Developed to measure the quality of an observed K-12 science or mathematics classroom lesson by looking at design, implementation, content and culture. Very long!

- ^5 A shorter version of the above, which makes it more usable. Could do pre/post visits? Advice/guidelines for classroom observations?
### D. Student Achievement

- 30 percent increase in student performance in specific SME content areas across multiple effective metrics of formative and summative assessment analysis in measures through cumulative action research analysis, including:
  - 30 percent increase in students’ demonstration of achievement in the “meets expectations” category of Illinois’ large-scale assessment measures;
  - 30 percent increase in students’ demonstration of achievement in the “exceeds expectations” category of Illinois’ large-scale assessment measures; and
  - At least 30 percent increase in students’ demonstration of achievement through trend analysis of classroom-based, high-quality formative assessments and action research.

From PSSM, pl 370-372:

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>What was the impact on the students holistically?</td>
<td>MOSART- Physical and Earth and Space Science <a href="http://mosart.mspnet.org/">link</a></td>
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<tr>
<td>Did it affect student performance or achievement?</td>
<td>OMLI Classroom Observation Protocol <a href="http://hub.mspnet.org/index.cfm/11980">link</a></td>
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<tr>
<td>Are students more confident as learners?</td>
<td>ISAT Balanced Assessment <a href="http://balancedassessment.concord.org/">link</a></td>
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<tr>
<td>Is student attendance improving?</td>
<td>MCAS <a href="http://www.doe.mass.edu/mcas/testitems.html">link</a></td>
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<td>From the legislation:</td>
<td>NAEP <a href="http://nces.ed.gov/nationsreportcard/about/naeptools.asp">link</a></td>
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<td>o SHALL include measurable objectives for improved student academic achievement on State math/sc assessments or, where applicable, an international math/science study assessment; and may include objectives/measures for:</td>
<td>PISA Items <a href="http://nces.ed.gov/surveys/pisa/educators.asp">link</a></td>
</tr>
<tr>
<td>o Increased participation by students in advanced courses in m/s;</td>
<td>Designed for students, can be used for teachers?</td>
</tr>
<tr>
<td>o Increased percentages of elementary school teachers with academic majors or minors or group majors or minors, in math/eng/or the sciences:</td>
<td>Observations are centered around student thinking—not for teachers</td>
</tr>
<tr>
<td>o Increased percentages of secondary school classes in M/s taught by teachers with academic majors in math/engineering/science</td>
<td>As we know and love it</td>
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<tr>
<td></td>
<td>Open-ended items, higher on Bloom’s taxonomy</td>
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<td></td>
<td>Items are released every year, could be used as benchmarks</td>
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<td></td>
<td>Used for national assessment, some released items</td>
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<tr>
<td></td>
<td>European assessment items, some released items</td>
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E. Other outcomes: Organizational Support And Change?

From RFP-benchmarks:
- 100 percent of participating IHEs committing to sustained program support beyond the term of IMSP funding:
  - Inter- and intra-college/department administrative support is documented by meeting minutes, letters of continuing support and interviews, etc.;
  - Deliberate interconnections to teacher preparatory programs and general education programs is documented by meeting minutes, program impact statements and design elements, and interviews, etc.
- 50 percent cumulative increase using measures identified for sustained excellence and support of content expertise in high-need LEAs, including:
  - 50 percent increase in administrative programmatic support measures for scheduling, preparation, and evaluating the quality mathematics and science teaching and learning, to be demonstrated through pre-post surveys and interviews, etc.
  - 50 percent increase in collaborative decision-making measures between participating teachers and administrators to improve the quality of mathematics and science teaching and learning, with specific focus on deliberate collegial connections to professional development among professional staff and resolution of issues associated with teaching and learning settings, to be demonstrated through pre-post surveys and interviews, etc.
- From PSSM: pp 375-378, for teacher leaders, school/district/state/province administrators, higher ed faculty, professional organizations and policymakers
- From NSES: program and system standards

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Were sufficient resources made available?</td>
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<td>Were problems addressed quickly and efficiently?</td>
</tr>
<tr>
<td>Was implementation advocated, facilitated, and supported?</td>
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<tr>
<td>Were successes recognized and shared?</td>
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<tr>
<td>Was the support public and overt?</td>
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</table>

At the LEA and its classroom levels, at the IHE and its classrooms/course/program levels:
- **WHAT WAS THE IMSP IMPACT ON THE ORGANIZATION?**
- **HOW DID IMSP AFFECT ORGANIZATIONAL CLIMATE AND PROCEDURES?**
- How did IMSP affect program, course designing processes?
- How did IMSP affect instructional strategies?
- How did IMSP affect possible future partnerships?

Resources:
CCSSO Report: Current Models for Evaluating Effectiveness of Teacher Professional Development
http://programs.ccsso.org/content/pdfs/Current%20Models%20for%20Eval%20Effect%20of%20Teacher%20PD%20summary%20Report.pdf