VAM as Part of a Larger Picture

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What does it mean for professional development to “work”? 
### When PD “Works”

<table>
<thead>
<tr>
<th>Teacher Outcomes</th>
<th>Student Outcomes</th>
<th>Other Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Knowledge for Teaching</td>
<td>Improved Achievement</td>
<td>Stronger partnerships (university-district)</td>
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<tr>
<td>More positive disposition as learners</td>
<td>Improved Attitudes</td>
<td>Stronger partnerships (schools-families)</td>
</tr>
<tr>
<td>More positive attitudes/efficacy for teaching tasks/less anxiety</td>
<td>Improved Self-Efficacy</td>
<td>Community involvement / outside expertise contribute to teaching &amp; learning</td>
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<tr>
<td>Improved Teaching Practices (NCTM’s Principles to Actions)</td>
<td>Slower drop-off of competence beliefs</td>
<td>Communication with public about math teaching &amp; learning</td>
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<tr>
<td>Improved Leadership</td>
<td>Bigger “STEM Pipeline”</td>
<td>Teacher evaluation models/policies</td>
</tr>
<tr>
<td>Stronger Professional Networks (advice giving &amp; seeking)</td>
<td>“College &amp; Career Ready”</td>
<td>Continued investment in teacher PD</td>
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</table>
How can VAM contribute to understanding the effects of professional development?
VAM: Understanding Effects of PD

• Appropriate:
  – Multiple baseline measures
  – Multiple types of data (attitudes, achievement, etc)
  – Groups of teachers (P vs NP)
  – Depends on quality of instruments
  – Recognize differing levels of VAM

• Not appropriate:
  – Ceiling/floor effects
  – Individual assessments of teachers
  – Instrument not aligned to PD goals
  – Tied to high-stakes decisions
  – Constrain attributions to teachers re: what is/isn’t in the model
What other analyses can be included to holistically evaluate the effectiveness of professional development?
Other Analyses

• First analyze data sets separately & descriptively
  – How normally distributed are variables?
  – Is there change/growth?
  – Are there ceiling/floor effects?

• HLM – Hierarchical Linear Models
  – Students nested within teachers/classes nested within schools/districts
  – Need large numbers of classes
  – Ok for non-longitudinal data sets

• SEM – Structural Equation Models
  – Examine models/pathways of growth related to latent traits

• Keep in mind: targeted audience for report
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