

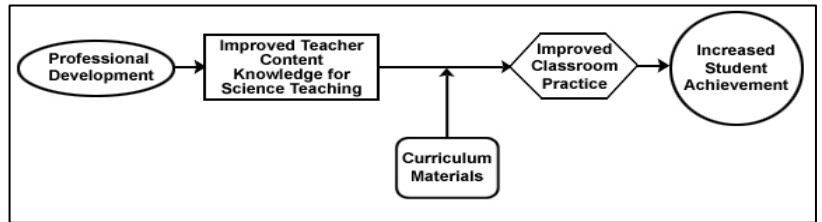
Assessing Teacher Learning About Science Teaching (ATLAST)

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Overview

ATLAST was funded as an MSP RETA to create instruments that would enable researchers to test a predominant model of professional development, depicted to the right. Briefly, the model asserts that teacher professional development leads to increases in teachers' content knowledge for teaching (i.e., disciplinary and pedagogical content knowledge); these increases in turn result in changes in classroom practice, which ultimately produce improvements in student achievement. In addition, professional developers increasingly recognize that curriculum materials may limit the extent to which changes in teacher knowledge and skill affect classroom practice. For this reason, the model shows curriculum materials as a factor that mediates the effect of professional development on classroom practice.



Testing this theory requires a coherent set of instruments that assess teacher opportunity to learn, and that measure changes in teacher knowledge and classroom practice, as well as changes in student achievement. ATLAST is developing three sets of instruments, one for each of three middle grades science areas.

Successes

1. ATLAST developed content-specific pairs of teacher and student assessments with strong validity, as judged by content experts, and high reliability. To our knowledge, these are the only such pairs of teacher and student assessments.
2. Many projects are using the assessments, and we are particularly satisfied to see some projects using the teacher and student assessments in conjunction with one another.
3. We recently completed data collection for a study in two of our content areas involving almost 200 teachers who:
 - a. Took the teacher assessment
 - b. Taught a unit on the same content
 - c. Administered the student assessment before and after the unit
 - d. Kept a detailed daily log

We are now analyzing these data.

4. ATLAST has conducted item writing workshops for over 300 individuals from NSF- and state-funded MSP teams.
5. ATLAST has published several articles and papers, including:
 - Ford, B. & Taylor M. (2007). Investigating Students' Ideas about Plate Tectonics Science Scope, 30(1), 38–43.
 - Smith P. S. (2009, April). Exploring the relationship between teacher content knowledge and student learning. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Garden Grove, CA.
 - Taylor, M. & Smith, S. (2009). How do you know if they're getting it? Writing assessment items that reveal student understanding. Science Scope, 32(5), 60–64.

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