AIM: K–8 Science

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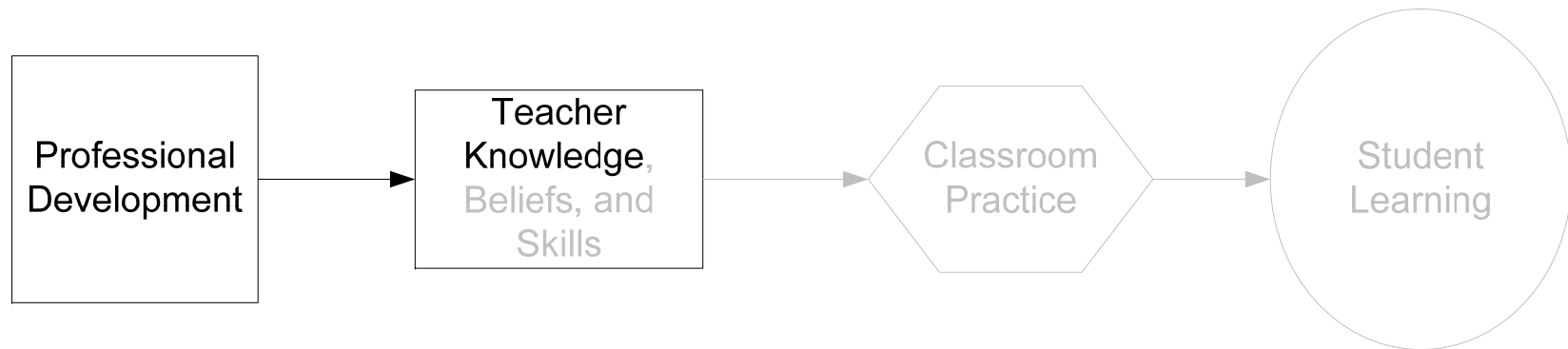
MSP Theory of Action (Big Picture)

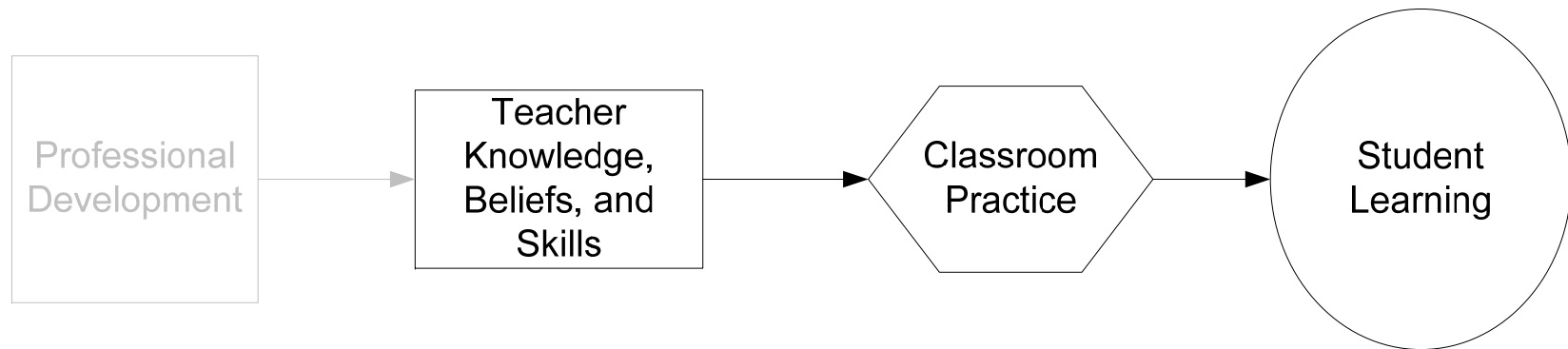Professional Development → Teacher Knowledge, Beliefs, and Skills → Classroom Practice → Student Learning
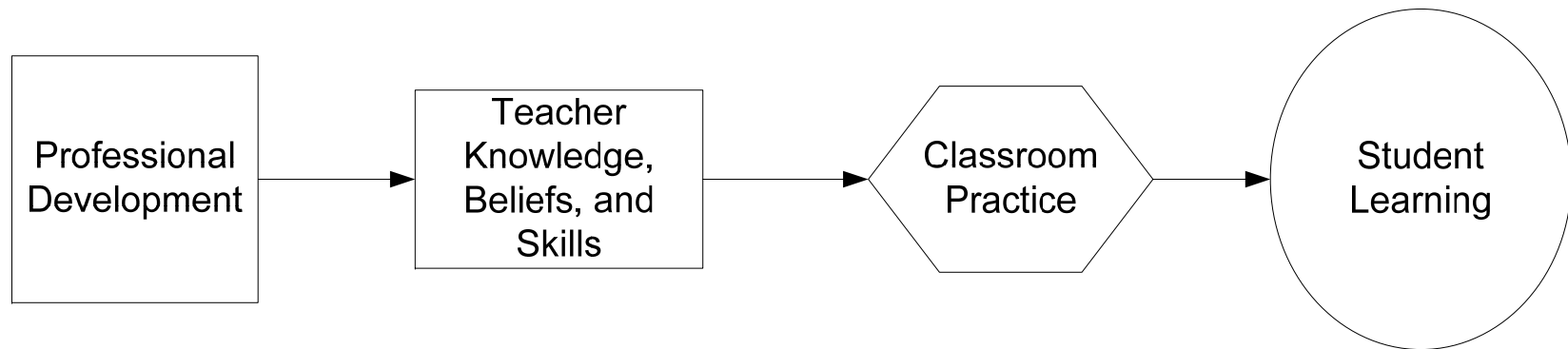
AIM: K–8 Science

- AIM is an NSF-funded MSP RETA

- AIM has the opportunity to develop instruments and collect data that no single MSP project has the resources to do.

Study Component 1

Professional Development → Teacher Knowledge, Beliefs, and Skills → Classroom Practice → Student Learning

Study Component 2

Professional Development → Teacher Knowledge, Beliefs, and Skills → Classroom Practice → Student Learning

Topics

1. Force and Motion
2. Populations and Ecosystems (i.e., Interdependence)
3. Climate and Weather
4. Evolution and Diversity
5. Forms of Energy
6. Properties of and Changes in Matter

Instruments

PD-Provider Log

- Captures what teachers experience in PD.

- PD providers complete a log at the end of each day of PD on the targeted topic.

- 15 minutes or fewer to complete.

- Honorarium of $15 per completed log

PD Observations

- HRI will observe a sample of PD sessions.

Teacher Tracking System

- In addition to knowing what happens in PD, AIM needs to know which teachers attended each session.

Teacher and Student Assessments

- Each assessment will take about 30 minutes to administer (all multiple choice).

- All teacher assessment items are set in the context of work that teachers do, e.g., using content knowledge to analyze student thinking.

Classroom Practice

1. ## Teacher questionnaire
    - Instructional practices
    - Beliefs about effective instruction
    - Teacher efficacy
    - Contextual factors that affect science instruction

2. ## Classroom observations
    - Only for a subset of teachers

Timeline

- Teacher assessments for Force and Motion, Populations and Ecosystems by Summer 2010.

- Student assessments for these two topics ready for use by Spring of the 2010-11 academic year.

- Data collection will begin in Summer 2010.

Timeline

- Assessments for other topics will be added in following years.

- We anticipate data collection continuing through at least the 2011-12 academic year.

Re-Cap: Two Main Components

1. Relationship between PD and teacher content knowledge.

2. Relationships among teacher content knowledge, beliefs, classroom practice, and student learning.

- Projects can participate in either or both components for one or more topics.

What's Required to Participate

- Component 1:
  - Complete PD-provider logs
  - Submit teacher tracking data
  - Administer content assessment to teachers pre- and post-PD
  - Allow PD to be observed

What's Required to Participate

- **Component 2:**
  - Administer content assessment to teachers prior to their teaching of the unit on targeted topic
    - If teacher is participating in Component 1, the post-PD assessment may be used
  - Administer student content assessment at the beginning and end of unit on targeted topic
  - Administer teacher questionnaire
    - Teachers complete while students are doing their post-test

What Do Projects Gain by Participating?

- Opportunity to contribute to knowledge generation that will help the field in the future.

- Additional data for project-specific studies:
  - PD-provider log data;
  - Teacher assessment data;
  - Teacher questionnaire data; and
  - Student assessment data.

- We are looking for a set of projects that vary in their approaches to professional development and that have different school contexts.

- We will try to include as many projects as possible in the study, but need to make sure we get the right mix.

Projects Not Participating for a Given Topic

- We will be recruiting teachers to pilot instruments (on-line).

- If you are willing to disseminate information to teachers, we will send you emails and ask that you forward them to potential participants.

- Teachers will be paid an honorarium for participating in a pilot and their identities will be kept confidential.

How to Contact Us

- If you might be interested in participating:

  http://www.horizon-research.com/aim/signup

- How to contact AIM:

  aim@horizon-research.com