Designing Effective Professional Development
Reference Document

Loucks-Horsley, S., Love, N., Stiles, K.E., Mundry, S., & Hewson, P. (2010). *Designing professional development for teachers of science and mathematics, Third edition.* Thousand Oaks, CA: Corwin.

Commit to Vision and Standards

Guiding Questions: What is our vision for science teaching and learning? What is our vision for teachers' learning? What does professional development in which this new vision is playing out look like? (For additional questions to ask about committing to a vision and standards see pages 30-33 in Designing *Professional Development for Teachers of Science and Mathematics, 3rd edition*.)

Knowledge and Beliefs

Guiding Questions: What are the knowledge and beliefs that inform our professional development plan? How does our design reflect these knowledge and beliefs? (For additional questions to ask about knowledge and beliefs see pages 51-78 in Designing *Professional Development for Teachers of Science and Mathematics, 3rd edition*.)

Knowledge of Learners and Learning

How will your design reflect an understanding of how people learn? For example:

- Learners' prior knowledge influences what they learn.
- Learning requires changing thinking.
- Learning is an active process
- Learning needs to be meaningful and relevant to the learner.
- Learning is a social process that is enhanced by interaction between learners.
- All students are capable of understanding and doing science.

Knowledge of Teachers and Teaching
How will beliefs about teaching influence the professional development? (For example, the purpose of teaching is to facilitate learning; teachers are professionals with specialized content knowledge; and the practice of teaching is complex and involves hundreds of decisions every day.)

Nature of the Academic Content
How will your design reflect the subject matter the PD focuses on? (For example the field of science is changing, a dynamic discipline that continues to produce new knowledge. Science is practiced through active engagement and inquiry into phenomena in the world.)

Principles of Effective Professional Development
How will your design incorporate these principles of effective teacher learning?

- Driven by a vision of effective teaching and learning
- Mirrors methods teachers will use in classrooms
- Enhances teachers' knowledge, skills, and teaching practices to promote student learning
- Develops a learning community
- Builds teacher leadership
- Is linked to the educational system through alignment of curriculum, goals, and standards, and integration with other major professional development
- Is continuously assessed and improved

Knowledge of the Change Process
How will you reflect knowledge of the change process in your design? (For example, change is a process that takes time and persistence. At different stages in the change process, individuals need different kinds of support and assistance. Change efforts are effective when the change to be made is clearly defined, teachers get ample support and assistance, and leadership and policies support the change.)

Analyzing Student Learning and Other Data

Guiding Questions: These guiding questions focus on the CBAM data you want to gather and analyze. What do you know about the needs of your audience? How do you know it? (For additional questions to ask about analyzing student learning and other data see pages 33-38 in Designing *Professional Development for Teachers of Science and Mathematics, 3rd edition*.)

Based on your data, what are your teachers' needs?

- How many, or what percentage, appear to have concerns that primarily focus on:
  - Needs related to Self?
    - ✓ Do teachers have concerns about how the new practices will affect them personally?
    - ✓ Do teachers know about and have adequate information?
  - Needs related to Task?
    - ✓ Have teachers tried the new practices and need help perfecting them?
  - Needs related to Impact?
    - ✓ Are teachers implementing the new practices and asking how to improve them and have a greater impact on student learning?

How will the professional development design address these needs?

- How will you address these needs within your most immediately planned PD (e.g., an institute)?
- How will you address these needs within your long-term PD plan?

Context Factors Influencing Professional Development

Guiding Questions: How will the following context factors influence your professional development? What do you know about each factor? What data do you have? What additional information do you need? (For specific questions to ask about each context factor see pages 79-116 in Designing *Professional Development for Teachers of Science and Mathematics, 3rd edition*.)

- Students, Standards, and Learning Results
- Teachers and Teachers' Learning Needs
- Curriculum, Instruction, Assessment Practices and the Learning Environment
- Organizational Culture
- National, State, and Local Policies
- Available Resources
- History of Professional Development
- Parents and the Community

Set Professional Development Goals

Guiding Question: What are our goals for our professional development program? (For additional information ask about setting goals see pages 38-39 in Designing *Professional Development for Teachers of Science and Mathematics, 3rd edition*.)

What are our goals for student learning?

What are our goals for teacher learning?

What are our goals for teaching practice?

What are our goals for the school/district/organization/region?

Critical Issues

Guiding Questions: For the seven critical issues that need to be considered within our professional development plan, how will we address them in our plan? Which ones are the most pressing issues for us given our context, audiences, and goals? (For more information on the critical issues see pages 117-156 in Designing *Professional Development for Teachers of Science and Mathematics, 3rd edition*.)

- Finding Time for Professional Learning
- Ensuring Equity
- Building Professional Culture
- Developing Leadership
- Building Capacity for Sustainability
- Scaling Up
- Garnering Public Support

Strategies for Professional Learning

Guiding Question: What strategies for professional learning are you considering? (For additional information about strategies see pages 157-278 in Designing *Professional Development for Teachers of Science and Mathematics, 3rd edition*.)

- Aligning and Implementing Curriculum
- Collaborative Structures
- Examining Teaching and Learning
- Immersion Experiences
- Practicing Teaching
- Vehicles and Mechanisms

Given your purpose and context, what combination of strategies are you considering for your professional development initiative? Why? How will these strategies address your goals?
What strategies do you want to learn more about?

Evaluate

Guiding Questions: What is our plan for gathering data to know if our professional development plan is effective? How will we know if we are meeting our goals? How will we use evaluation data to improve our plan? (For additional information about evaluation see pages 44-48 in Designing *Professional Development for Teachers of Science and Mathematics, 3rd edition*.)

What are the goals or desired outcomes of our plan?

What actions and strategies are we implementing that we believe will help us achieve our goals and outcomes?

What data are we collecting to inform whether we are meeting our goals? What are our plans and timelines for analyzing these data?

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