

Handout 4: Selected Strategies for Professional Learning

Review the following professional learning strategies from *Designing Professional Development for Teachers of Science and Mathematics*¹ and the critical elements of the strategy. Reflect on the strategies listed: **Do current professional learning opportunities in your division match any of the strategies listed below? Or is there a strategy that you'd be most interested in implementing?**

- *Examining student work and evidence of their thinking.* Critical elements include:
 - An experienced content expert guides collaborative experiences.
 - Teachers spend majority of time examining student work.
 - Discussion and examination of student work have a focused goal and purpose.
 - Structured protocols enhance the learning experience.
- *Demonstration lessons.* Critical elements include:
 - Teachers have available time and structures to meet with other teachers and to observe.
 - Groups of teachers (not individual teachers) observe each other.
 - There is a cycle of pre-discussion, observation, and post-discussion.
- *Action Research.* Critical elements include:
 - Teachers contribute to or formulate their own questions and collect data to answer these questions.

¹ Loucks-Horsley, S., Stiles, K. E., Mundry, S., Love, N., & Hewson, P. W. (2010). *Designing professional development for teachers of science and mathematics*. Corwin.

- Teachers use an action research cycle, specifically identifying a problem and a question, collecting data, analyzing data, and reformulating the problem and question to continue their action research.
- Teachers have access to sources of knowledge and stimulation from outside their schools.
- Teachers work collaboratively.
- Teachers document and share what they learn from research.
- *Coaching*. Critical elements include:
 - Teachers focus on learning or improvement.
 - Coaches cultivate a climate of trust, collegiality, and continuous growth.
 - Coaches are well prepared with in-depth content knowledge and adult learning skills.
 - Mechanisms for observing practice and providing feedback are in place.
 - Teachers have opportunities for interaction.
- *Mentoring*. Critical elements include:
 - Mentors have *extensive* knowledge and skills.
 - The mentoring relationship focuses on the science and mathematics content and pedagogical content knowledge.
 - New teachers and mentors have valuable expertise to share with each other.
 - There is mutual agreement and understanding of the goal and purpose of the mentoring relationship.
- *Study Groups*. Critical elements include:
 - Study groups are organized around a specific topic or issues of importance to the participants and are related to teaching and learning goals.
 - Study group activities are coherent and planned.
 - Study group teams need group interaction skills.
 - Study groups have varied designs including meeting length, questioning protocols, and facilitation roles.
 - The formation and success of study groups require direct support from school administrators.

- *Workshops, institutes, and seminars (face-to-face or online)*. Critical elements include:
 - Clearly stated goals are communicated to the participants.
 - A leader or facilitator guides the participants' learning.
 - Group structures necessitate a collegial learning environment.
- *Immersion in inquiry in mathematics*. Critical elements include:
 - Engage in learning that teachers are expected to practice with their students.
 - Meaningful mathematics problem-solving.
- *Curriculum development alignment, adaptation, or implementation*. Critical elements include:
 - Learning, using, and refining use of a particular set of instructional materials in the classroom (including refining materials to align with updated standards).
 - Creating new instructional materials and strategies or tailoring existing materials to meet particular learning needs of students.
- *Partnerships with mathematicians in business, industry, and universities*. Critical elements include:
 - Working collaboratively with practicing mathematicians with a focus on improving teacher content knowledge, instruction, materials, and access to new information and facilities.
- *Professional networks*. Critical elements include:
 - Linking teachers in-person and online with other teachers, experts, and faculty to discuss topics of interest, set and pursue common goals, share research-based information and strategies, and address common problems.