

Professional Development: A Lifelong Journey

“The deeper we search, the more we find there is to know, and as long as human life exists I believe that it will always be so.” —Albert Einstein

Professional development of teachers of elementary science means many things to many individuals, but if the point of teaching is to cultivate learning, then learning should be at the center of the discussion. The “learning” that is meant here is not isolated, devoid of context and experience, nor is it mind-numbing information jammed into the minds of individuals assigned to chairs in a classroom. Rather it is the learning that involves the interests and the unquenchable curiosity that captures the psyche of a child who becomes engrossed with how a remote control car allows him/her to manipulate its motion and begins to think about motion, forces, momentum, and forms of energy. For this type of learning to occur, teachers of elementary science must be able to draw upon their pedagogical knowledge to foster meaningful understanding that lasts.

Although many agree that “Science for All” is important, science is infrequently thought of as a “core discipline” in the elementary curriculum. Teachers feel increasing pressure to minimize, if not eliminate, science instruction in order to focus on math and literacy skills. Many elementary teachers find science difficult to teach or feel they are unprepared to teach it. As a result, professional development is crucial if elementary teachers are to teach science in ways that foster meaningful student learning and achievement.

According to Guskey (2000, p. 4), professional development includes “processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators” to improve student learning. The breadth of this definition opens the doors to many possibilities for professional development.

No matter what type of professional development activity one chooses, professional development must begin with the teacher whose interests and passions form a nexus with the new processes, ideas, and activities designed to extend their knowledge. How can students learn to do science if they rarely have the opportunity? It takes time and practice for students to learn inquiry skills. They must have opportunities to use inquiry skills when “doing” science. Commonly recognized types of professional development include: attending science workshops; taking science courses; enrolling in an online science



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institute; forming study groups with colleagues; conducting action research; joining professional organizations; or attending a science conference.

Whatever form professional development takes, research findings suggest that high-quality professional development activities

- a) provide opportunities for teachers to build skills and knowledge;
- b) use strategies that teachers will use with their students;
- c) build learning communities;
- d) support teachers to serve in leadership roles; and
- e) provide links to other parts of the education system (Loucks-Horsley et al., 1998).

Finally, serving as a framework for the ongoing professional development of science teachers is a set of Professional Development Standards for teachers of science that provides a vision of “learning and teaching science in which all students have an opportunity to become scientifically literate.” (National Research Council p. 55)

These standards present guidelines in the development of knowledge and skills for teachers of elementary science. In brief, the professional development standards for which teachers of elementary science should strive include the

- learning of science content through inquiry;
- integration of knowledge about science with knowledge about learning, teaching, and students;
- development of the understanding and ability for lifelong learning;
- coherence and integration of a professional development program; and
- overarching premise for making this vision a reality is that teachers are responsible for their own professional development and that it is a lifelong, continuous process of learning.



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