



Additional briefs include:

Strategies for Improving Academic Achievement and Teacher Effectiveness

Goals

Steps to Increase Accessibility

Promotion of Curricula and Teaching Strategies That Integrate Technology

Technology Type and Costs

Coordination with Other Resources

Integration of Technology with Curricula and Instruction

Innovative Delivery Strategies

Parental Involvement

Collaboration with Adult Literacy Service Providers

Accountability Measures

Supporting Resources

Collection of Key Questions to Consider

Professional Development

Local technology applications and plans should include a description of how the applicant will provide ongoing, sustained professional development for teachers, principals, administrators, and school library media personnel to further the effective use of technology in the classroom or library media center.

Overview

Research into effective professional development during the past two decades has established key lessons and principles that can help inform the planning of professional development programs in all areas, including those focused on technology integration. In summaries of the lessons from research, Sparks and Hirsh (1997) describe a shift in effective staff development, away from one-day inservice presentations to professional development that is designed to be an integral, ongoing part of teachers' lives, focused on improving student learning outcomes, based on inquiry into teaching and learning, and built on interactions within professional learning communities.

Key Questions to Consider

- Do you have an overall professional development plan, tied to goals and standards, that provides for ongoing and sustained staff training?
- Is your professional development for technology linked to curriculum programs and student performance?
- Does each of your educators develop an individual professional development plan that includes technology integration skills?

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Strategies for Addressing Local Technology Applications and Plans

Major research studies and syntheses by Darling-Hammond and McLaughlin (1995), Ball and Cohen (1999), the National Foundation for the Improvement of Education (1996), and others point to a consistent set of recommendations which tell us that effective professional development:

“When teachers have access to high quality, results-driven, content-specific staff development, their students’ academic achievement increases.”
(National Commission on Teaching and America's Future, 1996)

- envisions the professional teacher as one who learns from teaching rather than as one who has finished learning how to teach;
- focuses on improving classroom practices and increasing student learning;
- centers around the critical activities of teaching and learning—planning lessons, evaluating student work, and developing curriculum—rather than around abstractions and generalities;
- values and cultivates a culture of collegiality, involving a sharing of knowledge and experience among educators;
- is sustained and intensive, supported by modeling, coaching, and problem solving around specific problems of practice;
- builds upon investigations of practice through cases, questions, analysis, and criticism and substantial professional discourse;
- is continuously woven into the everyday fabric of the profession of teaching;
- fosters a deepening of subject-matter knowledge, a greater understanding of learning, and a greater appreciation of students’ needs;
- provides occasions for teachers to reflect critically on their practice;
- engages teachers in looking closely at students and their work;
- makes effective use of information and communications technologies;
- provides opportunities for meaningful teacher leadership roles to emerge.

Professional Development for Technology Integration

Research and analyses of successful schools have established that good professional development is essential for teachers to make effective use of technology to enhance teaching and learning (Web-based Commission, 2000; Becker & Riel, 2001, *enGauge*, 2000).

A long-term study of the Apple Classroom of Tomorrow (ACOT) project followed teachers over several years as they learned to use technology in their classrooms. The researchers identified five stages of “instructional evolution” for using technology and documented that different professional development activities are appropriate at each stage (Dwyer et. al., 1997):

- At the *entry* stage, teachers learn to master the new tools themselves and begin to plan how to use them in their classrooms.
- At the *adoption* stage, teachers begin to blend technology into their classroom practices, without making any significant changes to those practices.
- At the *adaptation* stage, the new technology becomes thoroughly integrated into traditional classroom practices and teachers begin to see some real benefits in student learning and engagement.
- At the *appropriation* stage, the teachers understand technology, use it effortlessly in their own work and in the classroom, and have difficulty imagining how they would function without it.
- At the *invention* stage, teachers experiment with new instructional patterns and ways of relating to students and to other teachers enabled by the technology, resulting in significant changes in their classroom practices and professional lives.

In addition, from a study of technology integration and a review of the research, Grant (1996) adds that:

- Professional development for technology must extend a vision of technology as an empowering tool for teachers and students.
- Professional development for technology integration is most effective when it is in the context of curriculum content, effective pedagogy, and student learning, not focused on the technology itself.

Grant specifically points out that simply sending teachers to training sessions on the use of specific technologies has not yielded the

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desired results: “too often the results of these sessions have fallen short of hopes: there has been little carryover into the classroom, and new technologies have remained on the periphery of school life and been used only sporadically by teachers.” In contrast “effective programs in [technology integration] professional development are inextricably linked to building a professional culture in schools, one which supports qualities of reflection and collaboration in the context of action.”

Online Professional Development

The widespread availability of computers and Internet access opens up a new means for providing professional development: online workshops and professional exchanges. This is a new field, just beginning to be explored, so the formal research is very limited. However, analyses of the potential in light of the principles of effective professional development point to some ways in which online approaches can significantly enhance professional development programs (NSDC, 2001). For example, online professional development can:

- provide “anytime, anyplace” flexibility that results in new professional development opportunities being available;
- incorporate many of the principles of effective professional development;
- enable new collegial relationships and professional learning communities;
- provide access to resources, colleagues, and experts that may not be available otherwise;
- spread professional development activities over time and integrate them directly with classroom practice;
- give teachers a chance to experience for themselves new ways of learning, which can inform their decisions about the use of technology with their students;
- increase access to personalized learning experiences;
- potentially reduce the costs of professional development programs;
- be blended with face-to-face meetings, study groups, coaching, and other professional development activities to enhance comprehensive professional development programs.

There are many factors that must be considered in order to create an effective online professional development program, such as defining the professional development needs addressed, planning the connections with other professional development activities, developing local expertise to create and facilitate online workshops, providing incentives to participants, and making sure adequate technology access and support is available (Treacy et. al., 2002).

Experience so far has shown that delivering good online professional development is challenging, that it can be effective, and that it is best employed as one part of a multi-faceted, well-designed professional development program.

Extended Resources

National Staff Development Council Professional Development Standards

<http://www.nsd.org/educatorindex.htm>

These standards provide direction for designing a professional development experience that ensures that educators acquire the necessary knowledge and skills.

National Staff Development Council E-Learning for Professional Development

<http://www.nsd.org/educatorindex.htm>

This resource includes a set of useful guidelines for evaluating effective online professional development programs.

National Educational Technology Standards

<http://cnets.iste.org/>

This resource provides a set of nationally recognized technology standards for school students, teachers and school administrators. The Web site resources include guides, sample lessons, and case studies.

The NEA Foundation for the Improvement of Education

<http://www.nfie.org>

This Web site contains publications, resources and grant information targeted at improving teaching and learning in our society.

References

enGauge (2000). Retrieved June 12, 2002. Available online at <http://www.ncrel.org/engauge/>.

National Commission on Teaching and America's Future (1996). *What Matters Most: Teaching for America's Future*.

National Foundation for the Improvement of Education (1996). *Teachers Take Charge of Their Learning: Transforming Professional Development for Student Success*.

National Staff Development Council (2001). *E-Learning for Educators: Implementing the Standards for Staff Development*.

WBEC (2000). *The Power of the Internet for Learning: Moving from Promise to Practice*, Web-Based Education Commission. Retrieved June 12, 2002. Available online at <http://interact.hpcnet.org/webcommission/index.htm#adobe>.

Ball, D. and D. Cohen. (1999). Developing Practice, Developing Practitioners: Toward a Practice-based Theory of Professional Education. In *The Heart of the Matter. Teaching as the Learning Profession*, edited by L. Darling-Hammond and L. Sykes. San Francisco: Jossey-Bass.

Becker, H. J. and M.M. Riel. (2000). *Teacher Professional Engagement and Constructivist-Compatible Computer Use*, Center for Research on Information Technology and Organizations. Retrieved June 12, 2002. Available online at http://www.crito.uci.edu/tlc/findings/report_7/.

Darling-Hammond, L. and M.W. McLaughlin. (1995). Policies That Support Professional Development in an Era of Reform. *Phi Delta Kappan* 76(8): 597-604.

Grant, C. M. (1996). *Professional Development in a Technological Age: New Definitions, Old Challenges, New Resources*. Retrieved June 12, 2002. Available online at http://ra.terc.edu/publications/terc_pubs/tech-infusion/prof_dev/prof_dev_frame.html.

Sandholtz, J. H., C. Ringstaff, et al. (1997). *Teaching with Technology*. New York: Teachers College Press.

Sparks, D. and S. Hirsh. (1997). *A New Vision for Staff Development*. Alexandria, Va: Association for Supervision and Curriculum Development.

Treacy, B., G. Kleiman, & K. Peterson. (2002). Elements of Successful Online Professional Development Programs. *Learning & Leading with Technology* in press.

Technology Briefs for NCLB Planners can be obtained by visiting <http://www.neirtec.org>.

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