Empowering Teachers: A Professional and Collaborative Approach

SETDA

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Executive Summary

Teachers are the most vital resource in our education system, and they have the responsibility of preparing our students to live and work in a digital society. As policymakers address the notion of *professional development* for teachers, it is important to shift the focus from continuing education credits and stand alone courses to "a comprehensive approach to professional learning designed to improve teachers' and principals' effectiveness in raising student achievement and to accomplish other important school goals."[1]

Retaining highly qualified teachers is a significant problem in our schools. After just five years, between forty and fifty percent of all beginning teachers leave their teaching careers.[2] Recent projections indicate that the national cost of public school teacher turnover is projected to be over $7.3 billion a year.[3] Teachers cite poor working conditions and a lack of support as two of the primary reasons for leaving the classroom.[4] Many teachers, especially new teachers, are given little professional support or feedback from peers and administrators. In every profession, employees will learn and grow throughout their careers. Classroom teachers should be offered the same kind of support provided to business professionals. Teachers need peer support for brainstorming and collaboration, goal setting with superiors, and the infrastructure, resources and tools necessary to achieve those goals.

On-going professional development that supports the life-long growth of a teacher helps maximize the potential of each teacher and ultimately each student. This kind of approach has been proven to help retain highly qualified teachers, which is critical to the success of our education system.

In this paper, SETDA addresses the need for high-quality, sustainable, and relevant professional development. SETDA identifies the barriers of implementation and offers some recommendations for all stakeholders and policymakers regarding the support necessary to help America's educators improve instruction and develop innovative approaches to teaching and learning.

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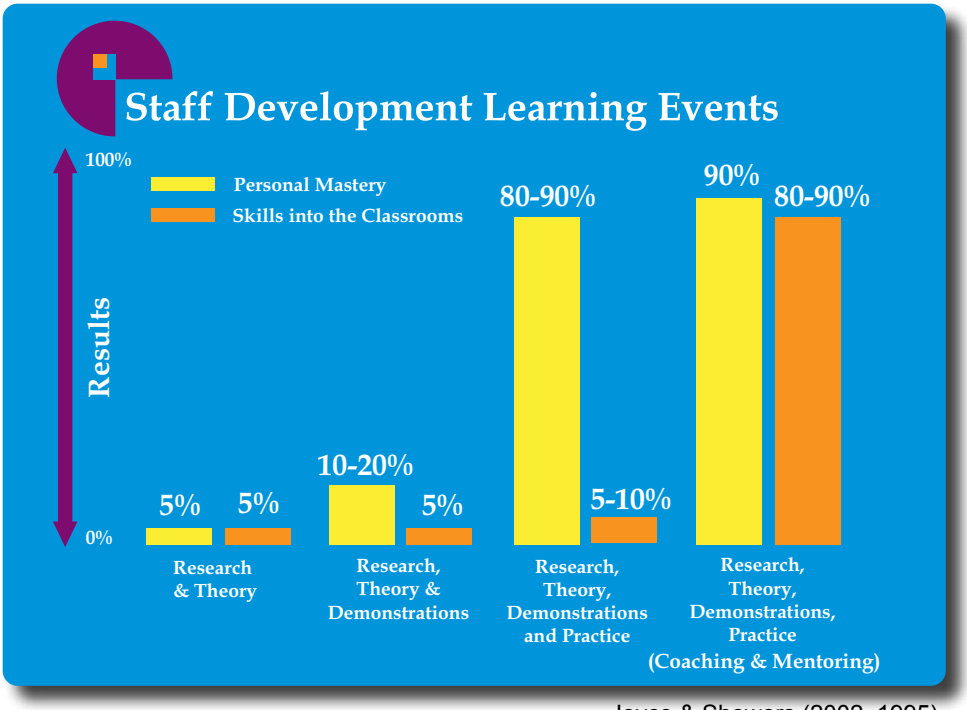
What is High-Quality, Sustainable Professional Development?

Professional development opportunities across the nation often consist of one-time, stand alone workshops instead of sustainable, on-going learning opportunities for teachers and administrators. While some school districts are moving toward on-going, relevant and continuous learning for teachers, it is not the standard and is not scalable nationwide. Online learning communities, education portals, and coaching and mentoring are some of the proven methods for providing sustainable professional development for our teachers. Online learning communities provide teachers with the opportunity to share resources and collaborate with peers in an anytime, anywhere environment. Teachers across schools, districts, and states can share best practices and learn from each other on a daily basis. Education portals offer a one-stop set of online resources for administrators, teachers, and students. Teachers can search for lesson plans or other resources by topic, grade level, and/or content to enhance teaching and learning. Coaches and mentors provide teachers with leadership for implementing teaching strategies, developing and identifying instructional materials and resources, and modeling student discussions. As the graph below indicates, coaching and mentoring greatly improve the effectiveness of staff development and are more likely to transform instruction. For those teachers who had coaching and mentoring as part of their professional development, 90% reported a personal mastery of the learning area and 80-90% reported implementing these new learning strategies in the classroom.[5]



Joyce & Showers (2002, 1995)

Unless a workshop is followed by on-going support for educators, implementation in the classroom is unlikely.

Key Features of Highly Effective Professional Development

- **Leadership:** Effective school and district leaders who guide continuous instructional improvement.
- **Knowledge:** A deep understanding of the subject matter content.
- **Resources:** Access to resources and tools necessary to implement learning strategies appropriate to the goals of teaching and learning.
- **Collaboration:** Participation in professional learning communities.
- **Evaluation:** Use of data to improve instructional approaches to raise student achievement and to evaluate teacher effectiveness.
- **Sustainability:** On-going and sustainable professional development where teaching practices and models are continuously included in teachers' daily activities.[6]

> *"At National Staff Development Council (NSDC), we believe that when educators engage in effective professional learning every day, then students will achieve."* — NSDC President Sue McAdamis of Rockwood, MO[7]

Why Sustainable Professional Development is Important

Sustainable professional development is critical to training and retaining highly qualified teachers. Professional development that provides the resources and strategies teachers need to increase student engagement in the classroom, offers opportunities for peer collaboration and provides continuous support through coaches or mentors is proven to increase teacher job satisfaction and thus improve teacher retention.

High-quality sustainable professional development increases teacher retention and student achievement.

Effective professional development improves teaching and learning as demonstrated by increases in student engagement and student achievement. These programs all embrace on-going professional development as a key component of teacher training. Below are examples of systemic reform models with comprehensive professional development program models as a key component that demonstrate increased student achievement.

North Carolina's IMPACT Program

In North Carolina, several high poverty elementary and middle schools implemented the IMPACT systemic reform program. The model utilizes technology coaches and school library media specialists for on-going professional development. As a result of this sustainable professional development model, teacher retention and student achievement increased. http://www.ncwiseowl.org/Impact/.

IMPACT Results

- Teacher retention is 65% higher with this program.
- Students demonstrated that they are 33% more likely to improve one full grade level each year than the control/comparison schools.
- The odds that IMPACT students would go from non-passing to passing status over the three years were 42% higher than that for comparison students.
- In the fourth year, the odds of IMPACT students passing the math end-of-grade tests were 24% higher than that of comparison students.[8]

eMINTS Missouri, Utah and Nine Other States

In Utah and Missouri, the eMINTS program provides over 250 hours of professional development to change instruction through in-person trainings with the support of online communities, web conferencing and online resources. Results from the eMINTS programs include increased teacher retention and student achievement. http://www.emints.org/

eMINTS Results

- One rural Missouri eMINTS school district had teacher retention rates increase from 76% percent to 98% after their first year of eMINTS implementation.
- In classrooms in the same school (one with eMINTS and one without) in Utah, the student achievement of students in the eMINTS classroom was repeatedly over 10% higher than the control classroom.[9]
- After 6 years of data in Grade 4 mathematics, eMINTS students in subgroups (special education, low income, and Title I) have reduced the gap in test scores between their performance and their peers by up to ½ of the difference attributable to subgroup classification.[10]

How Technology Supports Sustainable Professional Development

Technology supports effective professional learning by providing teachers access to online collaboration, resources and training anytime and anywhere. Technology-based professional development opportunities also provide teachers with technology integration tools that they can incorporate into their content lessons.

The following examples of comprehensive professional development programs include in-person and online training, access to online resources, peer coaching and research-based evaluations. These programs have proven to transform teaching and also increase student achievement.

Comprehensive Professional Development Models

Program Embedded Professional Development Models

Kansas Technology Rich Classrooms

Kansas State Department of Education's Technology Rich Classrooms (e TRC) initiative aims to create a 21st-Century learning environment in classrooms in grades 3 to 6. Beyond providing access to technology, the project offers on-going professional development and classroom-level support for participating teachers. http://trc.altec.org/

> *"I have become a teacher that has an open mind and is ready to teach the kids 21st Century Skills that I didn't even have before the program."*
> —Tonya Martinez, Technology Rich Classroom Grant Teacher, Wichita, KS

Florida Virtual School (FLVS) Professional Learning Model

Professional development at FLVS includes a three phase face-to-face induction program and a defined learning plan for the first two years of employment. Beyond year two and for all existing employees, a wealth of training opportunities exist ranging from hour-long virtual learning sessions to year-long management and leadership tracks for succession planning. FLVS keeps all learners engaged by infusing 21st Century Skills, Quantum Learning techniques, and Schlechty principles of Working on the Work into student courses and professional learning sessions. Mentorship, social networking, and professional portfolios are all used to support and celebrate the success of employees. http://www.flvs.net/

Research shows a high employee retention rate that exceeds 90% at FLVS.[11]

Texas

In Texas, the Technology Immersion Pilot (TIP) provides a school with technology resources and sustainable professional development opportunities for teachers and leaders to develop their instructional strategies in an on-going and sustainable manner. Professional development opportunities include in-person trainings, classroom observations, coaches, podcast series and online training videos. http://www.txtip.info/.

TIP Results:

- Overall, discipline referrals went down dramatically with the changes in instruction and engagement, which provided additional opportunities for teaching and learning.
- In one school, 6th grade standardized math scores increased by 5%, 7th grade by 42%, and 8th grade by 24%.
- In Floydada ISD, 6th grade standardized math scores increased by 29 points, and 10th grade standardized math scores increased by 36 points.

Technology Literacy & Leadership Professional Development Models

Arizona — Litchfield School District Administrators

The Litchfield Elementary School District in Litchfield Arizona strives to serve its students by providing the support and training that administrators need to improve student achievement. To help streamline administrative tasks, the district purchased data warehousing, webpage creation programs, and forms and survey programs. All of these tools require in-depth, comprehensive professional development in order to be used effectively. In-person trainings throughout the year are supported by on-going, online methods for training and collaboration. Administrators also use web 2.0 tools such as wikis, discussion boards and collaborative websites to share with one another and support their teachers.
http://www.lesd.k12.az.us/departments.cfm?subpage=517880

Intel® Teach Thinking with Technology

The Intel® Teach Program offers research-proven professional development, supporting 21st Century skills through a scalable train-the-trainer model that establishes a peer mentor network for on-going local support and collaboration. The program supported technology-based state and national standards while fostering 21st Century skills and content knowledge relevant for K-12 teachers of all subjects. Courses help teachers learn how to transform instruction to engage students in deeply relevant ways, including the appropriate use of technology, Web 2.0, and social networking for learning, creativity, and communication. Systemic implementation of the model retains program quality and fidelity by keeping delivery within research proven parameters.[12]
http://www.intel.com/education/teach/index.htm?iid=ed_nav+teach

Intel® Teach Results:

- An independent evaluation shows a strong success rate — 91% of teachers said students were "motivated and involved in the lesson."
- 90% of teachers reported that they felt well prepared or very well prepared to "engage students in critical thinking about complex issues.

Florida Digital Educators Program

The Florida Digital Educators (FDE), a research-based program, provides collaborative experiences for educators with new technologies and digital tools. The FDE program includes intensive, hands-on Institutes, followed by mentoring activities and coaching throughout the following academic year. The Institutes are immersion experiences to engage classroom teachers. Participants submit a lesson plan and student artifacts in an online tool creating a powerful resource for all Florida educators. Recent research has found that while participating in the FDE program, 96% of the educators reported actively sharing their knowledge and skills related to technology with their peers through workshops and mentoring activities. http://etc.usf.edu/fde/

"We have seen a marked increase in technology integration from the teachers involved in the FDE grant, and we have seen an increase in student interest in curriculum presented using technology."

—Cheryl Stepp, Instructional Technology Supervisor, Osceola County, FL

Illinois Principal Technology Leadership Institute (PTLI)

During this year-long hybrid course, principals participate in face-to-face workshops and weekly online learning experiences. Participants collaborate on authentic work products and prepare to become a leader in technology integration in their school building, including cultivating the capacity to implement data-driven decisions using multiple measures of data. http://elearning.cps.k12.il.us/programs_ptli.shtml

Promethean Activclassroom

The Promethean Activclassroom provides an interactive classroom experience by integrating standards-based multimedia resources, formative assessment, training, and instructional tools in a complete classroom delivery system. Professional development provides an online community for educators from across the globe to share thoughts, ideas and lesson plans. Well-trained teachers conduct powerful, focused training programs which positively impact school culture and drive achievement. For example, in Florida's Sarasota County Schools, a small group of teachers were trained and then equipped with high-level knowledge and experience to then train other teachers, who in turn, trained others. "Instead of teaching them how to use a product, we trained them to be high-level, confident thinkers and lesson planners," said Mike Horan, Chief Technology Officer for the school district. http://www.prometheanworld.com

West Virginia PreService Cooperative

In May 2008, West Virginia's Department of Education (WVDE) and their state's higher education institutions worked together in an effort to align West Virginia's 21st Century Teaching and Learning initiative in both teacher preparation programs and pre-K -12 schools. The initiative helped West Virginia's 20 institutions of higher education become familiar with the technology software, hardware and technology integration efforts currently offered in pre-K -12 schools for teachers and students. West Virginia's Higher Education faculty members are also currently participating in the West Virginia Leadership Development and Support Collaborative to create recommendations and proposals to better prepare principals for 21st Century schools. http://guest.portaportal.com/iheconference

Technology Coaches/Integration Specialists

Experimental studies have proven that mentoring and coaching relationships benefit from the use of technology in many ways. In a professional development context, coaches and mentors provide teachers with leadership for lesson planning and implementation, honing specific teaching strategies, developing and identifying instructional materials and resources, and modeling professional discussions about student learning. As a result of delivering these services using technology, the coaching and mentoring process is compressed through near-real-time service.

South Carolina

The Chesterfield Laptop Initiative in South Carolina provides each 6th, 7th and 8th grade student in participating schools with a laptop computer and internet access for their 24-hour use. Teachers involved in this program received in-person training, the support of a peer coach throughout the school year and access to online resources and training. Overall, 66% of students exceeded their expected Measure of Academic Performance subtest scores in reading and 48% exceeded their normative growth expectation in math. Disciplinary incidents were reduced by over 50% during the first year of implementation. http://www.chesterfield.k12.sc.us

Virginia Technology Coaches

Virginia dedicated state funding to provide one coach for every 1,000 students for all schools. The role of the coaches is to work directly with teachers to integrate technology in the classroom, to train teachers to use technology effectively, and to assist with curriculum development as it relates to educational technology. Virginia's coaches use management systems to provide online and hybrid professional development sessions to schools. Web 2.0 tools such as blogs and wikis help foster participation and collaboration and the development of 21st Century skills. http://www.doe.virginia.gov/VDOE/Technology/OET/itrt_guidelines.pdf

Washington Enhanced Peer Coaching Program

Washington's peer coaching program provides research-based professional development and is a central component of the state's NCLB Title II, Part D,

Enhancing Education Through Technology program suite. The program brings 281 teachers from across Washington online who are trained as peer coaches with a focus on technology integration. In a recent evaluation, 93% of participants report high levels of satisfaction with the training that includes 10 days of regional training, technology for the classroom, and Northwest Council for Computer Education Conference 2009 registration.
http://www.k12.wa.us/EdTech/peercoaching.aspx

> *"I am not exaggerating when I say this has been one of the most powerful programs I have been involved in within the twenty years I have taught."*
>
> —Washington State Enhanced Peer Coaching Program Participant

West Virginia Technology Model Schools

West Virginia Technology Model Schools are schools dedicated to using a Technology Integration Specialist as an intervention for school improvement and implementation of 21st Century teaching and learning. The Technology Integration Specialist (TIS) professional development program is comprised of 40 days of intensive training which results in an additional advanced credential to coach, mentor and provide modeling for other teachers to meet the West Virginia 21st Century Content Standards and Objectives. The program has been so successful with the initial implementation that the concept has been expanded to TIS with certification in Special Education, Library/Media, Title I, and Technical and Career Education.
http://access.k12.wv.us/

Education Portals

Education Portals offer a one-stop set of resources for educators, parents, and students to support teaching, learning, and leading. Portals provide access to shared resources and create an entry point to other information or services. This *one-stop shopping* enhances professional development experiences by administrators, teachers and coaches with the online support anytime and anywhere.

Portals often include: subscriptions, data systems, content standards, lesson plans, courses of study, research-based training resources, model classroom examples, engaging interactive media, Web resources, listservs, online portfolios, and other educational resources. A portal allows educators to quickly search for lesson plans or other resources by content standard, grade level, specific student and classroom needs, and/or topic. Education Portals in some instances may also provide access to online learning communities. Highlighted below are examples.

ALEX – Alabama Learning Exchange

ALEX offers resources linked to the searchable Alabama Courses of Study including: courses of study, web links, lesson plans, personal workspace, professional learning, and distance learning. These resources are designed to engage students and teachers in 21st Century learning and expand new opportunities. Parents also have access to ALEX so that they can help their child meet school expectations at home. ALEX averages about 34,000 individual teacher visits monthly. http://alex.state.al.us/index.php

Potential Benefits of Education Portals

- Bridge the urban-rural digital divide by ensuring that all districts have equitable access to high-quality resources.
- Support high-quality teaching, professional development and retention of teachers.
- Promote an online support network and learning community for teachers and administrators.
- Strengthen a standards-based, rigorous curriculum.
- Provide coaching and guidance to teachers to address the challenges of teaching a diverse student body and collaborate on winning strategies to address various learning styles, needs, and achievement levels.
- Give school administrators access to formative assessments and other resources.
- Offer administrators tools to securely communicate and collaborate with district personnel, as well as with the Department of Education.

Arizona Integrated Data to Enhance Arizona's Learning (IDEAL)

IDEAL is Arizona's web portal where educators can access educational resources and services with the ultimate goal of increasing the academic achievement of all Arizona students and supporting school improvement efforts throughout the state. Through a single sign-on, educators enter a web environment and can access a vast array of online resources including: online professional development, a streaming video library, online high-stakes practice tests, iTunesU K - 12, an online school improvement planning tool, and a formative assessment test item bank. IDEAL represents the commitment and dedication of the Arizona Department of Education and Arizona State University to offer online resources that support high-quality teaching and that provide an engaging, technology-rich learning environment for all Arizona students. http://www.ideal.azed.gov/node

"In Arizona, about 20,000 teachers access the IDEAL portal monthly. All IDEAL resources and lesson plans are aligned to support the teaching of Arizona standards. In addition, a variety of online professional development is offered to support key state initiatives."

—Cathy Poplin, Arizona's Deputy Associate Superintendent for Educational Technology

MassONE

MassONE is Massachusetts' set of web-based tools for communication, collaboration, and curriculum planning, which is designed to support PreK-12 standards-based teaching and learning. MassONE offers the following tools: workgroup spaces, virtual hard drive, discussion forums, survey tool, teaching and learning resources, curriculum tools, and a technology self-assessment tool.
http://massone.mass.edu/

Ohio

eTech Ohio and the Ohio Department of Education (ODE) helped schools develop and implement lessons aligned to the academic content standards for math and English/language arts. This set of web-based curriculum management and instructional design tools allows for online content/course development and management, or an "off-the-shelf" course/learning management system.
http://www.etech.ohio.gov/resources/index.jsp

Online Learning Communities

Online learning communities provide teachers across schools, school districts and states the opportunity to share resources, highlight strengths and gain support in weaker areas. The purpose of online learning communities is the opportunity for collaboration in a non-threatening environment and for teachers to learn and share without time or travel constraints.

e-Learning for Educators

e-Learning for Educators (EfE), a grant program funded by the U.S. Department of Education, provides high-quality, research-based, online professional development to teachers in 10 participating states: Alabama, Delaware, Kentucky, Maryland, Mississippi, Missouri, New Hampshire, North Carolina, Pennsylvania, and West Virginia. Over 12,000 teachers have enrolled in EfE workshops since June 2006. Ninety percent of the participants report improvements related to their instructional practices, and 84% agree that when they used EfE content, students showed better academic performance in content areas.
http://www.aptv.org/APTPLUS/elearning

"I have really enjoyed this online class and the ideas and activities others have introduced. It has made me rethink many of the activities from the classroom and piqued my interest in finding new ways to help my special education students." —eLearning for Educators Participant, Mississippi

Iowa Professional Development Model

Iowa's Professional Development Model incorporates video conferencing, peer coaching, and follow-up assessments and promotes individualized instruction. Teachers and coaches are able to watch others teach using video conferencing despite long distances. These professional learning communities provide teachers with the collegial support needed to increase the likelihood that teachers will adopt the new strategies into their behavior. The training and support has revolutionized the way that teachers in these districts instruct math and reading, and the data serves as proof of the program's effectiveness. http://www.perl.educ.iastate.edu/reports

PBS TeacherLine Peer Connection

Williamson County Schools' (TN) recent population boom has required the district to hire at least 300 new teachers each school year. The need for providing on-demand professional development resources and support is essential to these new teachers as well as the existing staff of 2,200. Williamson County is staffed with technology coaches, reading coaches, lead mentors, and curriculum specialists—a total of 40 professionals who provide services to their teachers. To maximize their effectiveness across this large district, Williamson County uses PBS TeacherLine Peer Connection, an online communication system and resource bank designed to support instructional coaches and mentors. This technology enables coaches and mentors to rapidly deliver access to instructional resources to their teachers while extending the learning opportunities between classroom visits. http://www.pbs.org/teacherline/

"Providing videos online that demonstrate strategies that we have discussed in person, allows me to increase my time and communication with teachers between visits."
—Williamson County Schools, Mentor

Teachers Learning in Networked Communities (TLINC) — Pre-Service

TLINC provides a professional learning community that expands in-person mentoring with online coaching and peer collaboration to improve teaching quality and student achievement. TLINC gives teacher candidates and novice teachers the support of an interactive network. The TLINC project seeks to achieve the five following outcomes in its three project sites:

- Improved teacher retention;
- Accelerated proficiency for new teachers;
- Opportunities for all teachers, administrators, and university faculty to become engaged in a learning community that continues to evolve;
- Establishment of partnership capacity-building structures and processes that assure sustainability; and
- Identification of the elements of TLINC that are the source of its power, to identify the essentials for replication and scaling.[13]
  http://www.nctaf.org/resources/demonstration_projects/t-linc/

"Transforming schools into 21st Century learning communities means recognizing that teachers must become members of a growing network of shared expertise." —National Commission on Teaching and America's Future (NCTAF)

Barriers to Sustainable Professional Development

1. **Funding & Teacher Time**
   Many states and school districts do not sufficiently fund sustainable professional development opportunities. Administrators are obliged to do this so that all teachers have access to such training. The National Staff Development Council advocates that "at least 30 percent of the technology budgets be devoted to teacher development because technology purchases have increased dramatically in many school districts during the past decade, often with little attention given to the development of teachers' abilities to use the technology." Opportunities for teachers to learn, plan, and practice are critical to maximizing the potential of technology to improve student achievement.[14]
2. **Lack of Understanding of the Importance of Quality Professional Development**
   Linking ALL professional learning to individual, school, district, and state goals or initiatives is a common practice among the best-practice districts for professional development. Unfortunately, in many cases, teacher professional development is not connected to school improvement goals and, therefore, is not a priority and lacks the resources necessary to be effective.
3. **Administrative Commitment to Sustainable Professional Development**
   Administrators often lack continued commitment to sustainable professional development, and staff members are left with unsupported requirements. Administrators must work with their staff members when identifying professional development needs and models and help teachers embrace professional development opportunities.
4. **Lack of Communication with All Stakeholders**
   Administrators, curriculum specialists, professional development leaders, teachers and technology support staff members often work in silos. All educational stakeholders must communicate regularly so that all parties understand and commit to a comprehensive professional development process.
5. **Access to Technology Tools**
   Schools find that access to the proper hardware and software tools can be an obstacle when implementing sustainable professional development. Information technology staff members need to be a part of the planning process so that broadband and access issues are addressed during the planning and implementation processes. Professional development training sites must mimic the classroom and school settings to provide ideal modeling for teachers.
6. **Deficiency of Pre-service Programs to Address Technology Integration**
   Colleges of Education must modernize their pedagogical instruction to best prepare teachers for 21st Century classrooms including technology integrated instruction for pre-service teachers. According to the theory *Technological Pedagogical Content Knowledge,* essential qualities of knowledge required by teachers for technology

integration in their teaching, while addressing the complex, multifaceted and situated nature of teacher knowledge, include the three primary forms of knowledge: content, pedagogy, and technology. True technology integration is understanding and negotiating the relationships between these three components of knowledge.[16]

Recommendations

1. Make Sustainable Professional Development Available to All Teachers.

States, districts, and schools can provide teachers with access to on-going and sustainable development through the following:

- **Provide a Technology Coach or Mentor per Every 1000 Students In Every School District Across The Nation.**

  Instructional technology coaches or mentors in schools provide opportunities for collaboration on planning and co-teaching to help teachers utilize new practices and resources. Sixty-six percent of teachers who were formally mentored by another teacher reported that it "improved their classroom teaching a lot."[16] Classes taught by new teachers working with teacher mentors are more likely to result in positive academic gains for students.[17]

- **Increase Access to Online Learning and Professional Learning Communities to Provide Anytime and Anywhere Learning for All Teachers.**
  Online learning communities provide teachers across the nation, states and school districts the opportunity to collaborate with their peers to share knowledge, best practices, and technology integration strategies.

- **Dedicate Funding to Implement and Maintain Best-Practice Education Portals in all 50 States.**
  Federal funding coupled with state funding can support the powerful Educational Portals that provide administrators, teachers and students with online resources, standards-based lesson plans and vetted curriculum resources. Portals help to streamline funding sources and provide equity of access to teachers regardless of district.

2. Provide New Teachers with Integrated Pedagogy.

Educational opportunities for pre-service teachers must include technology integrated tools to best prepare new teachers for 21st Century classrooms and build teachers that are life-long learners. School district professional development leaders should establish relationships with higher education institutions so that first-year teachers are prepared to best meet the needs of 21st Century classrooms.

For example, more than 300 schools of education in the United States have created programs that extend beyond the traditional four-year bachelor's degree program, providing both education and subject-matter coursework that is integrated with clinical training in schools. The TNLINC link example above provides clear data on the effectiveness of pre-service programs.

3. Ensure Administrators Have Access to Training and Support.

School leadership is essential to comprehensive reform. School administrators also need on-going support and training to best serve their schools, and this is especially true of support efforts to maximize the potential of technology to improve teacher quality and student achievement. Administrative professional development opportunities must include the same critical elements identified for teacher professional development.

4. Conduct Research Investigating the Efficacy of Comprehensive Professional Development Models.

States and the federal government must dedicate funding to analyze the effectiveness of job-embedded professional development in improving teacher retention rates and transforming instruction. Similar to the federal Evaluating States Education Technology Programs (ESETP) grants that studied the Texas TIP, North Carolina IMPACT and Iowa Professional Development Model, policymakers must fund research on various professional development approaches that support improved instructional practices and teacher effectiveness in the classroom. These studies as well as external research of the eMINTS program have provided critical data tying effective professional development to strong gains in student achievement. Results of this research must be disseminated across the nation to ensure that other states, districts, and schools can learn from the results.[18]

Conclusions

American teachers are the backbone of our education system. Providing teachers with the tools necessary to create a positive, 21st Century-based learning environment is not simply an option — it is a requirement. Teachers need high-quality, sustainable professional development to create and maintain effective instructional environments for all students. Technology tools are a critical part of providing teachers support at all times from any location.

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