Research Article

Providing effective professional development in technology for K-12 educators

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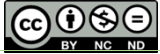
Article Info	Abstract
	All too often, traditional professional development (PD) does not connect to the classroom and teachers find PD ineffective (Salem et al., 2019). Sogunro (2022), concurs and found in a multi-year research investigation (132 participants) that a majority of teachers surveyed did not feel that PD met their needs and was a waste of time. Providing and designing effective professional development (PD) in the area of technology integration for K-12 teachers involves multiple factors that include teacher input, creating an environment for designing practical applications, and opportunities for collaboration between participants. Teachers need to be involved in the decision-making process as to what is being presented, giving them an invested interest in the PD. This paper will address these issues and offer some supportive suggestions.

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Introduction

The creation of a PD activity should also be a collaborative effort that includes the educational technology professional, K-12 teachers, and administrators. Professional development should provide opportunities for teachers to create and design contextual-based activities that each teacher can take home and use in their own classroom, thus making the PD activity practical and applicable. The PD experience also needs to provide opportunities for participants to share and collaborate with each other. The creation of a Professional Learning Community (PLC) with the participants after the workshop or activity is completed will create a learning environment that provides collaboration opportunities for teachers to test out and try new ideas with technology in their classrooms.

Background

From 2003 – 2013, the author was employed as the Professional Development (PD) Manager for Technology Integration in a school district consisting of over 200 schools. During that time, I provided professional development activities for individual schools within the district. These activities consisted of a one-time approach (a single workshop) to a series of connected workshops. The focus of the workshops/activities was for teachers to incorporate technology into their curriculum for effective teaching practices. During the time spent providing PD, I learned several important aspects of providing successful professional development as it pertains to integrating technology into teachers' classroom practices.

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Pre-workshop/Information Gathering/Structure

Beginning a PD technology program or workshop starts before the physical meeting or PD activity begins by surveying the participants. The survey should find out what teachers are interested in learning and should allow flexibility in adjusting the professional development activity to meet the needs of the teachers. If an online survey is not possible, the creation of an informal information-gathering activity with participants at the start of the workshop is beneficial. Liberman (1995) points out that teachers are classroom experts and have their own teaching and learning styles in addition to their own expertise in technology skills. Liberman also suggests that we need to use a teacher's existing knowledge in developing PD activities. Teachers need to be able to discuss innovative ideas and have opportunities to try them out in their classrooms.

For example, at the start of the PD activity, provide time for a "gathering" session to find out what teachers are interested in learning as it relates to the day's topic or PD activity.

A sound PD plan will allow for a certain amount of deviation from the designed plan if teachers suggest variations to the activity. In addition, Cochran-Smith and Lytle (1992) point out that the PD should be relevant to the teacher. The activities should align with the expectations of the learning environment or culture of each classroom. This creates a meaningful context for the PD. Unrealistic expectations and activities that teachers cannot try out in their own classroom should be avoided. The teachers should leave the workshop thinking, "Cool, I can't wait to try this out in my classroom!" The goal of the PD experience should be for the participants to reflect on "best practices" with technology that they can in turn share with their colleagues. In addition, information gathering should be done at the end of the PD with a post-survey. This summative assessment should be used to direct follow-up activities.

Breaking the PD activity into shorter segments of time and taking small breaks will allow for formative assessments of the learning environment. For example, after the first ninety minutes, it would be appropriate to take a session break to assess what the teachers have learned or with what skills and concepts they are struggling to understand. Challenges could be in either technology skills or pedagogical concepts on how to apply the new technology into their classroom. In addition, opportunities for teachers to model and share what they have learned with colleagues are important.

Shared Knowledge and Vision

Providing opportunities for teachers to share knowledge of best practices and technology expertise are important parts of a successful technology integration program. Tondeur, Forkosh-Baruch, Prestridge, Albion, and Edirisnghe (2016) concur and found that it was important to create a shared vision of technology between all stakeholders. This vision creates links between best research practices and classroom teaching among professionals. Participants' involvement in the decision-making process about what is being presented and learned creates motivation and engagement. One approach to building a shared vision in best practices in technology integration is to create a Professional Learning Community (PLC). Tondeur et al. (2016) and Kozma (2003) agree and claim that PLCs and/or outside collaboration promote innovative teaching and effective practices in the classroom. In short, they point out that teachers are engaged when they share ideas about innovative classroom practices, thus creating a positive learning environment. Participation in a technology workshop or program provides opportunities to create a PLC or a network where teachers can share and reflect on their experiences (Salem et al. (2019). Once the workshop is completed, possibilities for collaboration online and within individual schools should be provided to the participants. PLCs can consist of teachers from the same school and/or between multiple schools and districts.

Teachers as Designers

Glazer, Hannafin, Polly, and Rich (2009) and Ben-Peretz (1990) tell us that teachers collaborating with others can have a positive effect on technology adoption. They found that teachers designing together to develop original lesson plans, not only engage teachers but also positively affect student learning. Glazer et al. (2009) claim that teachers need to be comfortable in an effective PD environment and that comfort comes from designing lessons with peers within

their own content area. Collaboration between teachers can provide a positive environment for learning because teachers tend to respect peers within the same school community who have shared common experiences.

Ben-Peretz (1990) promotes the need for teachers to be involved in a designing experience that allows them to develop a curriculum that can be implemented in their own classroom. For example, teachers should be able to create activities and lessons collaboratively using technology. The PD activity should be more than merely developing technology skills. According to Kali, McKenny, and Sagy (2015), the process of design should "... include the process of mapping and/or actually developing specific resources for teaching or learning" (p. 174). Similarly, Gerard, Varma, Coriliss, and Linn (2011) found that teachers producing works or artifacts for learning become applicable because teachers can take the product or artifact with them to be used in their classrooms after the workshop ends. The designing of real-world artifacts (with technology) makes it practical and relevant to teachers. As Boschman, McKenney, and Voogt (2014) and Corcoran and Silander (2009) point out, teachers working collaboratively feed off each other's work to produce better products. One approach to designing products or artifacts with technology for learning is to provide opportunities for teachers to develop constructivist or inquiry-based activities.

Sabzian, Gilakjani, and Sodouri (2013) found that learning through contextual-based activities helps teachers become successful in integrating technology. Constructivist activities, like project-based learning, provide an inquiry activity that becomes a means of expression in which meaningful learning takes place. Giordano (2007) concurs and suggests that teachers (and teacher candidates) need to be involved in creating and planning constructivist activities and projects that promote higher-order thinking (HOT) and/or Critical Thinking Skills. This sharing of ideas through collaboration and contextual inquiry-based experiences can lead to the successful construction of lessons and artifacts for their classroom. Tondeur, Forkosh-Baruch, Prestridge, Albion, and Edirisnghe (2016) state "Teacher inquiry leading to development of projects that are sensitive to local context can be effective for promoting teachers' professional learning at the same time as enhancing learning in the classroom" (p. 116).

In addition, Koehler and Mishra (2005) tell us that sharing of ideas, collaborating with other professionals, and learning by design will increase a teacher's motivation to use technology in their classroom.

Motivation and Beliefs

Motivation and personal beliefs about how technology is used in the classroom is a factor in teachers' adoption of technology. A study by Giordano (2007) found that the design of the PD experience affects teachers' beliefs and experiences when integrating technology into classroom lessons. Teachers believe the ability and/or opportunity to share knowledge with one another supports their own use of technology. Similarly, Howard, Chan, and Caputi (2015) claim a factor influencing the use of technology in the classroom is affected by a teacher's belief or preconceived notions about how technology should be used. They claim for successful integration to occur, teacher beliefs should be matched with their content areas and emphasize student-learning outcomes.

Kanaya, Light, and Culp (2005) agree and further suggest that teachers need to be able to use what they have learned regarding technology integration with their students. Kennedy (1999) also found a need to support the student learning process by designing a curriculum that includes technology. He found that PD activities can be effective if the depth coverage is promoted over the breadth of instruction and that professional development also needs to be consistent, over time, and sustained. Additionally, the diverse skill levels of PD participants should be a consideration.

The technology skill levels of teachers may vary in a PD activity from novice user to expert. When presenting or organizing a PD activity be aware that novice users may get frustrated because the pace of the workshop may be too fast. They may become overwhelmed resulting in a negative PD experience. Adversely, expert users may quickly become bored and feel they are wasting time waiting for the novices to learn new skills or concepts. To avoid this situation, it is best to pair up novice users with experts. In this pairing, the novice users will have assistance in learning the new technology skills and the experts may feel they are contributing to the professional development activity.

Conclusion/Recommendations

Successful PD for K-12 educators involving technology integration should be incorporated into a contextual learning experience. The PD needs to be both skills-based and more importantly, contextually based within the teacher's classroom environment. Providing context for learning technology offers a real-world learning experience. Teachers need to explore new and innovative technology relevant to their own classrooms. The PD experience needs to encourage teachers to share new knowledge and skills with their colleagues.

Professional development leaders should create a PLC with teachers from the technology workshop or program. Developing a working PLC means providing follow-up activities and resources online. Online resources should include workshop handouts and systematic directions of all activities. In addition, facilitators should provide online opportunities for teachers to share ideas and support one another. This can be accomplished by creating a free or simple blog or wiki where teachers can share and post ideas. Finally, provide a post-survey in order to direct future activities. The survey should allow participants to describe what worked well, what did not, and suggest changes and directions for future workshops. The following is a list of PD guidelines:

- ➢ Provide a pre-survey of teachers' needs, wants, and expertise levels.

- ➢ Providing realistic learning environments. Match the learning environment at the school. Don't create unrealistic expectations in a PD that teachers cannot try out in their own classroom.

- ➢ Informal information gathering at the start of the PD activities. Find out what the teachers are interested in learning.

- ➢ Do not be afraid to deviate from the PD plan if teachers want to go in a different direction.

- ➢ Provide written and online resources for all activities.

- ➢ Experts versus Novices, blending/benefiting both groups at the same time.

- ➢ Provides hands-on activities with real-world practical classroom

- ➢ At regular intervals poll participants and get informal feedback on the direction of the PD

- ➢ Provide a post-survey for future activities:

- ➢ Provide follow-up activities and resources online.

- ➢ Start and finish on time.

References

Ben-Peretz, M. (1990). *The teacher curriculum encounter*. Albany, State University of New York Press.

Boschman, F., McKenney, S., & Voogt, J. (2014). Understanding decision making in teachers' curriculum design approaches. *Educational Technology Research and Development*, *62*(4), 393–   416.

Corcoran, T., & Silander, M. (2009). Instruction in high schools: The evidence and the challenge. *The Future of Children, 19*(1), 157-183.

Cochran-Smith, M., & Lytle, S. (1992). *Inside/out: Teacher research and knowledge*. New York, NY: Teachers College Press.

Gerard, L., Varma, K., Corliss, S., & Linn M. (2011). Professional development for technology-enhanced inquiry science. *Review of Educational Research, 81*(3), 408-448.

Giordano, V. (2007). A professional development model to promote internet integration into P-12 teachers' practice: A mix methods study. *Computers in the Schools*, *24*(34), 111-123.

Glazer, E. M., Hannafin, M. J., Polly, D., & Rich, P. (2009). Factors and interactions influencing technology integration during situated professional development in an elementary school. *Computers in the Schools, 26*, 21–39.

Howard, S., Chan, A., & Caputi, P. (2015). More than beliefs: Subject areas and teachers' integration of laptops in secondary teaching. *British Journal of Educational Technology, 46*(2), 360-369.

Kali, Y., McKenny, S., & Sagy, O. (2015). Teachers as designers of technology enhanced learning. *Instructional Science*, *43*(2), 173-179.

Kanaya, T., Light, D., & Culp, K. M. (2005). Factors influencing outcomes from a technology-focused professional development program. *Journal of Research on Technology in Education, 37*(3), 313-329.

Kennedy, M. (1999). Form and substance in mathematics and science professional development. NISE Brief, *3*(2), 7. Madison, WI: University of Wisconsin-Madison, National Institute for Science Education.

Koehler, M., & Mishra, P. (2005). Teachers learning technology by design. *Journal of Computing in Teacher Education, 21*(3), 94-102.

Kozma, R. B. (2003). Technology and classroom practices: An International study. *Journal of Research on Technology in Education, 36*(1), 1-14.

Lieberman, A. (1995). Practices that support teacher development. *Phi Delta Kappan, 76*(8),   591.

Sabzian, F., Gilakjani, A. P., & Sodouri, S. (2013). Use of technology in classroom for professional development. *Journal of Language Teaching & Research, 4*(4), 684-692.

Salem, K.R., Abdullah, M., Haron, H.N., & Ishak, R. (2019). A Team-Teaching model in an informal Cooperative learning classroom. *International Journal of Emerging Technologies in Learning*, *14*(20), 44-57. https://doi.org/10.3991/ijet.v14i20.11458

Sogunro, O. A. (2020). Focus of professional development on teachers' felt needs: A Paradigm shift in policy. European Journal of Educational Management, *5*(1), 63-75.

Tondeur, J., Forkosh-Baruch, A., Prestridge, S., Albion, P., & Edirisinghe, S. (2016). Responding to challenges in teacher professional development for ICT integration in education. *Educational Technology & Society, 19* (3), 110–120.