Chapter 115

The Impact of New Technologies on Professional Development

Sarah T. Meltzer
Western Carolina University, USA

ABSTRACT

Professional development in schools is not a new concept; however, the impact of new technologies in the past two decades has shown it is important to incorporate research-based strategies in order to be effective. While strategies for curriculum-focused trainings may have been effective in the past, technology-focused training must take a different approach in the 21st century. Effective professional development will positively impact student achievement and is critical for sustainable school reform. This chapter addresses the importance of developing a new learning environment conducive to supporting professional development in technology. Key strategies necessary to support students' needs in the 21st century are explained. Without an emphasis on specific activities and opportunities throughout the phases of planning and implementation, professional development will not be sustainable and student achievement will not be impacted.

INTRODUCTION

The challenge to improve and sustain a quality educational experience for our children is a top priority for today's educators. While the past can provide insight and many good lessons, we cannot continue to do business as usual. Not only has society changed in many ways, but the tools we use and are expected to use have also evolved. For centuries teachers successfully taught students to read and write using only paper, pencils, and chalkboards. With the influx of technologies in the late 20th century, teachers began to experience overhead projectors in their classrooms and access to the Internet somewhere in the school. These were introduced into schools as necessary new technologies. Within a very short period of time, we have seen teachers provided with classroom

access to a variety of new technologies such as classroom computers with projectors, digital cameras, interactive whiteboards, and an assortment of technology-based instructional tools and software. The expectations for teachers to use these new technologies have been met with a variety of responses from teachers ranging from excitement and anticipation to fear and frustration of the unknown. Unfortunately, the knowledge to appropriately use these often unfamiliar devices to support instruction has not evolved in conjunction with their arrival.

Regardless of the focus of the training, effective professional development has been defined as "that which results in improvements in teachers' knowledge and instructional practice, as well as improved student learning outcomes" (Darling-Hammond, Jaquity, Midich, & Wei, 2010, p. 2). This impact of new technologies in schools has had a direct impact on the need for additional professional development. Unfortunately, this influx of hardware and software into schools has translated to additional demonstrations, vendor presentations, and one-shot workshops rather than effective and sustainable trainings or workshops for teachers. School administrators often blame the technology for being ineffective when this is not necessarily the case. It is important to consider and implement the key elements of effective professional development for sustainable, technology-based professional development.

The need for teachers to receive on-going professional development or in-service training throughout their teaching career is well supported by national, state, and local school organizations. Teachers attend trainings to learn new behavioral or instructional strategies as well as to learn the most effective ways to utilize new curriculum materials. However, when professional development becomes technology-focused rather than curriculum-based, the training is often inadequate and not effective. In many cases, teachers have had difficulty integrating technology into classroom instruction; although, they have had attended

what was considered sufficient professional development. Traditionally, when professional development for new curriculum materials or a behavioral strategy is introduced into a school, a single workshop is provided to explain or demonstrate the expected outcome. While it may be effective to demonstrate how a new math textbook is organized and how a new manipulative may be used in math instruction, this is not an effective way to provide training for new math software. In the past, this has often been sufficient because the workshop participants were familiar with the curriculum content area and/or the goal and purpose of the new behavioral strategy. However, teachers rarely have experience in integrating technology into their classroom instruction. Generally, curriculum-focused workshops do not consist primarily of new information that is not based on the existing foundation knowledge of most teachers. This, however, is not the case with technology-focused workshops. Teachers often do not possess strong background knowledge of the hardware or software use when they come to the workshop. Consequently, the skills learned are not transferred to the classroom. Teachers may learn how to navigate through the software; however, they rarely learn how to actually implement the software effectively within the classroom setting. Essentially, teachers are often being expected to change how they teach. Without effective professional development, teachers will lack the skills to transfer this knowledge from the workshop setting to the classroom. This disconnection between curriculum-based professional development and technology-based professional development can substantially impact student achievement over time.

This chapter addresses the support and need for effective professional development and the necessity to include research-based strategies. Recommendations by national, state, and professional organizations support the integration of technology skills into classroom instruction. The term 'professional development' will be used

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