Technology Use in Relation to National Educational Technology Standards

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Introduction

This case study analysis analyzes the results from a study meant to highlight technology use in a Florida district. The district had a student body of 113,017 students, and featured a technology supervisor at the district level. The sample size of the study featured 2,156 teachers. The study focused on teacher's instructional modes in relation to technology outlined in National Educational Technology Standards (Schrum, 2011). A survey was sent to teachers that seeked to focus on 4 domains: technology integration, support, preparation, and confidence (Schrum, 2011). The level of experience and areas of expertise varied for the teachers featured in the study. 61% of teachers had a bachelor's degree, while 36% had a masters degree. 2% were specialists or had doctorate level degrees. 547 of the 2,156 teachers indicated a specific subject area that they taught. 33% of teachers in the study taught language arts, 28% taught math, 20% taught science, and 19% of the teachers taught social studies (Schrum, 2011).

Main Issues

Analysis of the data indicates a statistically significant difference in the use of technology between grade levels and subject areas. For example, when teachers were asked if they used technology frequently to support problem solving, 29% of teachers at the elementary level said that they did, while 23% at the middle school level said they did and 20% of high school teachers said they did (Schrum, 2011). When asked whether or not they use technology frequently as a communication tool, 59% of elementary teachers said that they did, while 54% of middle school teachers and 48% of high school teachers said that they did (Schrum, 2011). There was a similar disparity in the use of research tools between grade levels, but it seemed that the grade level distribution was reversed, as 40% of high school teachers reported that they used technology for

research frequently, while 34% of middle school teachers and 32% of elementary school teachers said that they used technology for research frequently (Schrum, 2011).

Additionally, science teachers clearly used technology the most for the purpose of research, problem solving, productivity, and communication. Math and language arts teachers reported that they used technology the least for these purposes.

These disparities have important implications. An increase in the use of technology could support student achievement in mathematics and language arts. Also, using technology for research more in the lower grade levels could lead to increased student achievement.

Solutions and Rationale

One of the solutions to the issues presented would involve providing professional development to assist in the integration in classrooms for teachers who teach math and language arts. It has been found that high level tasks presented with the use of technology in mathematics can improve student outcomes at a statistically significant level (Drew, 2016). One such technology could be showing teachers how to use the Math Learning Center, which features apps and manipulatives to help students engage with technology in math. Also, as technology becomes more integrated with society and the meaning of "literacy" begins to change, it is essential for language arts educators to be increasingly literate in technology and understand its benefits and drawbacks (Swenson et. al, 2005). However, this technology integration cannot survive in schools unless it is integrated by all educators (Garland & Tejada, 2013). Teachers have historically reported a lack of time to develop technology expertise, especially when the technology is new (Garland & Tejada, 2013). More time should be provided to support this training.

Another recommendation would be to provide training to teachers on how to utilize research more effectively at the elementary level, and involve the school librarian in the instruction of research practices that students will build on each academic year in elementary school. Research is something that students should become accustomed to doing at a young age, and they must be trained to become skillful consumers of information, since this is something that even older students struggle with (THE Journal, 2017). Providing training for teachers to help them become more well versed in teaching research practices to students at a young age will serve students for years to come and have a positive effect on learning outcomes (THE Journal, 2017).

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