

EDUC 639 Webibliography - Technology and Teacher Self-efficacy

Leigh Langston

Liberty University

Reference

Schrum, L. (2010). *Considerations on technology and teachers: The best of JRTE*. Oregon: ISTE.

Summary

In an effort to revitalize and continue research in educational technology, Lynne Schrum (2010) compiled articles to demonstrate what has been found so far. For effective learning, “a proactive approach to establishing a research agenda can potentially provide guidance to future investigators” (p. 21). Schrum believes that educators must work together in collaboration and keep lines of communication open in order to learn what works. This book is an example of sharing new information. Each article contained an update from the authors giving insight as to its current relevancy.

Many articles revealed that teacher self-efficacy in using and integrating technology was crucial to the success of implementation. First of all, teachers need to have the confidence in the technology before being able to use it in the classroom. Second, before they put the time in to learn the technology, they must first believe that it is beneficial to be used in the classroom. Third, the educational programs for pre-service teachers must give them opportunities to use the technology.

Critique

The amount of information in this book was overwhelming. Some articles were difficult to read because of the many statistical data provided. The author updates of these previously printed articles were helpful as it updated, affirmed or debunked their research. Every article provided suggestions for further research to be conducted. The research mainly stuck to the

theme of analyzing current practices with none offering radical, out of the box programs or solutions except to conduct more research.

From doing research for the literature review, it was painfully obvious that data research concerning the topic of Bring Your Own Device needs to be considered. Also, continual monitoring of the data for technology use in the classrooms needs to be completed regularly. Not only will this gauge effectiveness and usage but may also pattern a future trend.

The conclusion gathered by all this is we, as educators, need to work together because we are not going to be able to figure this all out on our own. A lesson I am continually learning.

Reference

Fulton, K. (2012). 10 reasons to flip: A southern Minnesota school district flipped its math classrooms and raised achievement and student engagement. *Phi Delta Kappan*, 20-24.

Summary

When math textbooks needed to be replaced in 2009 because of poor conditions and in needing to be updated with current standards, teachers were at a crossroads in the Byron School District in Minnesota. Faced with no money to purchase new textbooks, teachers learned quickly to use technology innovations to develop a math curriculum using the flipped classroom. By breaking down the state's standards, examining students' test scores and previewing math curriculum, the teachers embarked on creating their own curriculum by using Open Source technologies like Moodle, YouTube and Khan Academy.

By starting with baby steps and over the course of two years, the success of the program caught the attention of other departments. In addition to the success of the math program, Byron High School was given the School of Distinction Award for Mathematics from Intel in 2011.

The article refers to the 501 high school students and the math teachers at Byron High School as the participant sample. The necessity under which this research was developed lends itself to be action oriented. The results of the pre- and post- course surveys indicated student satisfaction with the flipped classroom model, with 97% of the students having access to high speed Internet and with accommodations being met with DVD and CD requests of lessons missed where the student did not have Internet access (p. 24). A volunteer parent survey indicated an 84% approval rating in the structure of the classes (p. 23). At the end of the 2012 school year, the study indicated that "94.5% of Byron's seniors had completed four or more years of math" (p. 24).

Critique

What an awesome opportunity for these teachers to be able to develop a product for their students that produced a successful result. As educators, we have problems each and every day whether it is money to buy textbooks, money to buy software or money for professional development. That did not stop these teachers. They used innovation, collaboration and available Open Source resources to teach math to the high school students.

The implications are moving towards a digital classroom. With Byron High School setting the examples of success with its students and with the determination of its teachers, soon other departments and school districts will follow their lead.

The survey questions and process of analysis of the information was not available. There was no indication as to what tests were administered to determine the beginning and ending data other than the surveys. An assumption can be made that the standardized tests for the state were used as were the standards to prepare the curriculum.

This was a great example of what can be accomplished when teachers collaborate and use the Internet and other technologies to teach what students need to learn.

Reference

Cristol, D. and Gimbert, B. (2013). Academic Achievement in BYOD Classrooms. QScience Proceedings: Vol. 2013, 12th World Conference on Mobile and Contextual Learning (mLearn 2013), 15. DOI: 10.5339/qproc.2013.mlearn.15

Summary

Mobile technology is readily available in today's society. The use of technology is becoming more and more essential in the classroom. Because of this growing trend and the shrinking budgets, schools are looking for a way to continue to meet the standards being set and budgets being met. Thus the use of mobile learning devices in the classroom provided by the students and teachers under a Bring Your Own Device (BYOD) policy specifically in the rural, Midwest US. Is BYOD in the classroom effective to increase student achievement as opposed to the success of those who do not use these mobile devices?

From a rural school district in the Midwest US, a group of 8th and 10th graders were assessed in several subjects on the effectiveness of using mobile learning devices (MLB) in the classroom. Due to the limited sample sizes, several subjects at each grade level were eliminated from the analysis. The research indicated that no one who took the 8th grade assessment also completed the 10th grade assessment. The researchers indicated a preliminary positive effect when measuring the scores of those using MLDs versus those who did not. However, due to the limited number of the samples size, these results may not be reproducible.

Critique

More detailed research needs to be conducted as to the overall effectiveness not measured in test scores alone. Researchers indicated that student enthusiasm and teacher effectiveness needs further investigation. The validity of this research is questionable due to the fact that no

one completed the process. I would be more inclined to believe the positive results if I know the 8th graders who entered the study showed improvement when tested in the 10th grade. This research seemed to only measure by group test scores. One cannot be impressed with the positive results indicated by test scores alone. The specific policies, school environment and teacher education all factor into the success of a program.

Reference

Herro, D., Kiger, D., and Owens, C. (2013) Mobile technology: Case-based suggestions for classroom integrations and teacher educators. *Journal of Digital Learning in Teacher Education*. 30-40.

Summary

With the adoption of BYOD and the use of mobile technology on the rise, educators need to integrate this technology into classroom instruction. The BYOD movement is controversial with security and equity being viable concerns. Herro, Kiger, and Owens (2013) offer suggestions as to how educators can use mobile technology effectively in the classroom by case.

Case 1 discussed the introduction of mobile technology in the elementary school level using the iPod touch device. Case 2 discussed high school students creating games on mobile devices using Augmented Reality - Interactive Storytelling (ARIS). This led to an after school club where they learned more about gaming and app development. In the end, a new course was developed and will be offered to allow the computer science concepts to be used in creating mobile games and apps. Case 3 discussed the teacher education programs and mobile technology. Each of the three cases discussed at least the following: implementation, policies, professional development, funding, challenges and outcomes.

Critique

The article was very informative as to the issues with implementation of use of mobile learning devices and BYOD. The case studies used as examples hit the major groups affected by this movement: elementary, middle/high school, as well as, teacher education programs. The examples and solutions offered were success stories from pilot programs at actual schools. This allowed the reader to see real-world implementation and steps to consider when faced with the

same issues. Information was given where professional development was needed as well as funding suggestions as it related to the case being discussed. The results of each case were also given with step by step actions that were taken in order to have a successful outcome which is important to the reader.

Visionary leadership is vital to the trickle down effectiveness of a successful implementation for BYOD and mobile technology. Professional development and funding are crucial to the program as is technical support that is reliable. The researchers suggest working in collaboration with the community will also aid in the overall program success.

Reference

Pegrum, M., Oakley, G. and Faulkner, R. (2013). Schools going mobile: A study of the adoption of mobile handheld technologies in Western Australian independent schools. *Australasian Journal of Education technology*. 66-81.

Summary

Pegrum, Oakley and Faulkner (2013) discuss the use of mobile technology in ten independent schools in Western Australia ranging from PK-12. The literature review conducted for the study recognized the limited availability of research material. The review consisted of defining e-learning (electronic), m-learning (mobile), and u-learning (ubiquitous) (p. 67). These models of learning address the usage of personal mobile devices in a BYOD (Bring Your Own Device) setting using personal Smartphones and iPads. Because iPads are widely used in the field of education, much of the discussion revolved around using them to enhance pedagogy. The conclusion of the experiment with using the mobile devices was that they were “motivating and engaging for students” (p. 69).

The researchers conducted interviews to determine how educators use mobile technology and why. They asked about the benefits, problems and discussed what professional development programs would be most beneficial. The benefits of using mobile learning devices were the “motivation and engagement for students” (p. 74) as well as it fulfill the government curriculum requirement. The drawbacks mentioned were issues involving hardware, software, network reliability and IT restrictions. As well, ethical and staff issues were discussed as “crucial” because of safety concerns and lack of enthusiasm among staff (p. 75). From the interviews, the need for professional development (PD) was discussed. Items of concern were time needed for

PD, “the focus on pedagogy over technology” (p. 76), the most effective way to target PD and the building of a community network to harbor collaboration efforts.

The researchers came to the conclusion that using mobile learning devices in the educational setting is still experimental. The need for professional development on how to best integrate technology was needed.

Critique

The article described mostly what was being implemented as far as mobile technology was concerned. The only data available was for iPad usage in the ten independent schools within the study although other devices were mentioned being used. The focus on the overall practices was vague. No real solutions were offered except continued experimentation with mobile devices was encouraged.

One can come to the conclusion that the use of mobile technology in the classroom will continue to grow and educators must keep informed. There is no professional development program being offered to help streamline the process which could hinder the process.