Abstract

Even though great strides have been made in technology access, a digital divide continues to exist in Mississippi classrooms because technology is not being appropriately integrated into curriculum and instruction. The overall goal of the current Delta State University DEI and PT3 grant projects is to increase faculty and pre-service teachers’ knowledge and skill levels in technology by making the necessary hardware and software available, developing digital learning partners, and implementing training programs. In order to evaluate the effectiveness of this goal, a longitudinal study has been conducted over a series of years. As a result, a large data set (i.e., 580 participants) has been generated over the last three years.

The present study is based on the prediction that as college faculty and pre-service teachers experience work and training in technology applications, their knowledge and skills in technology will show significant gains. Furthermore, the advancements of college faculty will result in technology applications being demonstrated in the teacher preparation program, which will in turn result in pre-service teachers significantly improving their knowledge and skill levels in technology. Previous studies have demonstrated that faculty members’ technology skills correlate with the skills of their students’ in teacher preparation programs (Moursund & Bielefeldt, 1999).

The current data demonstrate that the goal of increasing college faculty and pre-service teachers’ knowledge and skill levels was successfully accomplished. Quantitative measurements of technology knowledge and skill level were obtained from two different assessment tools: Profiler (30-item scale) and Performance Task Assessment (PTA; 19-item scale correlated with ISTE technology standards). Also qualitative measurements of faculty’s technology knowledge and skill levels were gathered using structured interviews. Overall, the qualitative and quantitative data reveal very exciting and encouraging results. Significant advancements in technology knowledge and skill levels for both faculty and pre-service teachers were demonstrated in five primary categories: 1) Operating Systems, 2) Trouble Shooting and Maintenance, 3) Tool Applications, 4) Internet, and 5) Multimedia (see Figures, 3, 6, and 9 [Note, only a subset of the figures are included due to space limitations]).
Figure 3
Faculty Performance on Profiler Survey as a Function of Time of Testing and Technology Skills

Figure 6
Student Performance on Profiler Survey as a Function of Time of Testing and Technology Skills
Although these results have demonstrated significant gains in technology skills for both college faculty and pre-service teachers, it is important discuss some limitations of the project design. The reason for the hesitancy is that training program may not have been the only contributing causal factor. That is, the designs used in the present study are more of a quasi-experimental structure (i.e., not controlling for all extraneous variables). There may have been other factors present other than the training program that led to advances in technology skills. Also, the project did not compare the advancements of college faculty and pre-service teachers with similar control groups (i.e., groups that received no technology training). Thus, the gains observed in technology knowledge and skill levels may be the result of experiences that college faculty and students have over time on a university campus. The large scope, duration (i.e., three years), and goal (i.e., to train all pre-service teachers) of this longitudinal project made it very difficult to control for extraneous variables and involve a control group.

Keeping these limitations in mind, overall, the results of this study demonstrate tremendous advancements in technology knowledge and skill levels for both faculty and pre-service teachers. Faculty significantly increased their knowledge of technology and ability to use technology as they worked on their technology projects and received training (see Profiler results). Follow-up structured interviews also revealed that the faculty are becoming so comfortable and confident in using technology that they are integrating it into their curriculum and are requiring pre-service teachers to work more with technology. This is an all-around benefit for faculty and students! Pre-service teachers also dramatically increased their technology knowledge and skill levels as they progressed through the teacher preparation program. Pre-service teachers most likely learned more about technology and how to use it through a combination of coursework involving technology, observing the appropriate use of technology in their college classrooms, using the College of Education Center for Teaching and Learning laboratory, and consulting with faculty and laboratory staff.
Also, the findings indicate that the patterns of technology knowledge and skill level advancements were similar for both faculty and pre-service teachers. These findings provide support the results of Moursund and Bielefeldt (1999). As discussed earlier, Moursund and Bielefeldt found that faculty’s technology knowledge and skill levels were positively correlated with the knowledge and skills of their students’ who experienced their teaching in the classroom. The patterns are observed with both faculty and pre-service teachers displaying significant strengths in the area of Operating Systems. The areas of weaknesses in Trouble Shooting, Tool Application, and Multimedia skills were also demonstrated by both faculty and pre-service teachers in pre-testing. Over the years, as the faculty made advancements in their technology knowledge and skill levels, the pre-service teachers made advancements as well.

These patterns of correlation in technology skills between faculty and pre-service teachers are very encouraging from the perspective being purported by the granting agencies which predict that as faculty’s technology knowledge and skill levels improve so will the pre-service teachers’. The support of this perception from the results of the present DEI and PT3 projects suggests that the College of Education at Delta State University will greatly benefit from continued training and support of the faculty in the teacher education program. Furthermore, in the “long run,” this progress will significantly affect Mississippi’s elementary and secondary schools as Delta State pre-service teachers graduate and obtain employment at Mississippi schools. Because of training, the development of digital learning partners, and the availability of software and hardware, Delta State education graduates will possess the knowledge and skills to effectively use technology within the classroom and create a rich digital learning environment for PreK-12 students. The continued effective integration of technology into curriculum and instruction will, in turn, help narrow the digital divide that currently exists in Mississippi schools.

Conclusion

In summary, the current longitudinal study is on-going and has accumulated a large data set over the years. The qualitative and quantitative findings demonstrate that the overall goal of increasing faculty and pre-service teacher’s knowledge and skill levels was successfully accomplished. It is evident that, through the funding of the DEI and PT3 grants, implementing training programs and making the necessary software and hardware available resulted in tremendous faculty and pre-service teacher technological advancements over the past 3 years. The data thus far reveal very exciting, promising, and encouraging results.

References