Web-Based Learning and Teacher Preparation: Lessons Learned

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Abstract

Data was collected on technology-related issues involved in the conversion of a teacher preparation program into an online, competency, and field-based model. Faculty issues involving instructional design, workload, and merit/tenure were examined, as well as the effects of web-based course delivery on student and faculty interaction, competency acquisition, technology proficiency, and learning outcomes. Results support significant improvement in technology proficiency, comfort level, and perceptions of competence for faculty and students. In addition, competency acquisition remained constant or improved across all courses in the program sequence. Future research is needed using a larger population sample and an experimental/control group paradigm.

Introduction

Distance learning can provide students with the accessibility and flexibility needed to participate in individual and group experiences from their homes, job sites, and/or field placements. While critics (Cornell, 1999; Mergendoller, 2000) maintain that distance learning depersonalizes the teacher/student relationship and limits the interpersonal interaction, research shows that online courses can be designed to promote higher order learning such as analysis, synthesis, and evaluation (Fulton, 1998). Dusick (1998) believes that web-based instruction fosters teamwork and cooperative effort. McKenzie (1998) reports positively on the ability to monitor student hits, time in specific areas, and to generate histograms of student progress. Additionally, Odasz (2000) claims that one of the biggest advantages is being able to set time allowed for online quizzes and the number of times students can take each quiz.

Many conditions support the need for distance learning in teacher preparation. Increased numbers of nontraditional students, longer commuting distances for students, and the federal mandate to provide intensive and extensive field-based experiences all equate to decreased available seat-time and issues of accessibility. Despite growing support (Maddux, et.al, 1999; Zhao, 1998), little data is available on the effectiveness of online instruction in teacher preparation and it remains controversial (Goldworthy, 2000).

Project Overview

With funding from a 3-year FIPSE grant, this project examined the effectiveness of web-based strategies to enhance and supplement teaching and learning in a small teacher preparation program. A standards-based curriculum with clearly defined competencies was first designed to ensure pre-service teacher proficiency in all applicable standards, an outside consultant was brought in to provide training in online instructional design, and course content was converted to the web-based environment. Pre-service teachers were placed in classroom settings with mentoring support from master teachers and accessed course content through online core modules and campus-based seminars for reflection and discussion. Information was gathered on the technology-related problems and obstacles encountered by faculty and students in converting and using web-based software. The study additionally examined the positive and negative outcomes of web-based course delivery, including issues of instructional design, workload, competency-acquisition, interaction, and student learning outcomes.

Results

Significant increases in student learning in the area of technology are reported. Chi-square analyses of pre and post data on technology knowledge, skills, and attitudes over the 3-years of the grant, yielded significant gains for students across all areas and for all courses at a significance level of .02 or better. Student comfort levels with technology, as well as their perceptions of success, as measured by course evaluations, also increased for all course offerings across the 3-years of the grant.

Exams were taken online by students three times during each course offering, with three opportunities to reach 93% criteria. Changes in average scores and changes in the average number of times taken were examined using 2-way ANOVA’s. Results were statistically significant (p < .02) with average scores increasing and number of times taken decreasing each...
year of the project. Tukey-t’s indicated significance could be attributed to a dramatic increase in second year average scores and a dramatic decrease in times taken in the third year.

Survey responses asked pre-service students in the online program and alumni teachers in the field to indicate their agreement or disagreement on a 4-point scale. Responses were coded and chi-square analyses done to determine if there were differences in perceptions of program competence. There were no significant differences (p < .325) in the two group’s perceptions of the overall quality of their preparation, but significant differences in perceptions of competency acquisition were found in eight areas: (a) knowledge of cultural and linguistic diversity; (b) cross-cultural learning; (c) collaboration with diverse families; (d) knowledge of resources and services for families; (e) assessment strategies; (f) collaboration with colleagues; (g) knowledge of major issues; and (h) use of technology. Significantly more pre-service teachers rated learning in these areas as good or excellent than did alumni teachers in the field, suggesting that performance-based learning in relevant classroom settings was supported and enhanced using online course delivery.

Conclusions

Concerns expressed by faculty over the 3-years of the project have important implications for the future success of online learning and teacher preparation. Faculty reported limited institutional support for online teaching and an absence of adequate training in instructional design and interactive strategies. The rigidity of traditional faculty roles created excessive workloads within the existing “course-for-credit” structure of higher education and was not recognized within the merit/tenure process. Mentoring support in the field, for example, was considered to be a critical component by students and faculty alike, and there was a lack of institutional support for mentoring as part of faculty load.

Despite recurring obstacles, the long-term positive outcomes far outweighed initial concerns, and project results support online/distance learning as a viable option for the delivery of instruction in teacher preparation. Students and instructors alike reported flexibility in delivery and access as a strength, and competency acquisition was not negatively affected and, in fact, improved in several areas. Instructor feedback reported that distance learning encourages students to take personal responsibility for their learning, supports the development of time management skills, facilitates high-levels of quality interaction with all students, and provides opportunities for regular and frequent feedback and review based on ongoing student processing. Equally relevant, was the flexibility it provided in delivery and access, thus supporting more extensive course related field placements and performance-based learning.

The results of this study suggest strong benefits from the use of distance learning in teacher preparation and contribute to a growing collection of data on learning outcomes using online instruction in teacher preparation programs. However, replication is needed using a larger sample and an experimental design methodology. A cross-sectional design and stratified sampling would be able to address socioeconomic, gender, and ethnic differences, as well. Furthermore, future research needs to address the differences between rural and urban students in relation to technological literacy, and longitudinal data needs to be gathered on the long-term effects on faculty roles and perceptions of learning success, as well as changes in workload and merit/tenure policies on campuses using distance learning.

The move to introduce technology into teacher preparation served as a major catalyst for change in the use of technology in the education unit and other units across campus, in the level of support provided by the university, in the student’s level of technological proficiency, and most importantly, in student’s performance-based learning and competency acquisition. It is hoped that this study will serve as a impetus and resource for the future development of distance learning in teacher preparation.

References


