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Interactive Media for K-12 Learning Environments Designed and Developed by Preservice Teachers

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Project Purpose

The purpose of this capstone project is to illustrate technology integration needs for preservice teachers in contemporary teacher education programs through a course redesign of required technology courses for elementary and secondary education. The intent of course redesigns was to provide an opportunity for preservice teachers to acquire technology skills but at the same time create instructional media resources that have a practical use to support teaching and learning in K-12 contexts. Members of the Teaching Certificate will view examples of student-created instructional media resources. These resources were developed using common instructional technology applications including word processing, desktop publishing, interactive multimedia presentations, web development, and spreadsheets. In addition, instructor-developed media resources to support students in the course redesigns will also be shared.

Background

Many leaders in the field of instructional/educational technology agree, due to a variety of barriers, teacher educators often fail to capitalize on utilizing technological resources to model best practices for K-12 education. According to Becta (2003) and Ertmer (1999), barriers are defined as any factor that restricts teachers' use of technology for classroom instruction. Barriers impacting technology integration and faculty modeling for preservice teachers include, but not limited to, institutional and administrative support, training and experience, and attitudinal factors (Brinkerhoff, 2006). Unfortunately, many of these barriers have left preservice teachers inadequately prepared to integrate technology into the K-12 classroom effectively as inservice teachers. A number of studies have indicated a need for teacher education programs in higher education to model and prepare future K-12 educators to effectively integrate technology to support teaching and student learning (Frederick, Schweizer, & Lowe, 2006; Mayo, Kajs, & Tanguma, 2005; Mills & Tincher, 2003; Wang & Patterson, 2006). Through ongoing faculty modeling of effective technology use and the development of

authentic project-based assessments that integrates technology throughout teacher education course experiences, preservice teachers are likely to become better prepared to integrate technological resources to enhance instructional practice and student learning in K-12 contexts.

Goals

1. Link preservice teacher-created multimedia resources to K-12 instructional practice.
2. Demonstrate how authentic project-based assessments address technology integration needs in teacher education.
3. Discuss innovative uses of common instructional technologies to enhance instructional practice and student learning in K-12 contexts.
4. Showcase examples of instructor-created educational media to support authentic project-based assessments.
5. Introduce interactive video learning objects to support computer literacy skills in a teacher education technology integration course.

Instructional Resources

The links in the table below are student created projects that utilize computer applications for K-12 classroom use. Instructor-created multimedia resources that were used to provide support for various student projects are also provided. These links are simply examples are not in any specific order.

Multimedia Resources	
<i>Student Work Samples</i>	<i>Instructor-Created Media</i>
<ol style="list-style-type: none"> 1. <u>WebQuest</u> 2. <u>Utilizing screen capturing and audio in Microsoft Word: Beyond word-processing basics.</u> 3. <u>Instructional media with desktop publishing</u> 4. <u>Spreadsheets as a productivity tool.</u> 	<ol style="list-style-type: none"> 1. <u>Configuring and connecting headphones with built-in microphone to record audio narrations.</u> 2. <u>Creating interactive learning with Microsoft PowerPoint: Beyond the basics.</u> 3. <u>Interactive Video Learning Objects</u> (work in progress).

References

- Brinkerhoff, J. (2006). Effects of a long-duration, professional development academy on technology skills, computer self-efficacy, and technology

- integration beliefs and practices. *Journal of Research on Technology in Education*, 39(1), p. 22-43.
- Frederick, G. R., Schweizer, H., & Lowe, R. (2006). After the in-service course challenges of technology integration. *Computers in the Schools*, 23(1), p. 73-84.
 - Mayo, N. B., Kajs, L. T., & Tanguma, J. (2005). Longitudinal study of technology training to prepare future teachers. *Educational Research Quarterly*, 29(1), p. 3-15.
 - Mills, S., & Tincher, R. (2003). Be the technology: A developmental model for evaluating technology integration. *Journal of Research on Technology in Education*, 35(3), p. 382-401.
 - Wang, Y., & Patterson, J. (2006). Learning to see differently: Viewing technology diffusion in teacher education through the lens of organizational change. *Journal of Educational Technology Systems*, 34(1), p. 69-82.