

Abstract for 15344

Teaching in elementary school with technology: how teachers use innovative online resources in their mathematics and science lessons?

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In this study we analyzed qualitatively electronic discourse in online course "Mathematics and Science Concepts in Elementary Childhood". The purpose of this study was: a) to identify the teacher's attitudes towards using Internet resources in math and science instruction, and b) to motivate teachers to integrate the use of technology within math and science content. We worked with in-service teachers enrolled in online graduate class on Mathematics and Science concepts in early childhood. The use of technology has become a necessity in our society. Being literate in technology is not longer a luxury it's a critical 21st Century skill our children must have. That's why it is very important to teach our pre-service (future) teachers the proper use of technological tools, while they are attending face-to-face or online classes in the university.

The challenge for teachers is not just been able to use technology in their classroom but, to integrate its use within the content areas. Research shows that adoption of technology in schools is slow process (Zhao & Frank, 2003). Very little is known about how in-service and pre-service teachers find, access, and use technology resources. The authors believe that this could be the first step for most of the teachers -- in terms of incorporating technology in their classroom.

This study focused on collecting data from 18 in-service and pre-service teachers enrolled in the online class about their approaches to finding, accessing and using internet resources that will help them to design effective mathematics and science lessons in elementary grades. This class was part of the ATCP (Alternative Teacher Certification Program) program and it is also counts towards a Master in Education program. The class is offered through Blackboard, and students were located all around Texas.

Teaching graduate class about basic mathematics and science concepts online leads to natural incorporation of activities including exploration of mathematics and science resources available online.

Students were provided with modules that were intended to be covered on a weekly basis. The main activities were to 1) read chapters from the required books (weekly), 2) post a personal reflection on the chapter (weekly), 3) search the companion websites (provided with the books) and post their selected websites together with critical assessment of it (weekly), 4) read and answer at least 2 of their classmates' reflections (weekly). Final project, Thematic Unit, required creation of several innovative, technology-enhanced mathematical and science lesson plans that integrated the use of technology along with different content areas. The class was designed to have a high interaction within: students with students, and students with instructor(s).

We assessed students' success, participation in class and use of online resources through a) personal reflections, b) surveys and c) semi structured interviews. Five students agreed to voluntarily participate in the semi-structured interview. The entire class participated in final surveys and reflections.

The preliminary results of this study indicate that (1) developing advanced strategies for searching online resources are appropriate and effective activities for an online mathematics education class; (2) chapter readings provided good content knowledge about reform, innovative, constructivist pedagogy that helped develop strategies for Internet searching;(3) as evidenced by final surveys, most of the students became more active and efficient in finding relevant and meaningful online resources for teaching mathematics and science in elementary grades.