Community Colleges are fast becoming a critical segment impacting on the K-12 arena.

An estimated 20% of those who go on to become K-12 teachers are educated at community colleges\(^1\), with over 40% of all teachers completing some or all of their science and mathematics coursework at two-year colleges\(^2\).

Pathways Project Goal

“…to strengthen community college math, science, language arts and educational technology courses to ensure that they prepare preservice P-12 teachers to make effective use of innovative Internet-based tools and curriculum resources in the classroom.”
Vehicles to Achieve Goal

- Library of Real World Learning Objects (RWLOs)
  - focus on Internet-based real-world data in science, math, educational technology & language arts
- 26-hour, 8-session, blended mode faculty development program, Savvy Cyber Professor
- Online learning community
- 3 year program involving faculty from 33 community colleges
Project Partners

Community College Pathways to Improved Teacher Preparation through Technology
Partners

- CIESE, Stevens Institute of Technology
- Miami-Dade College, Maricopa and Cuyahoga Community Colleges
- League for Innovation in the Community College
- Education Commission of the States
- Polaris Career Center
- Bank Street College of Education
- NACCTEP
- Institute for Learning Technologies (Evaluator)
Pathways
Community College Pathways to Improved Teacher Preparation Through Technology

Devslops PD program

The Savvy Cyber Professor
Internet-Based Activities for Higher Education

Participating faculty create library of ...

Real World Learning Objects
Authentic Investigations Using Internet-Based Applications

Prep3
Preparing Tomorrow's Teachers to Use Technology

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Center for Innovation in Engineering and Science Education
Impact Preservice Teachers & Other STEM Students

- 44% of US teachers took some/all of math & science coursework at community college
- Model effective use of technology in content courses to influence eventual classroom practice of next generation of teachers
- Infuse authentic, real-world resources into coursework (“Unique & Compelling”)
A plane is flying due west at 125 km/h. There is a wind blowing from the south at 35 km/h. What is the plane's resultant velocity?

Relative Velocity and Vectors
Learn how to do vector analysis using real time flight and wind data
Use real time flight and weather data from the Internet for vector analysis.
Context

- Grew out of 6-year Alliance/Alliance+ (TICG) partnership
- Focuses on community college role in preservice teacher education
- Adapts a proven set of K-12 training & curriculum materials for use in community college courses
Strength of Partnership

- Developed by CC faculty for CC faculty
- Recognized need based on experience with similar K-12 professional development program
- Recognized value of real world data in CC courses
Strength of Partnership (cont.)

- Dissemination opportunities
- Connections with national and state policies for community colleges

Education Commission of the States
Strength of Partnership (cont.)

Center for Innovation in Engineering & Science Education (CIESE)

- Established at Stevens in 1988
- Pioneer (1993) in Internet in education
- Over $20 million in grants and contracts
- Programs in AZ, OH, FL, NJ, NY & Latin America
- Over 18,000 educators trained
Essential Question:

How can the Internet enhance teaching and learning?
Unique & Compelling Applications

Internet applications can provide a revolutionary new instructional tool that can create opportunities for students to engage in more authentic learning.

**Unique**
Cannot be done without Internet technology

**Compelling**
Provides students with real world learning experiences
Unique & Compelling Applications

- Real Time Data
- Telecollaborative Projects
- Student Publishing
- Primary Source Data
Real World Learning Objects (RWLOs)

- Concise core instructional activities focused on discrete topics in higher education
- Science, math, ed tech, and lang. arts
- Incorporate Internet-based “unique and compelling” activities
- Easily used in similar courses at other institutions
Today’s classroom

Create and submit a poem for instructor to review. Based on feedback and editorial criticism from instructor, revise poem.

Tomorrow’s classroom

Understanding the Writing Process

Review how Walt Whitman revised and refined his ideas and poems by viewing his original notebooks.
Understanding the Writing Process through Walt Whitman's notebooks

Project Overview

Walt Whitman (1819-1892) was one of America's most well known and influential writers of his time. Born in New York, Whitman wrote extensively throughout his life although he is most famous for his poems, particularly his collection published under the title of *Leaves of Grass*.

Students will investigate the writing process by reviewing how Whitman revised and refined his ideas and poems as he wrote by comparing the published version of his poem "Quicksand Years" to two early drafts written in one of his original notebooks digitally archived in the Library of Congress American Memory collection.

(NOTE: the notebooks have been digitally archived by the Library of Congress and can be located in the Thomas Biggs Hagedorn Walt Whitman Collection)
Savvy Cyber Professor Overview

- 26-hour, eight-session professional development series
  - Hands-on / online format
  - Focus on content and implementation

- Incorporates real-world applications of the Internet in science, math, ed. tech., & language arts through use of RWLOs
Savvy Cyber Professor Goals

- Learn & Incorporate New Strategies for Teaching
- Create a RWLO for Use in Community College Courses
- Ultimately: Model New Teaching Strategies to Pre-service Teachers
Session 6: Assembling Instructional Content and Creating Learning Objects

Objectives for Session 6

- Identify a course competency, lesson topic and Unique & Compelling Internet Use to be incorporated into a RWLO
- Identify the standard elements making up the RWLO Submission Rubric
- Design a RWLO embracing identified curriculum standards, integrating a Unique & Compelling Internet Use and incorporating the 8 components of the RWLO format
- Upload necessary elements for each of the 8 components
- Apply the Rubric to your own RWLO
- Describe the RWLO submission process

PART I – RWLO Design

6.1 Review
Session Overview

- **Session 1**: Leveraging the Internet for Learning
- **Session 2**: Introduction to eDesk and Community Tools (online)
- **Session 3**: Using Learning Objects for Meaningful Instruction (online)
- **Session 4**: Course Integration (online)
Session Overview

- **Session 5**: Implementation: Challenges & Solutions (online)
- **Session 6**: Assembling Instructional Content & Creating RWLOs (online)
- **Session 7**: Completion of RWLOs
- **Session 8**: Showcase of RWLOs
Online Sessions

- Approximately 1 per week
- Each designed as a 3 hour session
- Discussion assignments
- Facilitated by online instructor
Outcomes of Participation

- Learn & Incorporate New Strategies for Teaching
- Develop one (1) Real World Learning Object in Faculty’s discipline
- Access to library of 200+ Real World Learning Objects (by end of year 3)
- Online learning community -> Faculty development program
- Ultimately -> Model new teaching strategies to pre-service teachers
How to Get Involved

- 30 CC’s selected by competitive application process
  (4 faculty per CC)
- More information available by registering on web site
- 12 CC – Fall 2005
- 18 CC – Spring 2006
For More Information

Pathways Project Web Site

http://www.stevens.edu/ciese/pathways/

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