

First Pilot CIS105 Assessment

Student Portfolios Demonstrate Critical Thinking and Communication Skills

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Abstract

A pilot assessment of student portfolios was performed with 45 students taking CIS105 at Estrella Mountain Community College (EMCC) during the Spring 2003, Fall 2004 and Spring 2004 semesters. Students were evaluated using the rubrics for critical thinking and communication skills scoring forms previously developed. All scores were compiled to provide stakeholders with data on the percentage of students who scored in Level IV–Excellent, Level III – Satisfactory, Level II – Needs Improvement, and Level I – Unacceptable

The assessment results showed that students scored well in the area of communication skills with 88.89% of the students scoring in Level III or IV. In the area of critical thinking skills 77.78% of the students scored in Level III or IV.

The data gathered in this pilot assessment will be used for classroom evaluation and assessment of student academic abilities with respect to critical thinking and communication. In addition, the weakness in the pilot portfolio project can be addressed for future assessments.

Introduction

In Summer 2002, Betty Vickrey, Instructional Computing faculty member at Estrella Mountain Community College, completed a research project on electronic portfolio creation and assessment. The research led to a pilot portfolio project in 5 CIS 105 classes during the Fall 2003 and Spring 2004.

This decision was based on the fact that students and instructors in the Instructional Computing Division at EMCC are highly skilled in technology. The students and instructors have access to state of the art hardware and software. The division has a student Web server in operation that has adequate storage space and bandwidth to accommodate sites for all CIS105 students. All CIS105 students are currently instructed in the creation of a Web site, so minimal additional class time would be needed to direct them in portfolio creation.

Each student used the provided criteria to select two independent projects completed during the semester. The projects were those that the student felt best demonstrated their abilities in critical thinking and communication. Once they made their selection, they were instructed to write a short essay that explained how the documents demonstrate these two skills or abilities using the rubrics provided.

Methods

Participants

In this study, 45 students attending CIS105 classes at EMCC during the Fall 2003 and Spring 2004 semesters completed portfolios.

Each student created a Web based portfolio site according to a set of instructions and rubrics provided to them by the instructor. The artifacts and the short essays about the artifacts were mounted on the student server. The portfolios were evaluated using the rubrics for critical thinking and communication skills.

Grading procedure

In this pilot assessment all grading was done by Betty Vickrey using the rubrics created previously. The critical thinking items scored were:

- Demonstrates the ability to propose and solve a problem – design a functioning website for use as a portfolio
- Demonstrate the ability to identify, interpret and evaluate supporting evidence – select artifacts for the portfolio and state why they were chosen
- Demonstrate good website layout and design principles

The communication items scored were:

- Demonstrate clear consistent and convincing statements supporting their chosen artifacts
- Demonstrate proper grammar, spelling, and enunciation in the website and artifacts

There were 4 points possible for each critical thinking item and 6 points were possible for each of the communication items. The total number of students in each class scoring in Level III or IV and Level I or II was recorded.

Results

The scoring results of the first pilot portfolio assessment project are shown below.

Portfolio Project Scores			
Total Number of Portfolios Completed	45		
Scores in Communication		Scores in Critical Thinking	
Number scoring in Level IV	24	Number scoring in Level IV	23
Number scoring in Level III	16	Number scoring in Level III	12
Number scoring in Level II	3	Number scoring in Level II	12
Number scoring in Level I	1	Number scoring in Level I	1
Percentage scoring Level III or IV	0.8889	Percentage scoring Level III or IV	0.7778
Percentage scoring Level II or I	0.0889	Percentage scoring Level II or I	0.2889

Recommendations

- Collection of student information regarding completion of prior community college courses such as English, Art and Communications would be helpful in assessing the student's abilities prior to this assessment.
- Additional graders would add to the reliability and validity of this assessment.
- This portfolio project needs to be introduced at the start of the semester so that students can be evaluating their work throughout the semester.
- More points should be awarded to the portfolio project to encourage all students to complete it.
- More CIS105 instructors should be encouraged to participate in the portfolio activity and subsequent assessments.
- Many students chose their PowerPoint presentations as an artifact demonstrating their communication skills, yet the verbal component of the presentation was not scored. Perhaps the PowerPoint project needs to be restructured to include recorded voice data or the project needs to be evaluated at the time it is presented.