

APPENDIX TWO:
STUDENT ACADEMIC ACHIEVEMENT ASSESSMENT
SELECTED BEST PRACTICES

This report contains examples of “best practices” in academic assessment, practiced by Maricopa Community Colleges. These reports have been prepared by the individual colleges, and compiled for presentation to the Governing Board. They are presented as follows:

Chandler-Gilbert Community College
Estrella Mountain Community College
Gateway Community College
Glendale Community College
Mesa Community College
Paradise Valley Community College
Phoenix Community College
Rio Salado College
Scottsdale Community College
South Mountain Community College

**CHANDLER-GILBERT COMMUNITY COLLEGE
SUMMARY OF AN ASSESSMENT PROGRAM BEST PRACTICE**

CGCC's Mathematics Assessment Plan - Common Final Exams

Outcome Being Measured:

Will final exam scores be significantly different among students who took either Intermediate or College Algebra for 3,4 or 5 credit hours?

Level at which the measurement occurs:

Division level – Math Division

Description of the assessment methodology: Common Finals

Since the initial assessment plan in 1996, math faculty at CGCC have met together in teams to establish the criteria, devise the questions, and evaluate the results of assessments in mathematics courses. Grading standards such as a common math rubric were created to enhance the consistency of assessment. Common final exams are given each semester and are designed to meet the MCCD course competencies as well as specific critical thinking and calculator competencies agreed upon by the CGCC faculty.

Data from the common finals are collected from each instructor and include the number of students tested, percentage of students receiving A - F grades on the exam, and the percentage of students who missed each specific question. Summary sheets of the data are analyzed by teams of faculty to evaluate the assessment tool for misleading questions, to determine which skills were not mastered and to plan training sessions for faculty to improve the teaching and learning of those skills which were not sufficiently mastered. Exams are revised each semester. Results of final exams are not used to evaluate faculty members. Assessment results have been used to answer questions over the years.

CGCC's Common Final Exam Policies in Mathematics:

- Students must take the comprehensive common final exam and score at least 60% on it in order to receive a grade of "C" or higher in the course. If a student scores 60% or higher on the comprehensive common final exam, the instructor may combine the comprehensive common final exam grade with the other required elements of the course to determine the course grade. If a student scores less than 60% on the comprehensive common final exam, the instructor will assign a course grade of either "D" or "F" depending on the quality of that student's work on the other required elements of the course.
- The Math department provides a common reference sheet of formulas for use during the final exam. A clean copy should be handed out on the day of the final.
- All students must take the final exam.
- The final exam must be given on the date and time listed in the final exam schedule.

- The final exam cannot be used as a take home test.
- Final exams are not to be returned to students.
- Scratch paper should not leave the room after the final.
- Students must not share calculators during exams.
- Faculty should check calculators to be sure information cannot be shared outside of class, specifically, clear graphs, stat lists and matrices.

RUBRIC SCALE to grade mathematics tests:

For each problem, or for each separate question in a multi-step problems*, a grade of:

4 indicates that the student has completed the problem accurately, used correct procedures, and demonstrated a thorough understanding of the concepts

3 indicates that the student may have used correct procedures but had minor computational errors, or used correct computations with minor procedural errors; demonstrates a good understanding of the concepts

2 indicates that the student has partial understanding of the concepts but used incorrect procedures and made some computational errors

1 indicates very little understanding, incorrect procedures and computations, but at least made an attempt to answer the question

0 indicates that the student did not respond to the question

*If a multi-step problem depends on a correct answer from a previous problem, and if the student did not get the correct answer on the previous problem, the instructor should carefully check the sequential problems to see if the incorrect answer was used consistently with the correct procedures. If the procedures are correct, and the student demonstrates a thorough understanding of the concept, then the student could earn up to a 4 on the sequential problems, using an incorrect answer. In other words, getting the wrong number at the beginning of a series of questions would not necessarily mean that points would be deducted from each later question, as long as the student demonstrated an understanding of the correct procedures.

Improvements being integrated into curriculum, teaching and learning, and/or services:

Results/status:

Will final exam scores be significantly different among students who took either Intermediate or College Algebra for 3,4 or 5 credit hours?

Answer: Yes, those in the 4 or 5 credit sections did significantly better than those in 3
Resultant change: CGCC offers more 4-5 credit sections and fewer 3 credit sections.

Contact Information: Jeanne Canham, CGCC Math Faculty

ESTRELLA MOUNTAIN COMMUNITY COLLEGE

SUMMARY OF AN ASSESSMENT PROGRAM BEST PRACTICE

- The outcome being measured:

The DevAssess is a test that was written by Estrella Mountain's Developmental Education Division with input from all of the divisions on campus. The test measures competencies in reading, writing, and mathematics. It measures whether students can compare and contrast information presented in written form (reading), whether they can write an essay composed of five paragraphs that support their thesis statement (writing), and whether they can write and solve a linear equation (mathematics).

- The level at which the measurement occurs:

The test is given to students who are completing MAT092 and ENG071. This marks their completion of the remedial classes offered by the Division of Developmental Education.

- Description of the assessment methodology:

Students take an optional test, which lasts for two hours, during a special testing period at the end of the Spring semester. As a part of this test, they read two magazine review articles on two different new cars. Introduced to a prospective new car buyer with explicit lifestyle requirements, they then write a five paragraph essay outlining which car would best serve the needs of the buyer in question. The final part of the test asks them to fill in mathematical information regarding computations concerning interest rates and payments.

- Improvements being integrated into curriculum, teaching and learning, and/or services:

The Division of Developmental Education conducts meetings with faculty regarding the recommended improvements that need to be made into curriculum, teaching and learning, and/or services. Faculty have discussed and made changes to the curriculum emphasizing additional practices in thesis statements and persuasive/argumentative essay writing. These discussions also have impacted textbook choices for writing classes for ESL and basic skills/Developmental classes to prepare students for real world writing situations.

- Results/status:

The DevAssess test has been given each year since 1998. It has been revised as necessary during this time period. The test is a valuable instrument and has served as a model to other institutions. It is one of the few tests nationally that has been designed to be used in the area of Developmental Education.

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GATEWAY COMMUNITY COLLEGE
SUMMARY OF AN ASSESSMENT PROGRAM BEST PRACTICE
GENERAL EDUCATION ASSESSMENT – COMPUTER LITERACY

Outcome Measured

This report is an overview of the assessment of computer literacy of program completers. Fifty-five students took a total of 135 tests on internet concepts, Microsoft Word 2000 and Microsoft Windows 2000. Students also completed a paper self-evaluation of their computer literacy.

Level the Measurement Occurs

The instrument was intended to measure the computer literacy of a sample of GateWay's program completers. Students were randomly selected from the Water Technology program, the Nuclear Medicine program, the Physical Therapy Assisting program, the Facilities program and two English 102 classes. It was felt that this cross section of students represented students near the end of their respective programs.

Description of Methodology

Kenexa's ProveIt™ software was selected to measure the computer literacy of GateWay's program completers. The College has defined computer literacy as the ability to utilize the computer as a tool to access and disseminate information, as well as to communicate. This definition includes using a computer to solve problems, make decisions, and manage information. Faculty proposed that a test on Word, Windows and on using the internet especially for email would adequately measure computer literacy.

Kenexa's ProveIt™ software was selected as the assessment tool as it contained nationally normalized test questions to measure skills on the three topic areas. Each test required the student to perform a task or (in the case of the internet test) select a response and continue on with the testing.

The instrument was intended to measure the computer literacy of program completers. It was felt that a skill-based, online test would be preferable to a multiple-choice or essay test about how to use a computer.

Prior to taking the tests, the students were asked to complete an eleven question self-evaluation of their computer literacy. The results were scored and a point value was assigned to each student.

Internet topics evaluated included searching the Web, search engine logic, email addresses, internet rules. Word topics included opening a document, typing a document, saving, changing font size, centering, cutting and pasting, spell checking, and printing. Windows topics evaluated included accessing "Help", "My Computer", minimizing a

window, creating new folders, deleting and copying folders, copying files, and exiting Windows.

Results/status

- The internet test
 - The test was four questions and administered to 30 students.
 - The average score was 67% which represents missing just over 1 question each.
 - The self-evaluation and the results of the internet test were correlated at 0.48
- The Word test
 - The test was eleven questions and was administered to 55 students.
 - The average score was 81%.
 - The self-evaluation and the results of the internet test were correlated at 0.23.
- The Windows test
 - The test was just eight questions and administered to 50 students.
 - The average score was 76%.
 - The self-evaluation and the results of the test were correlated at 0.29.

The results of the sample indicated that students' self-evaluation of computer literacy skills did not correlate well to actual evaluation. While students scored lowest on the internet test, one could assert that the student's ability to start the browser, navigate to the testing site, follow the links on the pages and take the three exams was in itself a measure of computer and internet literacy.

Improvements being integrated into curriculum, teaching and learning, and/or services.

Pilot faculty indicate that integration of internet in coursework is an appropriate outcome. Computer literacy is increasingly being infused into the curriculum throughout occupational and academic courses. Faculty are researching alternate evaluation tools to assess computer literacy as Kenexa's ProveIt™, while efficient, was expensive.

Contact information: Sue Kater, Director Research & Planning

GLENDALE COMMUNITY COLLEGE ASSESSMENT BEST PRACTICES

Outcome: Oral Communication (Secondary Outcome)

Assessment Level: College-wide

Assessment Methodology:

Introduction – The College-wide Academic Achievement Committee (CWAAC) serves as Glendale Community College's (GCC) representative body for general education assessment issues. CWAAC coordinates the College's annual assessment of its core outcomes (Critical Reading, Writing and Critical Reasoning – includes Mathematics), and is responsible for the assessment of two secondary outcomes, Oral Communication and Information and Technology Literacy. The following report describes activities to assess Oral Communication in 2002-2003.

The Cohort - CWAAC chose to select a cohort out of communication courses as a means of capturing student performances of oral communication. Thus, the cohort selected consists of students who were enrolled in COM100 – Introduction to Human Communication, COM225 – Public Speaking, and COM230 – Small Group Communication, during fall semester 2002. These courses represent three out of the four core courses that a student may take to meet the general education requirement for communication. Additional requirements for the student cohort included completion of 30 or more credits with a minimum of a "C" in the communication course. College Research Services prepared a list of students meeting these criteria and then conducted a simple random sampling of this population. In addition, an analysis of the coursework of each student in the cohort was conducted, to ensure the students were pursuing a general education curriculum. 315 students enrolled in COM100, COM225, and COM230 met the criteria. A proportional random sample of student speeches from each of these classes was selected to achieve a margin of error of $\pm 8\%$. (N=315; 102= $\pm 8\%$;
COM100:
n= 37; COM225: n= 20; COM230: n=45).

The Measure - Quantitative measures were used to obtain information about student learning. In accordance with oral communication assessment protocol established by the National Communication Association, the Communication Department faculty developed an assessment rubric used to evaluate the random sample. The assessment rubric measured specific learning objectives established by the faculty for general education oral communication including organization, content, delivery, use of language, and communication with the audience. The design of the rubric and assessment process is intended for use by the college to assess the secondary outcome of oral communication of their general education programs at the sophomore level. The results are reported in terms of levels, with level 1 indicating college level performance. **An initial goal was set for a minimum of 60% of students to score at or above level 1 for the oral communication skills secondary outcome.** Since the assessment mechanism was developed by GCC Communication Faculty, the results are not norm-referenced

(comparable to similar institutions and students). The results are reported as Proficiency level scores or criterion-referenced scores. The scores or levels are defined in terms of specific competencies expected of students at each of three levels for oral communication.

Assessment Procedures - All students in COM100, COM225, COM230 classes were videotaped on an assignment reflecting their ability to communicate with an audience. Faculty successfully taped 37/40 sections during fall semester, 2002. A proportional random sample was pulled from these videotapes. Four communication faculty agreed to serve as raters. Each faculty was randomly assigned 50-52 speeches to evaluate using a faculty developed assessment rubric. No faculty member was allowed to evaluate their own students. Training was conducted on the rubric to increase inter-rater reliability and to define the terminology on the rubric. All speeches were evaluated by two faculty members. A third rater was used if the two initial raters disagreed by more than one level. Out of the 102 speeches evaluated, only 2 speeches required a third rater. Additionally, to be useful, an assessment tool must meet certain standards for reliability and validity. The Kappa measuring agreement was 0.72 or substantial agreement between the raters using the raw scores between 0-20. Thus, the measure may be used to draw conclusions regarding GCC's students' abilities with respect to oral communication.

Improvements Integrated Into Curriculum, Teaching and Learning, and/or Services:

Beyond assessing the Oral Communication proficiency level of GCC students, the 2002-2003 assessment provided several results that will be integrated into the teaching, learning and assessment of communication courses at GCC. First, the college-wide assessment is derived from cohorts enrolled in three communication courses. Results can also be used to assess course level competencies. Second, the standards for the rubric developed for college-wide assessment can be modified to address specific course level performance or a cohort of communication majors. Finally, the assessment program and rubric development provided a tremendous opportunity for the faculty to pool the collective expertise of the Communication department. A common rubric and standards for levels of proficiency resulted, applicable to all core communication courses taught by resident and adjunct faculty.

Results: Proficiency level scores are the focus of GCC's assessment efforts. These scores or levels are defined in terms of specific competencies expected of students at each of three levels. The levels are hierarchical. Students who perform at level 2 have also performed successfully at level 1. GCC students' proficiency level scores for 2002-2003 are provided in the accompanying table, separated by skill. At Level 1, a student can: demonstrate understanding of organizational structure; provide the audience with a discernable topic; use some supporting material; speak conversationally with some unnecessary pauses, filler words, and notes as needed; use acceptable grammar and language; and use acceptable eye contact with the audience. A review of Table 1 indicates that GCC's students are attaining the goal established by CWAAC (60% performing at level 1 or above) for Oral Communication.

Table 1. Oral Communication

| Year | # Students in Cohort | Performance Level Scores | | | |
|------|----------------------|--------------------------|---------|---------|---------|
| | | Level 1 Not Reached | Level 1 | Level 2 | Level 3 |
| 2003 | 102 | 14% | 86% | 28% | 10% |

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MESA COMMUNITY COLLEGE ASSESSMENT PROGRAM BEST PRACTICE

The Assessment Program Overview

The Mesa Community College program to assess student learning outcomes is a comprehensive, college-wide initiative that is the result of a close collaboration between college faculty and administration. It is a significant part of the college's overall institutional effectiveness plan. Through the assessment program, the college measures the extent to which students attain faculty defined learning outcomes in three major program areas: general education, career and technical programs, and developmental education. Arts and Humanities is one of seven general education outcome areas. This faculty designed assessment has been recognized nationally. The Arts and Humanities assessment was conducted on a large scale in both 2001 and 2003 Assessment Weeks.

Arts and Humanities Outcomes

Faculty defined the student learning outcomes for Arts and Humanities as follows: Students will be able to: 1. Demonstrate knowledge of human creations. 2. Demonstrate awareness that different contexts and/or world views produce different human creations. 3. Demonstrate an understanding and awareness of the impact that a piece (artifact) has on the relationship and perspective of the audience. 4. Demonstrate an ability to evaluate human creations.

Data Collection and Measurement

The measurement is conducted at the college level, that is, data is collected from students in classes representing a variety of disciplines in order to measure whether learning is occurring in the college as a whole, rather than at the class, program or departmental level. Data is collected during an annual assessment week in sections volunteered by faculty from many disciplines. Courses with a relatively large share of beginning students or completing students were targeted for participation.

For faculty administering the Arts and Humanities assessment, the necessary equipment was scheduled, and faculty were trained individually to administer the media-based assessment. An orientation day provided the opportunity for faculty to pick up their assessment materials, ask questions, preview the assessment materials, and to examine results from prior assessments.

Administration of assessments occurred during the regular classroom period. Faculty followed a standard protocol for each assessment. Students were informed that the purpose of the assessment is to measure whether education goals are being achieved in order to improve programs and student learning. Students were assured that results are not reported by student or by class but are evaluated across the college.

The Arts and Humanities Assessment is an interactive multi-media presentation during which students respond to four presentations: an art exhibit, a Shakespeare soliloquy, a musical composition, and story-telling. The assessment requires a 75 minute class

session. Students respond to questions about the presentations in a booklet and also provide background information concerning their intent and course taking patterns in order to select comparison groups.

Students just beginning their program of study are compared to students who are completing their program of study. Students are categorized by general education intent and course taking patterns into the beginning (pre-group - 12 or fewer hours), the completing (post-group – more than 30 hours), or other. On average, the pre-group had completed 6 hours and the post-group had completed 52 hours.

The pre and post student group responses are blind scored by two faculty members using a faculty developed rubric.

Assessment Results

Pre/Post Comparison

In 2001 student scores were significantly higher for completing students when compared with beginning students in all outcome areas. In 2003 average total score and the score for three of the four outcomes is significantly higher for the post-group than the pre-group. Students with more than 30 hours who indicated a general education intent had significantly higher scores than students with 12 or fewer hours on the following outcomes: 2. Demonstrate awareness that different contexts and/or world views produce different human creations; 3. Demonstrate an understanding and awareness of the impact that a piece (artifact) has on the relationship and perspective of the audience; 4. Demonstrate an ability to evaluate human creations.

Use of Results

The focus of assessment efforts has grown from the initial phases of defining outcomes, data collection methods and measures to using results for improvement. As the assessment program has matured, assessment results have been integrated into departmental and college planning, and faculty have focused on using results to improve curriculum and instruction. This shift is evident in several activities undertaken during the 2002-2003 academic year:

- A sub-committee of the Student Outcomes Committee, the Results Outreach Committee, was formed to discuss ways to support the use of assessment results.
- The use of assessment results was formally incorporated into the departmental planning process.
- Two faculty dialogues were held for faculty to review results and share ideas about incorporating outcomes into courses, and an assessment workshop was presented as a part of the New Faculty Experience.

Contact Information

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461-7831

**ORAL PRESENTATION ASSESSMENT COMMITTEE
PHOENIX COLLEGE
ASSESSMENT BEST PRACTICE**

Brief History

The Phoenix College Dean of Instruction, Marian Tadano, selected Liz O'Brien, Communication Faculty, as chair of the Oral Presentation Assessment Committee (OPAC) in September of 2000. O'Brien and Tadano selected nine other committee members, representing a variety of academic, occupation and service departments.

O'Brien attended the annual conference of the National Communication Association in Seattle in November of 2000 and brought home an assessment rubric the OPAC liked and chose to use. The rubric, called *The Competent Speaker*, had been developed by communication scholars from around the country and was sanctioned by the National Communication Association as a valid, reliable, flexible, multi-purpose, non-biased and convenient assessment tool.

During the Spring of 2001, OPAC developed guidelines for collecting student oral presentations. Samples do not come from Communication Department classes, much the same as writing assessment samples do not come from the English Department. The guidelines are as follows:

- The oral presentation will be between 3 and 10 minutes.
- The oral presentation will be an individual in-class presentation on any topic.
- The oral presentation can be informative or persuasive in nature.

Outcomes Statement

Phoenix College students in college level courses will be able to plan and deliver an oral presentation to a target audience at a satisfactory level.*

Satisfactory level is defined as scoring a minimum average of 5 on the 8-point adopted instrument, *The Competent Speaker*.

How it Works

- 1) A Phoenix College faculty member alerts the OPAC chair the he or she has a class that will be fulfilling an oral presentation assignment.
- 2) A form is sent to the faculty member that, upon completion, helps the OPAC raters understand the assignment.
- 3) The oral presentations of a random selection of students are videotaped by a media technician.
- 4) The videotape is sent back to OPAC. The committee rates the individual speeches according to the rubric, keeping the faculty member's assignment in mind.
- 5) A Faculty Feedback form is completed and sent back to the faculty member so he or she can see how OPAC rated each presentation.

Forms and Handouts that Help the Process Work

- **How to Prepare and Give an Oral Presentation.** This handout can be used by any student in any class where oral presentations are given, no matter the content

of the speech and not matter whether or not the presentation is being used for the campus assessment project. This document is available on Phoenix College's website.

- **Assigning an Oral Presentation: the Whys and Hows for Faculty.** This form is available on the Phoenix College website and is available to any faculty member at any time. The handout discusses the benefits of assigning an oral presentation and gives some solid tips on how to create an oral presentation assignment.
- **Faculty Information Form.** A form for the faculty member to give to OPAC that describes the specifics of the oral presentation assignment, the audience present and the occasion. This form helps raters know what the faculty member expected of the student.
- **Oral Presentation Assessment Technician Form.** A form with directions to the media technical collecting presentation samples.
- **Faculty Feedback Form.** This form communicates to faculty each student's score as rated by OPAC.

Results So Far

As of October 2003, OPAC has rated exactly 100 student presentations from a variety of academic and occupational courses (Math, Philosophy, Film, Health Care, Interior Design, CIS, Dental, English, Business, Management, Social Psychology, Humanities, Web Design, and Legal Studies). Our rubric looks at eight competencies, four on the preparation of the presentation and four on the delivery of the presentation. A student is considered "satisfactory" if he or she scores a minimum of 5 on the 8-point scale. The average score of the 100 presentations is 5.52, with 68 of the 100 students (68%) scoring 5 or better.

Closing the Loop: Improvements Integrated back into Teaching and Learning

Our attempts to "close the feedback loop" and help create a "culture" of oral presentation instruction on campus continues to be successful. Faculty members who have had their students taped sign up again for more taping; they see the benefits to the campus and to the individual students who are taped. New faculty members are getting involved each semester. Faculty have reported anecdotally that the "Hows and Why for Faculty Members" handout has been very helpful in helping them create or retool their assignments.

Comments from Participating Faculty

Utilizing the materials that have been developed, I am able to help my students focus on the importance of not only what they are presenting, but how they are presenting it. I can definitely see that it has helped them organize their speeches. Additionally, I have been able to help them see that vocal variation and physical behaviors, for example, can make or break an oral presentation. Involvement in this assessment project has made me much more aware.

Ken Roberts, Interior Design

I thought the taping went really well. The group of students that was taped fretted a little bit when they realized they were the chosen ones, but they were good sports through it! The entire class did a great job with their presentation, I thought, perhaps attributed to the fact that I had informed them that they would be taped. It was a nice motivator that improved the quality.

Karen Christen, Pre-Clinical Dental Hygiene

The Student Recommendations handout made the assignment of the oral presentations much easier for me and my students. Though I had given this assignment before, I was finally able to provide a set of guidelines to help my students prepare. It also helped me grade the presentations much better than I had been able to do in the past.

Alan Haffa, Philosophy

Using the rubric as a guide, I was able to demonstrate the how-tos and how-nots for each step of the assignment. I found that the level of student anxiety over an oral assignment diminished and I had fewer complaints about the points each student received. Following the rubric has also made my job of evaluating the presentations much easier.

Gerald Burgess, Theatre and Film

PARADISE VALLEY COMMUNITY COLLEGE SUMMARY OF AN ASSESSMENT PROGRAM BEST PRACTICE

1. The Paradise Valley Community College General Education Learning Outcome assessed is *problem solving*. The Division of Mathematics and Computer Science Learning Outcome assessed is “The student will be able to apply mathematical theory, concepts, and methods of inquiry appropriate to his/her discipline.”

2. The assessment described below occurs at the “cohort” level, a step below the division level, but above the individual classroom level. These cohorts have been identified as the main programs within the Division of Mathematics and Computer Science.

3. The Division of Mathematics and Computer Science at Paradise Valley Community College has implemented an assessment program consisting of four facets: a database of student success indicators, a student survey, a department portfolio, and instructor focus groups. This report will discuss the instructor focus groups as one of the best assessment practices at PVCC.

The division identified six cohorts as areas of study for assessment: Developmental Mathematics (MAT082 and MAT092), Intermediate Algebra (MAT 120/121/122), College Algebra (MAT150/151), Business Track (MAT172 and MAT212), Education Track (MAT156 and MAT157), and the Math/Science Track (MAT 182, MAT187, MAT220/221, MAT 230, MAT 241). Each group has an assigned lead instructor. The lead instructor gathers all faculty who are teaching the appropriate courses (full-time and part-time) for an assessment meeting early in the semester. The faculty then review the previous semester’s assessment results, discuss teaching and pedagogical strategies based upon those results, implement changes, and decide which course competencies and learning outcomes they will focus on for the upcoming semester.

The Intermediate Algebra group will be used as an example. The Intermediate Algebra focus group uses a common set of open-ended questions embedded in the final exams. In Spring 2003, the group designed four problems and created an item analysis worksheet. At the end of the semester, each instructor graded the questions as a regular piece of the final exam. To report the data for the common assessment, however, the instructors then reported on a separate tally sheet the number of students that got no credit, partial credit, or full credit on each problem (1-3 scale). The instructors also recorded the number of students that made one or more of a predetermined set of common errors. For example, in a problem that asked students to model and solve a real world problem using a linear system of equations, one common error was the inability to define appropriate variables. Each instructor submitted the tally sheets to the lead instructor for compilation.

4. At the start of the Fall 2003 semester, the Intermediate Algebra instructors met again to review the results and suggest improvements. The group identified some specific areas of concern. For example, 51% of the students that attempted to solve a typical problem involving the equation of a line perpendicular to a given line neglected to use the negative reciprocal to find the slope of the perpendicular line. So, the faculty discussed

the ways in which this concept could be better addressed. Although these conversations rarely lead to specific pedagogical or curricular changes, the instructors do get the chance to discuss and share their own best practices. These conversations lead to improved student learning as the instructors rededicate themselves to promoting understanding of the specific troublesome concepts.

5. The instructor focus groups change every semester. Instructors change the courses that they teach. Each of the questions is evaluated each semester. If the group feels that the students have performed adequately well, the question is dropped from the assessment and a new concept is added. In other words, the assessment program is constantly changing and evolving. Some focus groups use multiple-choice questions. Some use in-class projects graded with a Primary Trait Analysis (PTA). At PVCC, assessment of student learning is promoted as an intrinsically educational activity. It provides information that is beneficial to the participants and leads to improved student learning. The results of the Fall 2003 assessment will not be ready until Spring 2004, but informal discussions with the faculty suggest that student performance in the targeted areas is improving.

6. For additional information, please contact Larry Burgess (602) 787-6680 larry.burgess@pvmail.maricopa.edu, Rick Vaughn (602) 787-6678 rick.vaughn@pvmail.maricopa.edu, or visit the Division Assessment Web Page <http://www2.pvc.maricopa.edu/ms/math/assess.html>

RIO SALADO SUMMARY OF AN ASSESSMENT PROGRAM BEST PRACTICE BEST PRACTICE: CRITICAL THINKING ASSESSMENT AND IMPROVEMENT OF STUDENTS' LEARNING

1. The outcome being measured:

The Critical Thinking Competency at Rio Salado College states that the student will demonstrate the ability to analyze information, evaluate material, use inference to draw conclusions, and use deductive reasoning and inductive reasoning at a college level.

2. The level at which the measurement occurs:

The Student Achievement Committee at Rio Salado College is assessing the critical thinking skills of students enrolled in the General Education Program. In particular, the committee is examining students' skills demonstrated in standardized tests and the application of these skills in their coursework. The committee is also examining critical thinking skills data for specific cohorts of students: Rio graduates, dual enrollment students, and distance learning students.

3. Description of the assessment methodology:

For the past three years, two nationally normed instruments, *The Test of Everyday Reasoning* and the *Academic Profile*, have been used to assess critical thinking through a random sample of the three student cohorts. In addition, qualitative data are collected from Faculty Chairs and adjunct faculty regarding the actual use of critical thinking skills. During the Spring 2003 Semester, 441 students completed the California Academic Press' *The Test of Everyday Reasoning* and 224 students completed the *Academic Profile* test.

This best practice highlights the *Academic Profile* the 2003 results which show higher skill levels as compared to national norms. (See Table I.) In 2003, Rio students exceeded the national norm by 5.43%--with 114.23% as the college average compared to 108.8% as the average of Associate of Arts college freshmen.

Based on these data, the Student Achievement committee has been focused on the students' application of critical thinking skills in their studies. Feedback from faculty indicates that students are very busy and then do not take the time that critical thinking requires, even though they have the skills. In addition, research shows that students often plagiarize or cheat because of an unwillingness to do the amount of work or to take the time involved in critical thinking. Therefore, critical thinking skills are not applied as often as needed for effective college level learning to occur. Also, the Critical Thinking Competency Coordinators have noticed a correlation between plagiarism and cheating and the choices that students make when they need to rush their work. Communication with students who have committed plagiarism and cheating policy violations support this research.

4. Improvements being integrated into curriculum, teaching and learning, and/or services:

The Competency Coordinators worked directly with Faculty Chairs to discuss, design, and integrate improvements into curriculum so that students will increase their use of critical thinking skills. The five-step approach to improvement includes: (1) increase communication with Faculty Chairs and instructors to emphasize expectations for critical thinking use in the course syllabus and in assignment directions (2) increase the number of reflective assignments requiring critical thinking utilization and demonstration, (3) increase the use of clear grading criteria and the instructor's use of the Critical Thinking rubric when grading assignments, (4) increase the use of web and print Critical Thinking resources, and (5) increase the use of tutoring so that Critical Thinking skills are easier to apply.

Specific improvements include explicit statements of high expectations, explicit definitions of plagiarism and illustrations of cheating, increased warnings about plagiarism and cheating, and in-person and online workshops about Critical Thinking, Plagiarism and Cheating.

As a free service to the college's instructors, a cyber-plagiarism detection system, Turnitin.com., is employed. Turnitin.com is accessible via the Internet and locates any plagiarized sources by searching the free Internet and many databases. Any plagiarized content is color coded and sites copied from are provided. In an effort to significantly reduce cheating, the following steps have been implemented: informing students up front that their papers will be submitted to a cyber-plagiarism detection service, providing a clear and detailed definition of plagiarism in course materials, clearly stating the repercussions of plagiarism and other forms of cheating, discussing academic integrity issues and what it means to value education, enforcing policies that protect academic integrity, and encouraging students to contact their instructor(s) whenever they have questions about attribution and the like.

5. Results / Outcomes:

The Critical Thinking Competency Coordinators report that students are rising to the challenge of using critical thinking skills in their work. Students are showing more evidence of confidence in their skills. The Competency Coordinators also see a reduction in the number of plagiarism and cheating incidents directly tied to the fact that students have an increased understanding of what cheating *is*, as well as, the repercussions of plagiarism and cheating.

6. Contact Information:

Janine Adkins, Critical Thinking Competency Co-Coordinator
Tom Lombardo, Critical Thinking Competency Co-Coordinator

Table I

Academic Profile 2003 Critical Thinking Scores

| Academic Profile 2003 Critical Thinking Rio Salado College Scores Compared to National Scores | | | | | | | |
|---|--------------------|--------------|---|----------------------|--------------------------|-----|----------|
| Rio Cohorts: | Rio Average | StDev | Associate of Arts Colleges Freshmen/Sophomores | Percent Below | Confidence Limits | | N |
| Graduates | 115.66 | 6.55 | 110.80 * | 97.00 | 113 | 118 | 32 |
| Distance Learning | 114.12 | 7.06 | 108.80 | 100.00 | 112 | 116 | 65 |
| Dual Enrollment | 113.92 | 6.05 | 108.80 | 100.00 | 113 | 115 | 127 |
| Total (Average) | 114.23 | 6.43 | 108.80 | 100.00 | ** | ** | 224 |

* *Sophomore Students*

***Confidence Limits Unavailable For Total*

**SCOTTSDALE COMMUNITY COLLEGE
SUMMARY OF AN ASSESSMENT PROGRAM BEST PRACTICE**

Architectural Technology Synthesis (DFT 280):
A New Capstone Course

Outcome:

The Capstone Course: As part of outcomes assessment efforts during the 2002-03 academic year, faculty in SCC's Architectural Technology/CAD Program developed a capstone course, DFT280 Architectural Technology Synthesis.

Level of Assessment:

Beyond direct educational benefits to the student, the course provides 1) a *program-level* assessment tool and 2) a vehicle for *external* assessment.

Description of Assessment Methodology:

As the final class in both the Certificate and AAS programs, coursework requires students to synthesize information and technical skills across the entire Architectural Technology curriculum. To succeed, students must apply knowledge and skills acquired in nine previous classes, retrieve and incorporate written information, work alone and in small groups, and work efficiently. Finished work is assembled in a portfolio that serves as an interview tool for the student and a program-level assessment artifact.

Faculty designed the coursework, which was then reviewed by six practicing professionals. Of particular importance, the external reviewers verified the amount of "given information" from which the students begin their work, the desire being to parallel the scope and detail of given information allotted a draftsman in an office setting. The course was applied on a trial basis Fall '02 and again, with assessment-driven revisions, in Spring '03, when it was also formally integrated into the program.

Assessment: Portfolios are reviewed internally by faculty and externally by practicing professionals. Professional reviewers comment on the 1) completeness 2) organization 3) accuracy 4) formats and conventions 5) overall professional appearance, and most importantly 6) whether or not the work shows requisite job skills.

Improvements Integrated into Curriculum, Teaching and Learning:

Analysis of both the process and the product reveals strengths and shortfalls in specific prerequisite courses as well as the degree to which students are able to apply skills and knowledge emphasized in those courses. Moreover, external feedback validates program relevance. Interventions can be applied as required.

Results/Status:

The capstone course offers students the opportunity to demonstrate their skill and potential in a single project and has shown great promise as a program-level assessment tool. Assessment of the trial runs has already resulted in revisions to the assignment structure in three prerequisite classes and this feedback loop will be continued – influencing teaching techniques, instructional support materials, and general assignment structure across the Architectural Technology curriculum.

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SOUTH MOUNTAIN COMMUNITY COLLEGE SUMMARY OF AN ASSESSMENT PROGRAM BEST PRACTICE

October 2003

The Outcome Being Measured

The CIS courses subjected to the assessments below focus on Information literacy and analytical problem-solving outcomes. Student satisfaction with the courses is also measured via the formative evaluation and exit surveys.

The level at which measurement occurs

These assessments are occurring at the course level.

Description of the assessment methodology

Overview

In addition to the customary graded assessments such as exams, quizzes, essays, or lab assignments, I have incorporated a few activities in all my classes to provide both a quantitative and a qualitative snapshot of how students are doing in the courses, as well as to gather feedback on how to improve the courses from the students' perspective. Quantitative results are gathered through the use of a pretest and posttest comparison. Qualitative feedback is generated by a formative evaluation survey given the fifth week of the semester, and a more extensive exit survey given at the last class meeting. I have used these methodologies for online classes, hybrid courses, and traditional lecture and lab courses, and have found the insights gained to be well worth the effort and time.

Pretest and Posttest

I give a pretest the first week of the semester that covers the concepts and terminology that is cumulative for the semester's content. The pretest is generally multiple choice and/or short answer and is anywhere from 75 to 100 questions. It is administered through the Blackboard CourseInfo online delivery system and allows students to get instant feedback on their performance, gain some insight in to what will be covered in the course, and see how graded quizzes and exams will be administered. In most cases, the pretest is generated by a script in Blackboard from a pool of questions, so that each student gets a unique test that samples the various competencies. A similar posttest is given in the same way. Comparisons are then made between the pretest and posttest performances to demonstrate the growth of the students.

Formative Evaluation Survey

As part of the campus's Academic Assessment plan, I join my colleagues in giving a short survey in each class during the fifth week of the semester. I administer this through Blackboard CourseInfo as well. Blackboard allows students to maintain anonymity, compiles the results and provides me an aggregate score on the true/false items as well as detailed listings of the open-ended questions. I typically ask six questions on this survey:

1. True/False: I feel that I am learning useful information and skills that will benefit me personally and/or professionally.
2. True/False: I feel that I am currently succeeding in this course.
3. Open Ended: What is helping you learn and succeed in this course?
4. Open Ended: Is there anything keeping you from learning and succeeding in this course? If so, what is it?

5. Open Ended: Are there any changes that you would like the instructor to make in order to assist your learning and to help you be more successful?
6. Open Ended: What are your thoughts on the instructor's use of Blackboard to facilitate and supplement the delivery of this course?

Ten to fifteen minutes is devoted in class to students taking the survey to insure maximum participation. For my online classes, students must complete the survey before assignments are accepted for grading after the fifth week.

Exit Survey

An exit survey is given at the last class period or following the final exam. As with the formative evaluation survey it is given via Blackboard CourseInfo to maintain anonymity and to quickly compile the results. The exit survey has many more questions than the formative evaluation survey and is used to provide information for my Faculty Evaluation Plan as well as make changes to the syllabus, schedule, class materials and/or instructional approaches for the following semester. It includes true/false questions, multiple choice questions (such as asking the students to grade the course (A, B, C, D, or F), textbook, and myself (in the areas of knowledge of the material, fairness in grading, presentation style, etc.), and also open-ended questions where they can provide suggestions to improve the course.

Improvements integrated into the curriculum

Modifications have included improved clarification of assignments and due dates, textbook selection choices, changing the order in which content was covered, and producing supplementary materials. Instructional methodologies have been altered and experimented with based on student feedback, from consciously roaming the classroom more to experimenting with cooperative learning and hybrid-formatted class sessions.

Results / Status

I truly believe the feedback provided from these activities have resulted in course improvements over the years that have led to greater student satisfaction, decreased attrition, and improved student success. In Fall 2001, only 20% of the students in CIS159 reported at the fifth week that they felt they were succeeding in the course. Changes were made in the areas of communication and pedagogy and 83% passed the course with a C or better. Retaining these modifications, students are reporting greater success earlier in the semester. Comparatively, in Fall 2003, 93% of the students in CIS159 reported at the fifth week that they felt they were succeeding. In a course with a 33% attrition rate over the past 3 years at South, this semester, only 7% of the students have withdrawn as of the eighth week. Data from the Spring 2003 exit surveys, revealed that 92% of the students felt that their expectations for the course were met, with the remaining 8% neither agreeing or disagreeing that their expectations were met.

Contact Information

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