

Chapter 11

Student Academic Outcomes



INTRODUCTION

In addition to upholding Chandler-Gilbert Community College's vision, mission, and strategic goals, the Student Learning Outcomes Assessment Committee serves to facilitate the effective instruction for, and learning of, two learning outcomes valued across all divisions and departments campus-wide. This committee coordinates and implements the assessment plan, oversees administration of the assessment instruments, reviews and reports data, and makes recommendations for continued success or improvement of instructional and assessment programs.

The purposes of this chapter are:

1. To confirm elements of and progress made on the originally established and NCA-accepted student learning outcomes assessment plan;
2. To outline the stages of the process implemented, elements of the plan refined, progress made, and revisions recommended from the pilot study cycle through the first full year of implementation of the plan;
3. To discuss findings from the first full implementation cycle and to make recommendations for staff development and curriculum planning; and
4. To look forward and plan for continued success of the outcomes assessment plan.

This chapter addresses Criterion 3 regarding accomplishment of institution's educational purposes, as well as Criterion 4 regarding continuous improvement. The report chronicles CGCC's Student Learning Outcomes Assessment Plan from

Criterion 3: The institution is accomplishing its educational and other purposes.

Criterion 4: The institution can continue to accomplish its purposes and strengthen its educational effectiveness.

inception, through the pilot stage and early revisions, through its first full year of implementation.

The contents of this chapter and indeed, the focus of the Student Learning Outcomes Assessment Committee, concentrate on the chosen learning outcomes common to the areas specified in the mission and goals of Chandler-Gilbert Community College. All other institutional effectiveness goals are addressed in other areas of the Self-Study Report.

Appendix 11-A provides the NCA-approved timeline for the implementation of CGCC's Student Learning Outcomes Assessment Plan. Appendix 11-B provides a flowchart of the process used for continuous improvement in student academic achievement.

Student Learning Outcomes Assessment Committee

The NCA Student Learning Outcomes Assessment Committee was formed in Fall, 1994, with representation from faculty, administration, and staff to ensure a faculty-driven assessment plan, administrative guidance and support services' links. Standing members of the committee are: the Dean of Instruction (Chief Academic Officer), the manager from the Institutional Research Office, and a faculty representative from each academic division. A list of committee membership may be found in the NCA Resource Room. Ad hoc members are called upon as needed to serve as advisors to the committee. Because the instructional component of assessment falls under the auspices of the chief academic officer, CGCC's Dean of Instruction, serves as a member of the committee and is the instructional leader responsible for all measurement goals and activities. Two faculty members co-chair the committee, one as facilitator of group proceedings and spokesperson for the assessment plan; the other as writer/editor of committee reports and other documents.

During the first full implementation year, five subcommittees were formed to address special outcomes-related tasks: measurement instruments, budget plans, data analysis, marketing, and reporting. In an effort to maintain continuity of the student assessment program, tenure of committee members is three years rotating in such a way that two-thirds of the committee remains constant. Active involvement of part-time faculty was elicited and encouraged, but largely due to complications in scheduling, their participation in meetings is only inconsistently maintained. They are, however, included at each stage of collecting input, making decisions and accepting revisions throughout the process.

The assessment plan is designed to include three levels of instructional effectiveness and learning evaluation and reporting. The Student Learning Outcomes Committee assumes full control over facilitation of the campus level assessment measures and delegates control for division level assessment to division chairs with support from division representatives on the committee. Copies of division assessment plans may be found in the NCA Resource Room. Individual instructors are responsible for teaching and assessment of the learning outcomes at the individual class level.

DEVELOPMENT OF THE PLAN

In addition to knowledge, skills and competencies within individual subject areas, the CGCC faculty values two cross-curricular outcomes: critical thinking and

personal development. These outcomes satisfy three requirements for effective teaching for lifelong learning because they are: (1) common to all divisions, departments, and courses; (2) measurable; and (3) continuous.

Faculty selected and defined these two outcomes in Spring 1995. As a result of small group discussions at a faculty meeting, individual faculty members submitted their choices for common values in writing to the Outcomes Committee. The committee read the input, recognized two broad areas of critical thinking and personal development as common threads and synthesized specific suggestions from faculty into these two areas. (See original definitions in the CGCC Student Learning Outcomes Assessment Plan, p.3.) Definitions were refined by the Outcomes Committee and presented to faculty who voted to accept them as “working definitions” while measurement instruments were developed.

Assessment measurements will be used and/or developed to match these definitions. Early discussions among faculty indicated that there was a need for a variety of measurement tools and although scientifically sound instruments would be utilized, committee members were eager to explore alternative assessment formats that would allow for both student self-evaluation and instructor professional judgment. The two original definitions guided early efforts to identify three varied measurements of growth in these two outcomes: a student self-assessment, a standardized test of critical thinking, and a faculty professional judgment instrument.

In addition to the obvious development of outcomes and measurement procedures, the Student Learning Outcomes Committee was devoted to making outcomes public and an integral part of the learning process at CGCC. For faculty, this meant dedication to a dual-focus for staff development activities and regular collegial conversations. Staff development coordinators, division chairpersons, and individual instructors with special expertise in the area of each outcome have served the campus effort to bring the outcomes of critical thinking and personal development to the forefront of the instructional program.

PILOT PROCESS (Spring and Summer, 1995)

Standardized Test of Critical Thinking

The primary purpose of the semester pilot was to “test” the assessment process as planned. Although the resulting data would be interesting, the committee hoped to use the data primarily to validate the instruments, not as baseline data concerning growth in either outcome area.

The goal of the standardized test of critical thinking was to provide baseline data for measurement of critical thinking. The College Assessment of Academic Proficiency (CAAP), was chosen because it is nationally normed, widely accepted as a measure of critical thinking, would provide concrete data for analysis, and primarily, because it was readily available. The test was administered to students in classes selected either randomly or as a result of instructors volunteering, as a pre-test in late January, 1995, and again in April, 1995, as the post-test.

Results

Among the relevant findings from the critical thinking measurement are:

- a. CGCC students scored slightly below the national average on this instrument. However, because the CAAP is normed at universities which included junior- and senior-level students, it was suspected that first and second-year students might score lower.
- b. There was no statistically relevant difference in scores between genders.
- c. ESL (English as a Second Language) students scored below non-ESL students. Language barriers may have contributed to this result.

Implications and Recommendations

- a. Critical thinking as assessed by the CAAP and the nature of CGCC's definition of critical thinking and ultimate implications for instruction indicated a need to develop a "test" more directly associated with our definition.
- b. Administration of the CAAP or similarly commercial instrument may not prove to be cost- effective over time.
- c. Work is needed to develop more appropriate testing methods for CGCC's specific requirements.

Student Self-Evaluation Survey

The goal of this self-evaluation survey was to gather information from CGCC students about how capable they perceived themselves in terms of behaviors and attitudes that are incorporated within the definitions of the campus outcomes. The survey was designed by faculty and was distributed to 158 students as a pre-assessment in late January, 1995, and again in April, 1995, as the post-assessment.

Results

Among the relevant findings from the student self-evaluation measurement are:

- a. The majority of students responding rated themselves high on behaviors which indicate critical thinking and personal development.
- b. Early indication is that the instrument is reliable; there was not a significant change in responses for the two groups of students tested in January and April.
- c. A slight improvement on 75% of the questions was noted, but it is not statistically significant.
- d. The majority of students identified their long-term goals as to further their education and to receive degrees at the community college or university level.

Implications and Recommendations

- a. Continued use of the student self-evaluation instrument is recommended for spring.
- b. Faculty must collect a repertoire of practical classroom ideas that focus students' attention on aspects of both outcomes, especially some vocabulary, of both outcomes.

Professional Judgment Instrument

The goal of this measurement is to empower instructors to utilize concrete evidence from the class level to assess individual students for growth in critical thinking and personal development. This instrument was not ready for implementation during the pilot cycle.

Plans for Revisions to the Assessment Process Based on Pilot

Development of campus-wide measurement instruments was a faculty priority in the pilot cycle of Spring, 1995. Division-level discussions during this time centered largely on implications of the defined outcomes on curriculum and individual instructional strategies.

Summer project work was proposed for a subcommittee of the Student Learning Outcomes Assessment Committee to move ahead toward the full cycle of implementation with information from the pilot stage. The primary charges of this subcommittee were to: 1) examine, evaluate and analyze data from the pilot cycle; 2) investigate alternatives to standardized tests of critical thinking; 3) make any necessary revision to the student self-evaluation survey; and 4) to create the professional judgment instrument.

Budget appropriation for faculty summer contracts and the enlistment of a local professional in the field of educational testing and evaluation, Dr. Tom Haladyna, was made available. In consultation with Dr. Haladyna, this subcommittee, including the NCA Self-Study Chair and the Dean of Instruction, decided that with professional guidance, a campus-tailored and purpose-designed assessment of critical thinking could be created to provide a more direct match to the intentions of the original definition.

The subcommittee produced a brief, multiple-choice exercise that required use of subskills of critical thinking to respond to questions on a controversial topic. Two forms (Form A and Form B) of the test on the same topic were developed as parallel pre- and post-tests. This project resulted in two major successes: 1) A faculty-created test of critical thinking skills approved by Dr. Haladyna; and 2) refined wording of the definitions to include more concrete language and measurable features of the critical thinking outcome.

As a result of the successful implementation of the student self-evaluation survey, the summer subcommittee made no revisions to it. A closer look at the vague language in the original definition of critical thinking caused the subcommittee to revisit the wording of the definition for personal development and some concerns were raised. The conclusion was that although the original definitions spoke to intended noble values of CGCC's faculty, the aspects of the definition that cited

elements of personal development beyond the control or scope of the educational institution were beyond concrete measurement.

The professional judgment instrument was designed as a means to empower individual instructors to use evidence of growth in critical thinking and personal development from their classes to determine the extent to which individual students had achieved or made progress in the two outcomes.

FULL IMPLEMENTATION (Fall, 1995 and Spring, 1996)

Results from the pilot implementation and recommendations for full implementation from the summer project subcommittee were presented to the faculty in Fall, 1995. The major goals of the outcomes plan for this first full cycle year were: 1) to successfully and routinely implement the three campus-wide measurements; 2) to begin development of specific measures for the outcomes at the division level; and 3) to provide a rich variety of ideas for enhancing and building critical thinking and personal development into individual class routine.

An additional goal of the Outcomes Committee for this year is to enact a number of communiqués to publicly announce, support and reinforce instructional emphasis in the two outcome areas. Uniform statements and definitions are included in all faculty course syllabi. Plans to incorporate definitions and messages of intent will be included in a number of campus documents such as the catalog, student handbook, and faculty guidelines notebook for the next publication cycle, Fall, 1996. The committee recognizes the need to keep students, as well as faculty, abreast of developments concerning the learning outcomes assessment plan.

Furthermore, the Student Learning Outcomes Committee plans intra-institutional communication among faculty and between institutional constituents to report progress, call for recommendations, and announce findings. A Committee report has become a standing item at Faculty Association Meetings and several discussions related to student learning outcomes assessment policy and practice ensued at Faculty Forums. Other means of communication are: monthly NCA newsletter produced by the NCA Self-Study Chair, monthly ideas for classroom instruction and implementation called "Brain Storms," bi-monthly minutes of the Student Learning Outcomes Assessment Committee, regular electronic mail messages of immediate concerns, faculty feedback forms after administration of each measurement, and division meeting proceedings through committee liaison members. An annual assessment report card will be produced by a subcommittee during the Summer, 1996, to be presented to all faculty at the culmination of the first full year of implementation.

Revision of Definitions

As a direct result of the subcommittee's charge to "fit" measurement instruments to the defined outcomes, suggestions for refinement of wording were solicited from all faculty, definitions subsequently revised, and presented to faculty for approval. The decision to reword definitions was unanimous based on the return of written faculty ballots. New definitions of student learning outcomes are:

Critical thinking is the ability to locate, apply, analyze, synthesize and evaluate information utilizing a variety of resources to make decisions and to solve problems.

*"I set my goal in critical thinking to try to relate past information with my new learning. I believe I have come very close to achieving this goal as I find myself constantly asking questions in my mind about what I hear or read. Very often I realize new things I learn trigger previous knowledge."
—Maggie Mudd, Student*

Personal development is the demonstration of academically and socially responsible behavior by being present and prompt for class, meeting deadlines, setting goals and monitoring one's own progress, and cooperating and communicating effectively with others.

“Unlike some teachers I've had in the past, this college teaches discipline, punctuality, and how to be responsible.”
—Jimmy Lindblom,
Student

Cohort Group

Continued discussion of the size and appropriate characteristics of the campus sample group was held throughout the year of the full cycle of assessment. It was determined that students having accrued 30 credit hours from CGCC alone would provide a “pure” enough sample to ascertain growth as influenced by instruction on our campus.

Because assessments were administered under varying conditions and because of the transient nature of the student population, final numbers of the cohort group were different for each assessment instrument.

Test of Critical Thinking

The formal pre-test of critical thinking was administered in September, 1995, to 1,500 students through day and evening student populations of both full-time residential faculty and adjunct faculty across disciplines. Of the total, 500 students took the form entitled “Death Penalty a Failure” and 433 took “Keep the Death Penalty.” Copies of these tests may be found in the NCA Resource Room. The balance of tests were not returned by faculty and immediate followup was undertaken by the Dean of Instruction. Test results were analyzed by class, hour, morning, afternoon, evening, and instructor and forwarded by both electronic mail and hard copy to all faculty.

Results

Among the relevant findings (based on preliminary data) and recommendations were:

“Keep the Death”	Overall Mean Score: 5.51 Day: 5.30 Evening: 5.90
“Death Penalty Failure”	Overall Mean Score: 5.57 Day: 5.54 Evening: 5.97

- a. Evening students scored slightly higher than day students.
- b. There was very little difference between mean scores for the two tests suggesting overall equivalency of the two versions (Forms A and B) of the test.

Implications and Recommendations

- a. Individual student scores will be held for data analysis of students finishing 30 credit hours at CGCC in May, 1996.
- b. Analysis of student scores will be undertaken in the summer of 1996.
- c. An "Assessment Week" was held for campus-wide, division, and class level assessment administration during April 22-26, 1996.

Student Self-Evaluation Survey

Even in spite of reworded definitions, the committee found the originally designed student self-evaluation survey to be a direct match to the intentions of the definitions of critical thinking and personal development. Replacement of some items which addressed the grander issues implied in the original definition of personal development did not seem cost-effective and may have hindered a reliable reading of comparative data between the original and revised instrument.

All students who registered in Fall, 1995, and those new to CGCC during registration for Spring, 1996, were given the student self-evaluation survey. Students were encouraged, rather than required, to complete this instrument as part of their registration process. Student self-evaluation instruments would be held as baseline data for students taking the post-assessment after completion of thirty credit hours at CGCC.

For Spring, 1996, the student self-evaluation instrument will be called "Student Self-Evaluation Survey" to align with wording included in course syllabi and to reinforce student understanding of the role of evaluation and self-reflection of the outcomes in their coursework.

Professional Judgment Instrument

A letter of introduction for this instrument was prepared by the Dean of Instruction and forwarded to all faculty. Division liaisons and chairpersons included discussion and feedback on this instrument in division meetings and special sessions to ensure understanding of the instrument and determination of the evidence to be used from classes for making judgment. A copy of the Professional Judgment Instrument may be found in the NCA Resource Room.

Every full- and part-time faculty member received a college-prepared professional judgment instrument for each of their classes at the end of the Fall semester, 1995. Responses were collected with final grade rosters.

Results

Among the relevant findings and recommendations were:

- a. Data will not be summarized until post assessment for the students who have completed 30 credit hours at CGCC.
- b. Several faculty did not submit completed instruments.

Implications and Recommendations

- a. A scannable instrument will be created for use in Spring, 1996.
- b. A letter from the Dean of Instruction informed all faculty that this is a required assessment measurement and not an option for spring semester.

DATA ANALYSIS

Data was collected from all three assessment measurements from both semesters in the initial implementation year to serve the following purposes:

1. To promote faculty understanding of and support for the student learning outcomes assessment plan as a permanent part of the campus instructional program;
2. To use concrete data for the purpose of improving instruction in the two outcome areas;
3. To provide documentation of the validity of instruments and potential for improvement of student learning for the purpose of NCA.

Information in this portion of the report include results, observations and recommendations made from data collected on all measurements (critical thinking test, student self-evaluation survey, faculty professional judgment instrument).

Critical Thinking Test

Results

Cohort Group (N=114)	Scale: 9.0
Mean Score (pre-test)	5.52
Standard Deviation	1.725
Mean Score (post-test)	5.51
Standard Deviation	1.751

Observations

- a. There appears to be no statistical differences in pre- and post test mean scores for either test group (as expected given the relatively short duration of time for developing critical thinking as a campus outcome).
- b. Consistency of scores in both groups for all tests (pre and post and Forms A and B) indicate test validity.
- c. Faculty expectations for the first year of implementation were confirmed: Students' critical thinking skills are weak, there is need for a clear instructional focus on critical thinking skills, and more time is needed to effectively teach to and expect growth in this outcome.

*"I really have trouble with critical thinking. I usually remember what I read for enjoyment, but when I read my [text] books, the words often 'go in one ear and out the other.' Recently, I have really made an effort to analyze my reading. Now I ask questions about the reading and afterwards, make a mental outline. This helps me . . . make better decisions about the topic."
—Leah Thompson, Student*

- d. Item analysis indicates the following subskills of critical thinking as strong (+) and weak (-) among students tested: comprehension of specific details (+), comprehension for main idea (-), analysis (-), and synthesis (-).
- e. Faculty feedback indicated:
 - A few instructors veered from testing directions and purpose.
 - Lack of understanding or acceptance of the assessment program may have been communicated to students and affected results.
 - Time allotment for the test was sufficient.

Implications and Recommendations

- a. Classroom activities to teach, practice, reinforce and allow student reflection on their use of the subskills of the critical thinking outcomes need to be routine in every classroom.
- b. Presentation of assessment and rationale provided to students is crucial to establish a healthy climate for accurate and effective assessment. Continued communication with faculty regarding the program’s purposes, results, and plans for improvement is necessary in early years to stabilize implementation.
- c. Some logistics of assessment week must be refined, especially in clarifying assessment materials and directions for faculty.
- d. Presentation of measurement and student materials must be improved to look more “professional” and “serious.”
- e. A voice mail account and web page (as part of CGCC’s existing home page) should be established to provide additional rationale, instructions, and assistance to faculty and students.
- f. Schedule for testing must be simplified to only pre-test in fall, only post-test in spring to minimize confusion.
- g. Additional parallel tests need to be developed for variety, flexibility and security of test administration and resulting data.
- h. Division chairs must be apprised of faculty participation rates and should play a key role in focusing division faculty on outcomes and measurements at either/or the division or classroom levels.

“I also liked many of the students in my class because many of them spoke out their own opinions without getting snobby about it. My discussion group was great, really friendly to each other. That’s what I liked when I stepped into my [English] class — a class that can be close together and share their ideas.”
 —Nick Johnson,
 Student

Student Self-Evaluation Survey

Results

Cohort Group (N=57)

For critical thinking:	Scale: 6.0
Mean Score (pre-test)	4.53
Mean Score (post test)	4.68

For personal development:	Scale: 6.0
Mean Score (pre-test)	4.75
Mean Score (post test)	4.81

Observations

- a. Although mean scores indicate some increase, the difference between pre and post-test perceptions is statistically not significant.
- b. Number of the cohort group is too small. Moving the survey activity to the classroom will ensure a greater number of completed surveys for the future.
- c. Results indicate that students perceive themselves as stronger in personal development rather than critical thinking skills.
- d. The consistency of scores in the instrument verifies test validity as in the pilot.
- e. Faculty feedback indicated concerns regarding the repetition of items. Better efforts are needed to inform faculty and students of the necessity of repetition in such an instrument.
- f. Informal item analysis indicates similarities in what students perceive as strong (+) and weak (-) indicators of critical thinking and personal development: ability to set, monitor and achieve short-term goals (+), ability to make connections, combine information and synthesize information (-), tolerance of differing opinions (-), ability to question information from reading, others, and text (-).

Implications and Recommendations

- a. Original survey must be revised to eliminate questions that no longer pertain to revised definitions (#14, 23, 29, 32, 37 and 45).
- b. Goal setting should remain an integral part of each course. Self-reflection of one's own progress on goals should be emphasized periodically throughout a semester.
- c. Increased use of effective cooperative learning strategies, including team and trust building within and among group members is needed.
- d. Student self-evaluation survey implementation will be moved from a registration option to a required classroom activity.
- e. Division chairs must be apprised of faculty participation rates and should play a key role in focusing division faculty on outcomes and measurements at either/or the division or classroom levels.

Professional Judgment Instrument

Results

Response Compilation (Fall N=7,342; Spring N=6,785)

For critical thinking: Scale: 5.0
Mean Score (Fall) 3.61
Standard Deviation 1.05

Mean Score (Spring) 3.61
Standard Deviation 1.07

For personal development: Scale: 5.0
Mean Score (Fall) 3.65
Standard Deviation 1.12

Mean Score (Spring) 3.58
Standard Deviation 1.12

Non-participating faculty
Fall (N=27) 16%
Spring (N=19) 11%

Observations

- a. Mean scores represent total responses made by faculty, not individual student means. As a result, data may be skewed and is less likely to reflect an accurate mean score.
- b. Most responses indicated that faculty judge the majority of students as “excellent,” “good,” or “adequate” in both outcome areas for both semesters.
- c. The decrease in faculty judgment of personal development skills may be a result of greater understanding and higher expectation of specific student behaviors that were included in the revised definition of the outcome.
- d. Spring semester generally reaps poorer attendance and promptness in classes; this may be a contributing factor to the decline in mean score for personal development.
- e. Faculty response rate (fall 12% missing for both outcomes; spring 18% missing for critical thinking and 19% for personal development) falls short of 100% participation requirement.
- f. Faculty feedback indicated the instrument was easy to use and time efficient, even as an end-of-semester exercise.

Implications and Recommendations

- a. Future data must be compiled as: a) a mean score per student; and b) a mean of means for cohort.

“Being able to tie critical thinking together with good writing takes time and practice, but changing one’s personal development takes hard work.”
—James Klintworth, Student

- b. Numerical values must be assigned to the indicators so that data input and analysis is easier and more exact.
- c. All faculty must be accountable for professional judgment to ensure validity of individual student means. Strong administrative support is needed.
- d. Division chairs must be apprised of faculty participation rates and should play a key role in focusing division faculty on outcomes and measurements at either/or the division or classroom levels.

Appendix 11-C shows the planning and budgeting for curriculum and faculty development processes as a result of this cycle of assessment of student academic achievement.

Strengths & Successes

- Professionalism and commitment of committee members who willingly share their knowledge and expertise, and share the adventure of learning together.
- Increased awareness and learning among faculty about the role of assessment in effective instruction and the means to achieve it.
- Support of Chief Academic Officer (Dean of Instruction) and the CGCC administrative team by providing resources of time, budget, and personnel as far as possible.
- Faculty commitment to and “buy in” of the outcomes that reflect genuine concerns and commitment to skills and behaviors valuable for life-long learning.
- Increased integration of adjunct faculty with major campus programs and decisions.
- Design and use of alternative and multiple measures.
- Successful completion of the pilot and initial implementation year as planned and scheduled.
- Collection of data and information that will allow for improvements and subsequent future success of a campus-wide student learning outcomes assessment program beyond the needs of accreditation.

Challenges & Changes

- Continued communication to faculty and students concerning purposes and methods of effective assessment and data analysis. Feedback from and subsequent reporting to all campus constituents is vital for continued success.

“My goal was to be able to analyze my thoughts and explain well. While reflecting at first, I didn’t think I had accomplished this goal, but as I continued to think more about it, I realized I had accomplished it. I have gotten better at analyzing and expressing my thinking. It was probably an unrealistic goal, though, since the development of this skill is really on-going. As we become more skilled and more educated, our expectations of our abilities also increase.”
—Nancy Crandall,
Student

- Less than 100% faculty and student participation.
- The need for expertise from professionals in the area of educational testing and measurement and computer assistance. District level resources will be explored and used for future data analysis.
- The complexity and time commitment for effective implementation of the assessment process and communication to maintain both faculty and student motivation is likely to be a constant challenge. Every effort to simplify the process and reduce the notion of assessment as an intrusion to instruction must be made in continued communication and staff development opportunities.
- Emphasis on teaching for success on outcomes and assessing at division and classroom levels.