Fresno City College Research Definitions

ARCC: Accountability Reporting for the Community Colleges. This report was required by AB 1417 to develop an annual performance reporting system for the California Colleges. ARCC is produced by California Community Colleges Chancellor's Office every March. There are seven performance measures in ARCC: student progress and achievement rate, percent of students who earned 30+ units, persistence rate, successful course completion rate for credit vocational courses, successful course complete rate for basic skills courses, improvement rate for credit basic skills courses, and improvement rate for credit ESL courses.

Baseline: Baseline establishes the starting point against which progress can be measured; it is an initial measure taken before implementing changes, so that the effect of those changes can be judged. However, it is important to be aware of other things that might influence the ability to gauge success. For example, in a special program, are there pre-existing differences between the participating students and students not part of the program?

Basic Skills: The Basic Skills as a Foundation for Success in the California Community Colleges, known as the "Poppy Copy" defines basic skills as "the foundation skills in reading, writing, mathematics and English as a Second Language, as well as learning skills and study skills which are necessary for students to succeed in college-level work. Courses designed to develop these skills are generally classified as pre-collegiate, basic skills, or both, and may be either credit or non-credit." (RP Group, 2007). Basic skills courses cannot transfer and do not count towards units for a degree. If a course is degree applicable it cannot be basic skills per Title 5.

Benchmark: A benchmark provides a target or goal – it is where we want to go. For example, ask what the best colleges are doing (e.g., practices, policies, processes, programs), and establish the desired standard or goal based on those best practices. However, comparisons should be realistic in terms of such elements as number of students, student demographics, student readiness, resources, etc.

Campus Climate: Campus climate is defined as "the current attitudes, behaviors and standards of faculty, staff, administrators and students concerning the level of respect for individual needs, abilities and potential." (Susan Rankin, Pennsylvania State University professor). Respect is one of the most critical words in this description. It's not just the experience of individuals and groups on campus; it's also the quality and extent of the interaction between those various groups and individuals that determines a healthy campus climate.

Cluster Analysis: Cluster analysis is the task of assigning a set of objects into groups (clusters) so that the objects in the same cluster are more similar to each other than to those in other clusters. Cluster analysis itself is not one specific algorithm, but the general task to be solved. It can be achieved by various algorithms that differ significantly in their notion of what constitutes a cluster and how to efficiently find them. The most commonly used ones are hierarchical clustering and k-means clustering.

Crosswalk: The purpose of a crosswalk can be defined in four ways. When two or more document are used they: 1) illustrate how the goals and objectives in a current planning document maps to a proposed document; 2) compare content to find commonalities to be integrated into a single, new document that reduce possible redundancies in the single document; 3) illustrate the commonalities when developing two separate documents to help reduce the possibilities of reduplicating planning efforts; and 4) identify activities that illustrate how the documents support each other to allow for a consistent, integrated planning process. Definition one defines how one document maps the relationship of historical progress. Definitions two and three define content analysis and definition four defines concept analysis.

Cultural Competence: For individuals, cultural competency is an ability to interact effectively with people of different cultures. Cultural competence comprises four components: awareness of one's own cultural worldview, attitude towards cultural differences, knowledge of different cultural practices and worldviews, and cross-cultural skills. Developing cultural competence results in an ability to understand, communicate with, and effectively interact with people across cultures. For organizations, cultural competency is a set of behaviors and policies that enable the organization to work effectively in cross-cultural situations by integrating cultural knowledge about individuals and groups of people into policies and practices, thereby increasing the quality of services. To become culturally competent, an organization should value diversity, assess the extent to which cultural knowledge is a part of its practices, and incorporate cultural knowledge into its practices and activities so that its services reflect the varying cultural needs of all its constituencies.

Dependent Variable: A dependent variable is what you measure in the experiment and what is affected during the experiment.

Duplicated Enrollment: Total number of class enrollments. A student enrolled in multiple courses increases the count for each of those courses. This is a count of seats filled, not a count of persons filling them.

Effect Size: Effect size is the magnitude, or size, of an effect. Statistical significance (i.g., $p<0.05$) only tells us there was a difference between two groups or more based on some treatment. It fails to tell us the magnitude or the size of the difference. To measure the size of the difference, effect size needs to be calculated. There are several types of effect size. The commonly used effect size to measure mean difference between two groups is the standardized mean effect, typically reported at *Cohen's d*.

FTEF: Full time equivalent faculty (FTEF). It is a standardized method for computing faculty load. 1 FTEF = 15 LHE (lecture hour equivalent). FTEF is computed by dividing the number of LHE by 15: FTEF = sum of LHE/15. Examples 1: A psychology faculty is teaching 5 psychology classes. Each class meets 3 hours per week. FTEF: 3 hrs/wk x 5 = 15 LHE, 15 LHE/15 = 1 FTEF; Example 2: A Biology faculty is teaching 4 Biology classes. Each class meets 3 hours lecture and 2 hours lab per week. FTEF: 3 lecture hrs/wk x 4 = 12 LHE, 2 lab hrs/wk x 4 =2x0.75x 4 =6 LHE, (12+6)LHE/15 = 1.2 FTEF

FTES: Full Time Equivalent Students (FTES). 1 FTES = 525 contact hours (one student enrolled in courses for 3 hours a day, 5 days a week, for an academic year of 35 weeks, 3x5x35=525). FTES is the mechanism used by state to report student attendance for apportionment purpose. Calculations for this measure depend on the course type. There are four types of accounting methods: Weekly census (18-week courses), Daily census (Short-term courses), Positive Attendance (Police academy), Alternative attendance (Independent study/work experience/distance education). Each accounting method uses a different formula to calculate FTES. i.e. Positive Attendance courses measure Total Actual Hours of Instruction ÷ 525. Daily Census Attendance courses (Short-term courses) measure Total Contact Hours ÷ 525. Weekly Census Attendance courses (18-week courses) measure Weekly Student Contact Hours x 17.5 ÷ 525.

Independent Variable: An independent variable is the variable you have control over, what you can choose and manipulate. It is usually what you think will affect the dependent variable.

Learning Community: A learning community is two or more instructional courses that are linked and composed of a student cohort from the general student population. A learning community may also target special populations.

Learning Support Services: Learning support services provides learning and study skills resources for all students who wish to enhance their academic experience in preparing to meet their educational goals. These services include: academic computer lab, basic skills, library, tutorial center, and writing and reading center.

LHE: Lecture Hour Equivalent (LHE). It is the first step in computing faculty load. It Standardizes the number of lecture and lab hours taught by a faculty. 1 hour of lecture per week = 1 LHE; 1 hour of lab per week = 0.75 LHE.

Mean: Mean is the average score. For example, on a scale of 1 to 5, out of 10 scores if 2 people choose answer #5, 2 people choose answer #4, 3 people choose answer #3, 2 people choose answer #2, and 1 person chooses answer #1, the mean is 3.2. [Mean = ((5*2)+(4*2)+(3*3)+(2*2)+(1*1))/10].

Median: A median is the score that splits all the scores exactly in half. Half of the scores are above the median, and half the scores are below the median. For example, on a scale of 1 to 5, out of 10 scores if 2 people choose answer #5, 2 people choose answer #4, 3 people choose answer #3, 2 people choose answer #2, and 1 person chooses answer #1, the median is 3. [5 5 4 4 3 MEDIAN 3 3 2 2 1].

Mode: A mode is the most commonly-appearing score. The mode identifies where most people score. For example, on a scale of 1 to 5, out of 10 scores if 2 people choose answer #5, 3 people choose answer #4, 2 people choose answer #3, 2 people choose answer #2, and 1 person chooses answer #1, the mode is 4, because more people chose that answer than any other.

Percentile: Percentile is most often used for determining the relative standing of an individual in a population or the rank position of the individual. The pth percentile is the number such that p% of the data falls below it and (100 - p)% stands above it. For example, if a score is in the 86th percentile, it is higher than 86% of the other scores.

Persistence: Persistence measures the rate of students who stay in college from term to term. Persistence can be measured from fall term to fall term (across two academic years), or fall term to spring term (within an academic year). For the calculation, the first term includes students enrolled in any course at census, regardless of the final grade received in that course. The next term count includes those same students enrolled in any course at census, regardless of the grade received. The persistence rate is the percent of students enrolled in the next term out of students enrolled in first term. For example, if 100 students are enrolled in a fall term, and 75 of those students subsequently enroll in the following spring term, the fall-to-spring persistence rate is 75%. If 60 of those students enroll in the subsequent fall term, the fall-to-fall persistence is 60%. [Definition established by the RP Group, to facilitate ongoing data analysis and comparison to other California community colleges.]

PEST Analysis: Analysis of Political, Economic, Social, and Technological factors from an environmental scan, used to aid in strategic planning. The first FCC PEST analysis included an extra factor: Education. A PEST analysis is useful for understanding and identifying factors affecting the college; PEST factors are essentially external. Conduct a PEST analysis prior to doing a SWOT analysis, in order to identify the factors driving the SWOT. A PEST analysis template is simply a box with four quadrants.

Qualitative Research: Qualitative research involves an in-depth understanding of human behavior and the reasons that govern human behavior. Unlike quantitative research, qualitative research relies on reasons behind various aspects of behavior. Simply put, it investigates the why and how of decision making, as compared to what, where, and when of quantitative research. Hence, the need is for smaller but focused samples rather than large random samples, which qualitative research categorizes data into patterns as the primary basis for organizing and reporting results. Unlike quantitative research, which relies exclusively on the analysis of numerical or quantifiable data, data for qualitative research comes in many mediums such as focus groups, in-depth interviews, uninterrupted observation, bulletin boards, and ethnographic participation/observation.

Quantitative Research: Quantitative research refers to the systematic empirical investigation of social phenomena via statistical, mathematical or computational techniques. The objective of quantitative research is to develop and employ mathematical models, theories and/or hypotheses pertaining to phenomena. The process of measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships. It is conclusive in its purpose as it tries to quantify the problem and understand how prevalent it is by looking for projectable results to a larger population in order to determine whether the predictive generalizations of the theory hold true. Data is collected through a variety of ways such as surveys (online, phone, paper), audits, points of purchase (purchase transactions), and click-streams.

Range: The range of a set of data is the difference between the largest and smallest values.

Research Agenda: A list of research questions or issues that the organization would like to see answered/researched, in support of the goals of the organization. A research agenda prioritizes research projects and activities based on organizational needs and goals.

Retention: Student stays in the course to the end of the term and receives a grade. The numerator is the number of enrollments with a grade of A, B, C, D, F, P (Cr), NP (NC); the denominator is the number of enrollments at census (receiving any grade). The retention rate is the percent of students retained out of the total enrolled. For example, in a class of 50 students where 5 students withdraw after census, the retention rate is 90%. [Definition established by the RP Group, to facilitate ongoing data analysis and comparison to other California community colleges.]

Significance: Tests of significance answer these questions: is the finding reliable, and can I have confidence in the finding? A finding's reliability is established by a process of elimination; you gain confidence in the finding if you can rule out the possibility that the finding occurred by chance. A measure of significance indicates the number of times out of 100 that the finding would occur by chance; that likelihood is indicated by the significance level or p-value. For example, a p-value of .03 indicates that the finding would have occurred by chance 3 out of 100 times. To determine whether a finding is statistically significant, compare the p-value to the alpha-level, which is most often set at .05, meaning that the finding would have occurred by chance 5 out of 100 times. If the p-value is LESS THAN the alpha-level, the finding is statistically significant (p-value of .03 is less than alpha-level of .05 = statistically significant. However, the alpha-level can be set to different values, depending on circumstances; the US Census Bureau, for example, uses an alpha level of .1 in its tests of significance, meaning that the results include a 10% risk of being incorrectly identified as significant. Note that in statistics, significance does not mean important or meaningful as one might expect, making it important to consider effect-size statistics as well, in order to understand the practical importance of the difference.

Special Program: A special program is composed of a limited number of students who are targeted to benefit from the services that are provided. A special program may have a learning community as a component.

Standard Deviation: Standard deviation measures (on average) how far away each number is from their mean. It is the average of the squared differences from the mean. A low standard deviation indicates that the data points tend to be very close to the mean; high standard deviation indicates that the data points are spread out over a large range of values.

Success: Student successfully completes the course (receives a grade of A, B, C, P (Cr)). The numerator is number of enrollments with a grade of A, B, C, P (Cr); the denominator is the number of enrollments at census (receiving any grade). Note that students dropped prior to census are not included in this calculation. The success rate is the percent of students successful in courses out of the total enrolled. For example, in a class of 50 students where 30 students receive a grade of A, B, C, or P, the success rate is 60%. [Definition established by the RP Group, to facilitate ongoing data analysis and comparison to other California community colleges.]

SWOT Analysis: Analysis of Strengths, Weaknesses, Opportunities, and Threats. This analysis is a tool for reviewing strategy and direction of an organization. The SWOT analysis separates factors into internal (strengths and weaknesses) and external (opportunities and threats). An action-based SWOT may combine the two, considering both strengths and weaknesses against both opportunities and threats.

T test: T test assesses whether the means of two groups are statistically different from each other. One-sample t test compares the sample mean with a benchmark data. (Independent or paired) two-sample t test compares the means of two samples. Small P-value (< 0.05) indicates that the difference is statistically significant at 5% significance level.

Unduplicated Enrollment: Total number of students enrolled. A student enrolled in multiple courses increases the count by one. This is a count of students, not a count of course seats filled.

Weighted Average: The weighted average is an average in which each quantity that is being averaged is assigned a weight. Weightings determine the relative contribution of each quantity to the average. For example, given two English classes, the straight average score for Engl-125 is 50 and the straight average score for Engl-126 is 90. There are 10 students in Engl-125 and 90 students in Engl-126. The straight average of 50 and 90 is 70 (the average of the two class averages). However, this does not account for the difference in number of students in each class. The average student grade can be calculated by weighting the class averages by the number of students in each class $(10*50+90*90)/(10+90)=86$.

WSCH/FTEF: Weekly Student Contact Hours per Full Time Equivalent Faculty = Total FTES x 525 ÷ 17.5 ÷ FTEF. This calculation measures the efficiency of the student to faculty contacts. A higher result indicates more students served by fewer faculty hours; a lower result indicates fewer students served. This measure must be considered in relation to the type of class; some courses must meet other requirements that lower the student to faculty measure. For example, courses with limited enrollments due to regulations such as nursing clinical classes (limited to 12 students) will have a lower WSCH than a course taught using large group instruction.