

Development of the Chancellor's Office Scorecard Metrics

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The Scorecard was developed in 2012 and is the current accountability framework for the California Community Colleges (CCC). The purpose of the Scorecard is to provide stakeholders with clear and concise information about student progress and success. The core of the framework is a series of college level metrics. Several of the measures were carried over from the previous reporting system, the Accountability Reporting for the Community Colleges (ARCC), triggered by Assembly Bill 1417 in 2004. The ARCC framework represented a number of priorities, including using measures that reflect the breadth and scope of college missions and providing a standardized view of each college's performance. These original principals have been carried over to the current accountability framework, the Scorecard. The ability to provide a standardized view on college performance is described in this paper which focuses on the development of uniform cohorts for the Scorecard metrics.

Use of Cohorts to Measure Progress and Completion in Higher Education

The use of cohorts for tracking higher education outcomes began in the 1980s and is now common practice for local, state, and federal educational institutions (Voorhees & Lee, 2005). A cohort is a group of individuals with similar characteristics. In higher education, cohorts are most often comprised of students who enter a college, program, or series of courses at the same time. Evaluating students within or across cohorts allows one to gauge how various aspects of the college experience relate to progress and completion outcomes. Cohort analysis allows researchers to follow the same individuals across time in order to isolate the impact of treatment (e.g. enrollment in a specific college) from other factors that can influence outcomes. For example, in studies that use different students at each point in time instead of a cohort, any change in outcome could be the result of a change in the composition of the sample, not the treatment of interest.

The California Community Colleges Chancellor's Office (CCCCO) began using cohorts to measure transfer for accountability purposes in 2002 with the California Partnership for Excellence (PFE). The transfer rate methodology used first-time student cohorts as a way to measure outcomes for similar students at all colleges in the system (Bahr, Hom, & Perry, 2005). The use of these cohorts was carried over to the subsequent accountability framework, the ARCC, in 2006. The ARCC framework and metrics were developed by a workgroup of individuals from various community college organizations and stakeholder groups, as well as researchers with national technical expertise in performance measures. For consistency across similar outcomes (e.g., completion, basic skills), the seven cohort metrics from the ARCC were collapsed into four for the purposes of the Scorecard. The differences between the two sets of metrics are minor.¹

¹ The original ARCC metrics had smaller cohorts because there was a higher threshold for inclusion. To be identified as a degree/transfer student in ARCC, a student had to have completed 12 units and attempted a college-level math or English courses in their first three years of enrollment. In the Scorecard, they need only complete 6 units and attempt any math or English course in those three years.

The Degree/Transfer Completion Rate Cohort in the Scorecard

The key to successful cohort analysis is to produce a cohort that accurately captures the population of interest. A cohort that portrays the population incorrectly invalidates any results from the analysis. The degree/transfer completion rate cohort uses three important characteristics to obtain a subset of students who are closest to that population of interest.

- 1. First-Time Students:** The degree/transfer completion rate is used to examine educational outcomes across institutions so, in order to maintain homogeneity across colleges and increase the validity of the resulting measure, the cohort must include only first-time students. One of the major alternative contributors to a student's college success is previous experience in a higher education setting. If students have varying degrees of college experience (e.g., if some have transferred from another 2-year or 4-year institution), it is a challenge to separate the effects of programs at previously attended institutions from those that are unique to the college under study. The use of first-time student cohorts is therefore a standard practice for institutional and academic researchers in higher education in general (see accountability reports for Texas² and Minnesota³) and for research on community colleges in particular (Jenkins and Cho, 2012; Nutting, 2008; Xu & Ran, 2015). It is also consistent with how national data are reported (Ginder, Kelly-Reid, & Mann, 2014; see also, the Integrated Postsecondary Education Data System (IPEDS) and the U.S. Department of Education's new College Scorecard).
- 2. Students' Behavioral Intent:** Students applying to CCCs state an educational goal as part of the application process, but these statements have proven unreliable. Students applying for college may put little cognitive effort into selecting their initial educational goals, so those goals are subject to various biases and considerable instability over time (Hom, 2009). One promising alternative to self-reported goals is viewing specific behaviors as 'signals' for academic intentions (Bahr, Hom, & Perry, 2005; Hom, 2009). In particular, cluster analysis of course-taking behaviors has been used as a way to group California's community college students (Bahr, 2010; Bahr, 2011). As a result, the completion metric is based on students who show behavioral intent towards a particular outcome. For instance, students earning six credits or taking math or English courses within the first three years are identified as intending to complete an associate's degree or certificate, or to transfer to a baccalaureate institution, and are included in this cohort. All other students are assumed to have other goals and many are included in other metrics.
- 3. Student Identifiers:** Only students with valid Social Security numbers (SSNs) are included in the cohort. SSNs are needed to exclude students who have previous experience in postsecondary education (non-first-time students) and to determine whether students achieved completion at a different institution than where they began. In order to accomplish either of these tasks, one must check across institutional databases—for example, at both the University of California and California State University systems—where the most reliable, common variable is SSN. Given the large number of students in the CCC system, using names, birthdates, and other identifiers to

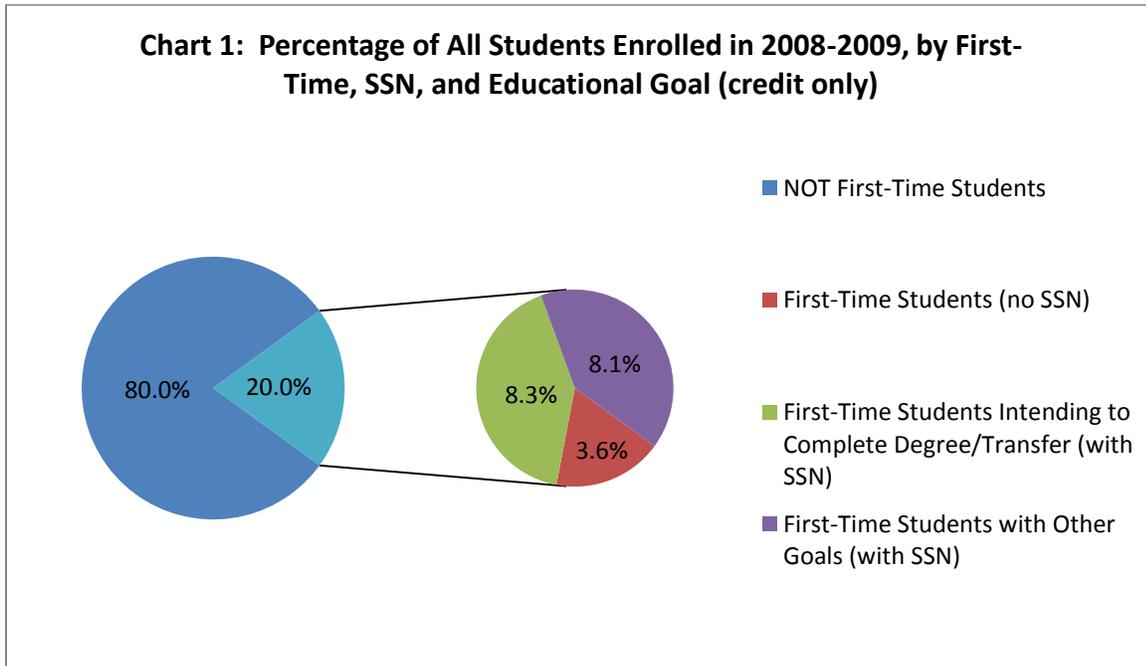
² *Accountability Report, January 2015*. Published by Texas Higher Education Coordinating Board. Retrieved September 28, 2015 from http://www.txhighereddata.org/Interactive/Accountability/CC_Success.cfm?FICE=445566

³ *Minnesota Measures 2015*. Published by Minnesota Office of Higher Education. Retrieved September 28, 2015 from <http://www.ohe.state.mn.us/pdf/MinnesotaMeasures2015.pdf>

match students is unreliable, even within the system itself; there are far too many students with similar or identical names. In addition, the more variables used to make a match, the more likely that an appropriate match will be missed as the likelihood of incorrectly entered data increases.

Construction of the Completion Rate Cohort

Chart 1 illustrates how the cohort for the 2015 Scorecard completion rate is related to the entire population of credit students enrolled during the 2008-2009 academic year.⁴ The chart shows how cohort students are identified based on the characteristics discussed above (e.g., first-time students only, goals identified based on behavioral intent, etc.). Note that, of all credit students enrolled in CCCs in 2008-2009, 20% of those were first-time students—a reasonable figure in a system of two-year institutions with a large number of returning and part-time students. Eighty-two percent of those first-time students had a valid SSN. The remaining first-time students are split into those intending to complete a degree or transfer and those who have other goals. The resulting completion rate cohort is 8.3% of *all* credit students enrolled in 2008-2009 and 50% of all *first-time* students with a valid SSN. The outstanding first-time students (8.1%) have other educational goals. Once again, this is reasonable in a system comprised of students with a diverse set of educational objectives.



⁴ The 2008-2009 academic year is the year in which students included in the 2015 Scorecard’s six-year cohort for this metric first enrolled. The same cohort is used for the “persistence” and “30 units” rates.

Remedial and Career Technical Education Cohorts

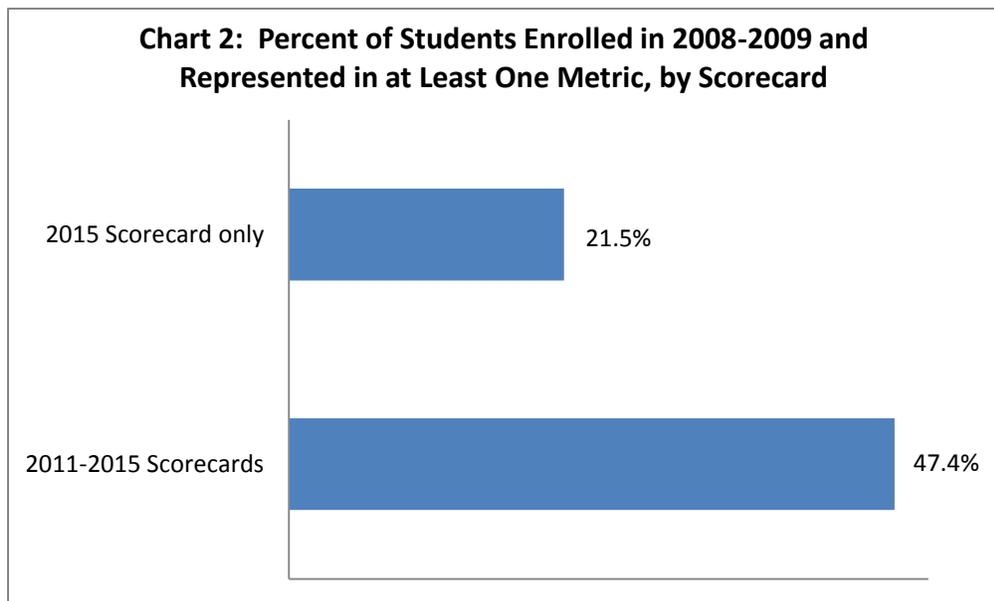
The Remedial and Career Technical Education (CTE) metrics in the Scorecard use the same stepdown process discussed above but, rather than identifying first-time college students, the cohort is based on students who are in their first remedial course during the 2008-2009 academic year and have completed more than 8 units of career technical education (or apprenticeship) in a single discipline in the following three years. As with the completion rate cohort, only students taking courses for credit and who have valid SSNs are included in the cohort.

General Comments about Cohort Size

The size of each cohort relative to the number of enrolled students for each academic year appears small, but each criterion for inclusion is necessary to create accurate cohorts. That being said, it is important to note that, over time, a large number of students enrolled in 2008-2009 are incorporated into some cohort even if that cohort is not included in the 2015 Scorecard.

Chart 2 provides the percent of students enrolled in 2008-2009 who are included in different yearly Scorecard cohorts.⁵ While a small percentage of those students were included in a completion, remedial, or CTE cohort and were used in the calculation of the 2015 Scorecard metrics (21.5%), many of those excluded are contained within other cohorts and, therefore, other Scorecards. A full 47.4% were placed in a cohort between the 2004-2005 and 2008-2009 academic years and are included in one of the first five Scorecards (2011 through 2015).

We should expect that as the number of Scorecards grows the higher a percentage of students will be represented from any given academic year.



⁵ The baseline group (100%) is all 2008-2009 credit enrollees with a valid SSN.

Ultimately this means that judgments about institutional success should not be based on the outcomes of a single cohort. Bahr, Hom, & Perry (2005) suggest that at least three unique cohorts of the same type (e.g., completion cohorts from 2008-2009, 2009-2010, and 2010-2011) be observed before generating conclusions about a college because this reduces “the possibility of identifying a college as ‘low transfer’ based on random variation in [the behavior of a single] student cohort” (page 74). In addition, as Chart 2 shows, while an individual cohort metric on a single Scorecard only follows the behavior of a small subset of that year’s enrollment, many of those students will eventually be included in a Scorecard analysis.

Conclusion

The Scorecard is an accountability framework that uses indicators to gauge the performance of each of the 113 colleges in the system. Smaller analytic cohorts in the Scorecard are caused by (1) a reliance on behavioral proxies to identify goals because of the lack of reliable data and (2) the numerous missions of the system that result in a large number of unique student goals. The large number of system missions also may produce students with multiple goals or may lead them to change goals during their career; these students may or may not fall into any outcome cohorts.

Even though the cohorts do not include all students, they do represent a sizeable portion of the populations of interest. Of the total first-time students in the 2008-2009 academic year, the degree/transfer completion rate, the Scorecard metric most frequently used in the field, represented half of total first-time students with a valid SSN. Of all credit students with a valid SSN who enrolled in 2008-2009, all Scorecard metrics (e.g., degree/transfer, CTE, remedial) represented 21.5% of the total headcount. Including five consecutive Scorecard reports, over 47% of these students’ performances are evaluated.

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