



Research Brief

SBCCD Distance Education Success and Completion Rates from 2010 – 2011 to 2014 – 2015

Prepared by Benjamin Gamboa

Purpose of Brief

The following brief illustrates the number of sections, grades on record (GOR) earned, and the success and completion rates for SBCCD courses from 2010 – 2011 to 2014 – 2015 by instructional method. In addition, student performance in lecture and online courses are compared while controlling for term, course, and instructor.

Summary of Findings

- The number of sections increased by 525 (13%) from 2013 – 2014 to 2014 – 2015.
- The number of internet only sections increased from 312 in 2013 – 2014 to 440 in 2014 – 2015, an increase of 128 sections (41%).
- The number of grades on record (GOR) in online courses (i.e. internet only and hybrid sections) has increased from 12,107 in 2010 – 2011 to 18,305 in 2014 – 2015, a 51% increase.
- The success rate in online courses (i.e. internet only and hybrid sections) has slightly increased from 60% in 2010 – 2011 to 62% in 2014 – 2015.
- When controlling for term, course, and instructor the overall five year success rate is slightly higher (ES = .15) in lecture (70%) than in online (63%) sections.

Findings

Table 1 illustrates the number and percent of sections by instructional method from 2010 – 2011 to 2014 – 2015 in sections where a grade on record (GOR) was earned. The proportion of lecture only sections slightly declined in 2014 – 2015 while the proportion of lab only and online (i.e. internet and hybrid) sections slightly increased in 2014 - 2015. The number of total sections increased by 525 sections (13%) between 2013 – 2014 and 2014 – 2015. Specifically, the number of internet only sections increased from 312 in 2013 – 2014 to 440 in 2014 – 2015, an increase of 128 (41%). In contrast, the number of lecture only sections increased from 2,124 in 2013 – 2014 to 2,368 in 2014 – 2015, an increase of 244 (11%).

Table 1: Number and Percent of Sections by Instructional Method from 2010 – 2011 to 2014 – 2015 for Sections where a Grade on Record was Earned.

Instructional Method	2010-2011		2011-2012		2012-2013		2013-2014		2014-2015	
	#	%	#	%	#	%	#	%	#	%
Lecture Only	2,194	55.7	1,908	55.5	1,870	55.2	2,124	55.6	2,368	52.1
Lab Only	346	8.8	290	8.4	301	8.9	333	8.7	540	11.9
Internet Only	280	7.1	235	6.8	244	7.2	312	8.2	440	9.7
Hybrid	125	3.2	142	4.1	135	4.0	139	3.6	183	4.0
Lecture/Lab	919	23.3	779	22.6	753	22.2	822	21.5	924	20.3
Work Experience	20	0.5	19	0.6	20	0.6	19	0.5	16	0.4
Independent Study	18	0.5	18	0.5	33	1.0	36	0.9	40	0.9
Field Experience	6	0.2	4	0.1	4	0.1	5	0.1	3	0.1
Clinical	22	0.6	22	0.6	19	0.6	10	0.3	19	0.4
Tutoring	2	0.1	13	0.4	0	0.0	21	0.5	0	0.0
Two way video/audio	6	0.2	10	0.3	9	0.3	2	0.1	10	0.2
Total	3,938	100.0	3,440	100.0	3,388	100.0	4,018	100.0	4,543	100.0

Note: The sections where students did not earn a GOR are excluded from this table; accordingly, the number of sections displayed in Table 1 will be lower than the actual number of sections offered by CHC.

The number of GOR in both internet only and hybrid sections has increased from 12,107 in 2010 – 2011 to 18,305 in 2014 – 2015, a 51% increase (see Tables 2 and 3). In contrast, GOR in lecture only sections have had a 6% decrease from 2010 – 2011 to 2014 – 2015. Equally important, the success rate in all types of distance education sections has slightly increased from 60% in 2010 – 2011 to 62% in 2014 – 2015 (see Figure 1). Moreover, hybrid sections have a consistently higher success rate (63%) than internet only sections (61%). **A limitation to comparing student performance in hybrid and internet sections is that the comparison does not control for term, course, and instructor.**

Figure 1: SBCCD Internet Only and Hybrid Success Rates from 2010 – 2011 to 2014 – 2015.

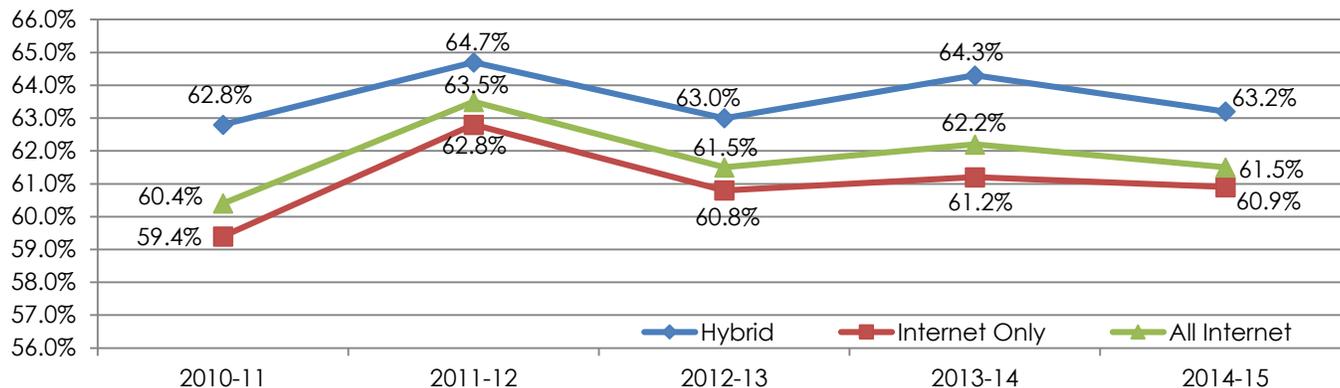


Table 2: SBCCD Success Rate by Instructional Method from 2010 – 2011 to 2014 – 2015.

Instructional Method	2010 – 2011			2011 – 2012			2012 – 2013			2013 – 2014			2014 – 2015		
	#	N	%	#	N	%	#	N	%	#	N	%	#	N	%
Lecture Only	50,125	74,188	67.6	45,286	64,498	70.2	44,675	63,561	70.3	46,219	67,311	68.7	47,665	70,052	68.0
Lab Only	6,940	8,909	77.9	6,182	7,570	81.7	6,110	7,583	80.6	5,878	7,345	80.0	5,957	7,514	79.3
Internet Only	5,087	8,565	59.4	4,457	7,101	62.8	4,843	7,963	60.8	5,902	9,641	61.2	8,023	13,172	60.9
Hybrid	2,226	3,542	62.8	2,573	3,977	64.7	2,510	3,984	63.0	2,667	4,146	64.3	3,242	5,133	63.2
Lecture/Lab	14,370	20,088	71.5	12,315	16,745	73.5	12,111	16,428	73.7	12,162	16,904	71.9	12,364	17,132	72.2
Work Experience	174	236	73.7	155	200	77.5	194	262	74.1	172	232	74.1	134	183	73.2
Independent Study	73	83	88.0	61	74	82.4	85	97	87.6	72	83	86.7	88	100	88.0
Field Experience	47	55	85.5	19	27	70.4	16	20	80.0	45	60	75.0	27	33	81.8
Clinical	427	560	76.3	428	514	83.3	382	481	79.4	219	324	67.6	385	483	79.7
Tutoring	117	193	60.6	31	67	46.3				189	249	75.9			
Two-Way Video/Audio	15	32	46.9	53	88	60.2	40	53	75.5	37	56	66.1	70	106	66.0
Total	79,601	116,451	68.4	71,560	100,861	70.9	70,966	100,432	70.7	73,562	106,351	69.2	77,955	113,908	68.4

Note. The blue font refers to distance education sections, “#” refers to the number of successful grades, “N” refers to the number of GOR, and “%” is # divided by N.

Table 3: SBCCD Completion Rate by Instructional Method from 2010 – 2011 to 2014 – 2015.

Instructional Method	2010 – 2011			2011 – 2012			2012 – 2013			2013 – 2014			2014 – 2015		
	#	N	%	#	N	%	#	N	%	#	N	%	#	N	%
Lecture Only	63,517	74,188	85.6	56,485	64,498	87.6	57,468	63,561	90.4	60,604	67,311	90.0	62,751	70,052	89.6
Lab Only	7,898	8,909	88.7	6,889	7,570	91.0	6,963	7,583	91.8	6,701	7,345	91.2	6,879	7,514	91.5
Internet Only	6,816	8,565	79.6	5,855	7,101	82.5	6,712	7,963	84.3	8,131	9,641	84.3	10,867	13,172	82.5
Hybrid	2,918	3,542	82.4	3,367	3,977	84.7	3,430	3,984	86.1	3,559	4,146	85.8	4,402	5,133	85.8
Lecture/Lab	17,127	20,088	85.3	14,457	16,745	86.3	14,673	16,428	89.3	14,997	16,904	88.7	15,171	17,132	88.6
Work Experience	219	236	92.8	189	200	94.5	249	262	95.0	218	232	94.0	169	183	92.3
Independent Study	80	83	96.4	70	74	94.6	92	97	94.8	80	83	96.4	95	100	95.0
Field Experience	53	55	96.4	26	27	96.3	20	20	100.0	54	60	90.0	33	33	100.0
Clinical	450	560	80.4	454	514	88.3	406	481	84.4	239	324	73.8	409	483	84.7
Tutoring	186	193	96.4	36	67	53.7				218	249	87.6			
Two-Way Video/Audio	24	32	75.0	69	88	78.4	46	53	86.8	45	56	80.4	96	106	90.6
Total	99,288	116,451	85.3	87,897	100,861	87.1	90,059	100,432	89.7	94,846	106,351	89.2	100,872	113,908	88.6

Note. The blue font refers to distance education sections, “#” refers to the number of retained students, “N” refers to the number of GOR, and “%” is # divided by N.

Figure 2 and Table 4 indicate that when controlling for term, course, and instructor the overall five year success rate for lecture sections (70%) is slightly higher (ES = .15) than for online sections (63%). However, in 2014 – 2015, students in lecture courses were substantially (ES = .19) and statistically significantly ($p < .001$) more likely to successfully complete the course (69%) than students in online sections (60%) taught by the same instructor in the same semester. Similarly, students in lecture courses were statistically significantly ($p < .001$) more likely to complete the course (90%) than students in an online course (83%) taught by the same instructor in the same semester, although the difference is not substantial. **A limitation of these findings is that not all online courses are included in the comparison because many of the online instructors did not teach the same lecture course in the same term in which they taught the online course.**

Figure 2: SBCCD Success Rates from 2010 – 2011 to 2014 – 2015 by Lecture and Online Sections taught by the Same Instructor in the Same Semester.

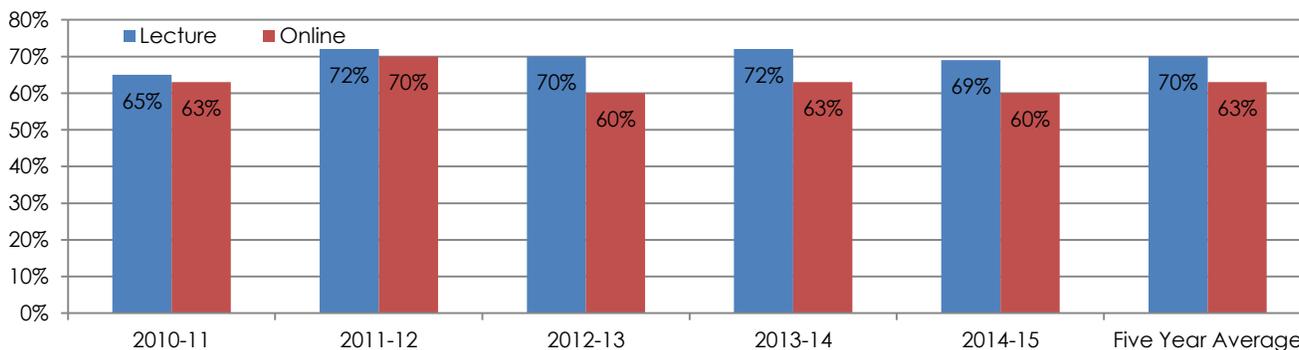


Table 4: SBCCD Success and Completion Rates from 2010– 2011 to 2014 – 2015, Effect Sizes, and P-Values by Lecture and Online Sections taught by the Same Instructor in the Same Semester.

Academic Year	Lecture Course			Distance Education Course			ES*	P-Value**
	#	N	%	#	N	%		
Success								
2010 – 2011	1,612	2,471	65.2	1,191	1,881	63.3	-.04	.191
2011 – 2012	1,325	1,834	72.2	999	1,420	70.4	-.04	.237
2012 – 2013	2,535	3,629	69.9	1,319	2,211	59.7	-.22	< .001***
2013 – 2014	2,543	3,511	72.4	1,801	2,850	63.2	-.20	< .001***
2014 – 2015	2,141	3,104	69.0	1,631	2,721	59.9	-.19	< .001***
Five Year Average	2,031	2,910	69.8	1,388	2,217	62.6	-.15	< .001***
Completion								
2010 – 2011	2,132	2,471	86.3	1,505	1,881	80.0	-.17	< .001***
2011 – 2012	1,624	1,834	88.5	1,215	1,420	85.6	-.09	.012***
2012 – 2013	3,310	3,629	91.2	1,843	2,211	83.4	-.24	< .001***
2013 – 2014	3,215	3,511	91.6	2,447	2,850	85.9	-.18	< .001***
2014 – 2015	2,786	3,104	89.8	2,253	2,721	82.8	-.20	< .001***
Five Year Average	2,613	2,910	89.8	1,853	2,217	83.6	-.19	< .001***

* A .20 effect size corresponds to a Pearson r of .10. The effect size represents the magnitude of the difference between the target and the baseline measure. Using an effect size increases the likelihood that the difference is not only statistically significant but practical as well.

**The P-Value is an indication of statistical significance. Statistical significance exists when the P-value is less than .05 indicating that the difference between the groups is likely to be due to chance only 5 out of 100 times. It is important to note that the p-value is influenced by the number of cases.

***The difference is statistically significant.

Methodology

Table 1 illustrates the number and percent of sections by instructional method from 2010 – 2011 to 2014 – 2015 for sections where a GOR was earned. It is important to note that sections where students did not earn a GOR are excluded from this table. Accordingly, the number of sections displayed in Table 1 will be lower than the actual number of sections offered by the District Colleges.

Tables 2 and 3 display the success and completion rates for SBCCD by instruction method from 2010 – 2011 to 2014 – 2015. There are twelve methods of instruction identified in Tables 2 and 3: lecture only, lab only, internet only, hybrid (a combination of internet and another instructional method—usually lecture), lecture/lab, work experience, independent study, field experience, clinical, tutoring, two-way interactive video and audio, and one-way video. The work experience, independent study, field experience, clinical, tutoring, and one-way video instructional methods also may have included other instructional methods that were combined with these methods. **The internet and hybrid instruction methods are the methods often referred to as distance education or online courses.**

When examining the success and completion rates (formally retention) illustrated in Tables 2 and 3 it is essential **to not compare** the success and completion rates of different instructional methods because each method does not control for instructor and discipline and could be misleading. Comparing the success and completion rates longitudinally is more methodologically sound. In addition, a second more methodologically sound method than comparing across instructional methods is to compare success and completion rates while controlling for instructor, term, and course. Accordingly, Figure 2 and Table 4 illustrate the results of comparing lecture to distance education sections for the same term, course, and instructor. Specifically, if an instructor taught both an online and lecture course within the same term, the performance of students in each of these courses was compared.

Definitions: The number of grades on record (GOR) refers to one of the following grades and is also the number of students enrolled at census: A, B, C, D, F, P (CR), NP (NC), I, or W. Success rate is the number of A, B, C, or P grades divided by the number of GOR, and completion rate (formally retention rate) is the number of A, B, C, D, F, P, NP, or I grades divided by the number of GOR.

Effect Size and Statistical Significance. The effect size statistic is commonly used in meta-analyses. A meta-analysis uses quantitative techniques to summarize the findings from a number of studies on a particular topic to determine the average effect of a given technique. One method of interpreting effect size was developed by Jacob Cohen. Jacob Cohen defined "small," "medium," and "large" effect sizes. He explained that an effect size of .20 can be considered small, an effect size of .50 can be considered medium, and an effect size of .80 can be considered large. Effect size is calculated by dividing the difference of the two means by the pooled standard deviation. It is important to mention that the number of students in each group does not influence Effect Size; whereas, when statistical significance is calculated the number of students in each group does influence the significance level (i.e. "p" value being lower than .05). Accordingly, using Cohen as a guide, a substantial effect would be .20 or higher.