



**SBCCD Distance Education Success and Retention Rates  
2005 – 2006 to 2009 – 2010  
(Version 3)**

**Overview:** The following brief illustrates the number of grades on record earned (GOR), and the success and retention rates for courses in the San Bernardino Community College District (SBCCD) from 2005 – 2006 to 2009 – 2010 by instruction method. In addition, student performance in lecture courses is compared to student performance in online courses while controlling for term, instructor, and course.

**Summary of Findings:**

- The number of grades on record (GOR) in internet sessions has increased from 4,453 in 2005 – 2006 to 9,371 in 2009 – 2010, a 110% increase.
- The success rate in online courses has increased from 53.7% in 2005 – 2006 to 59.9% in 2009 – 2010, a 12% increase (.599-.537/.537).
- The retention rate in online courses has increased from 75.2% in 2005 – 2006 to 80.7% in 2009 – 2010, a 7% increase (.807-.752/.752).
- When controlling for term, course, and instructor the overall five year success rate is the same for both lecture (61.6%) and online (61.0%) courses.

**Methodology:** Tables 1 and 2 display the success and retention rates for SBCCD by instruction method from 2005 – 2006 to 2009 – 2010. Instruction method refers to the method of instruction. There are ten methods of instruction identified in Tables 1 and 2: clinical, two-way video and audio, one-way video, internet with delayed interaction, independent study, field experience, laboratory, lecture, and work experience. **The internet – delayed interaction instruction method is the method often referred to as distance education.** At the same time, distance education also includes two-way video and audio, and one-way video.

When examining the success and retention rates illustrated in Tables 1 and 2 it is essential to not compare the success and retention rates of different instructional methods because each method does not control for instructor and discipline, and would be misleading. Comparing the success and retention rates longitudinally is more methodologically sound. In addition, a second more methodologically sound method than comparing across instructional methods is to compare success and retention rates while controlling for instructor, term, and course. Accordingly, Table 3 illustrates the results of comparing lecture to distance education courses for the same term, instructor, and course. 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.

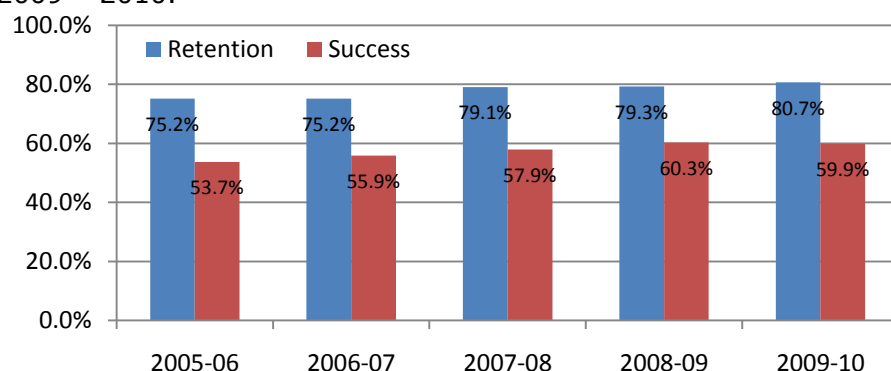
**Definitions:** The number of GOR refers to one of the following grades and is also the number of students enrolled at census: A, B, C, D, F, P (CR), NP (NC), I, or W. Success rate is the number of A, B, C, or P grades divided by the number of GOR, and retention rate is the number of A, B, C, D, F,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

**Findings:** The distance education sessions with the highest enrollments at SBCCD are the delayed interaction (i.e. internet) internet sessions. Specifically, the number of GOR in internet sessions has increased from 4,453 in 2005 – 2006 to 9,371 in 2009 – 2010, a 110% increase. In contrast, lecture sessions have only had a 17% increase from 2005 – 2006 to 2009 – 2010. Equally important, the success rate in internet sessions has increased from 53.7% in 2005 – 2006 to 59.9% in 2009 – 2010, a substantial increase ( $ES^* = .13$ ).

Figure 1. Internet Delayed Interaction Retention and Success Rates from 2005 – 2006 to 2009 – 2010.



\* A .10 effect size corresponds to a Pearson  $r$  of .05. 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.

Table 3 and Figure 2 indicate that when controlling for term, course, and instructor the overall four year success rate for lecture (61.6%) and online courses (61.0%) is the same for both types of courses. Equally important, none of the differences in success rate are statistically or substantially different from one another (see Table 3). 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. Success Rates from 2006 – 2007 to 2009 – 2010 by Lecture and Online Courses taught by the Same Instructor in the Same Semester.

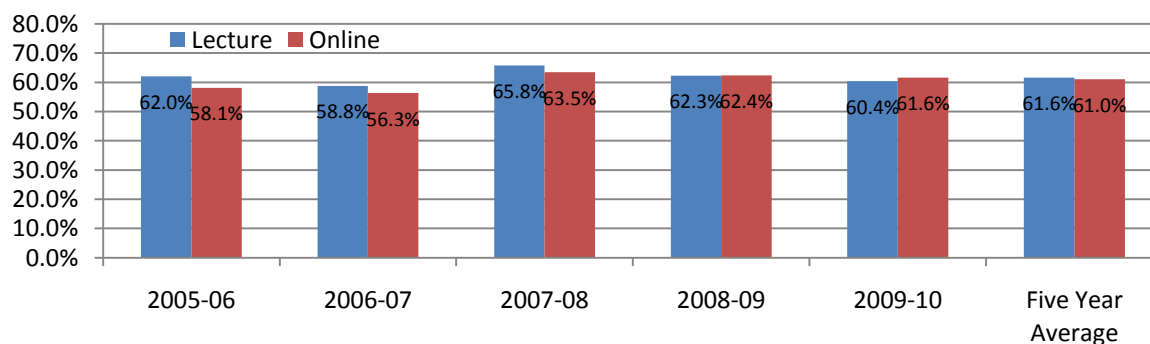


Table 1: Success Rate by Instructional Method from 2005 – 2006 to 2009 – 2010.

Instruction Method	2005 – 2006				2006 – 2007				2007 – 2008				2008 – 2009				2009 – 2010			
	Enrolled	GOR	Success	S.R.	Enrolled	GOR	Success	S.R.	Enrolled	GOR	Success	S.R.	Enrolled	GOR	Success	S.R.	Enrolled	GOR	Success	S.R.
Clinical	94	93	93	100.0	77	77	76	98.7	70	68	67	98.5	94	94	92	97.9	71	71	70	98.6
Two-way Video/Audio					95	70	51	72.9	73	61	51	83.6	47	39	36	92.3	70	57	28	49.1
One-way Video	2,724	2,284	1,162	50.9	959	810	505	62.3	304	255	138	54.1								
Internet – Delayed Interaction	6,166	4,453	2,392	53.7	6,386	4,250	2,378	56.0	8,483	6,263	3,629	57.9	11,456	8,645	5,215	60.3	12,130	9,371	5,613	59.9
Independent Study	212	175	118	67.4	130	110	85	77.3	98	89	80	89.9	53	53	42	79.2	88	83	66	79.5
Field Experience	50	50	46	92.0	38	38	33	86.8	31	31	29	93.5	50	50	47	94.0	27	27	25	92.6
Laboratory	8,751	7,277	5,445	74.8	9,664	7,504	5,573	74.3	9,187	7,268	5,460	75.1	9,921	8,486	6,597	77.7	10,752	8,987	6,929	77.1
Lecture	103,910	86,231	57,513	66.7	107,328	87,538	57,864	66.1	108,199	91,869	61,349	66.8	115,175	99,925	68,722	68.8	116,838	101,014	67,850	67.2
Work Experience	1,565	1241	748	60.3	1,497	1,166	716	61.4	1,439	1149	697	60.7	1,208	984	658	66.9	560	418	272	65.1
Total	123,472	101,804	67,517	66.3	126,174	101,563	67,281	66.2	127,884	107,053	71,500	66.8	138,004	118,276	81,409	68.8	140,536	120,028	80,853	67.4

Note. The blue font refers to distance education sessions, “Enrolled” refers to the number of students who enrolled in the course prior to or after the section start date, GOR refers to the number of students who earned one of the following grades: A, B, C, D, F, P, NP, I, or W (i.e. enrolled at census), “Success” refers to the number of successful grades (i.e. A, B, C, or P), and “S.R.” is the success rate or the percent of students who successfully completed the course with an A, B, C, or P grade (“Success” divided by “GOR”).

Table 2: Retention Rate by Instructional Method from 2005 – 2006 to 2009 – 2010.

Instruction Method	2005 – 2006				2006 – 2007				2007 – 2008				2008 – 2009				2009 – 2010			
	Enrolled	GOR	Retained	R.R.	Enrolled	GOR	Retained	R.R.	Enrolled	GOR	Retained	R.R.	Enrolled	GOR	Retained	R.R.	Enrolled	GOR	Retained	R.R.
Clinical	94	93	93	100.0	77	77	76	98.7	70	68	67	98.5	94	94	94	100.0	71	71	71	100.0
Two-way Video/Audio					95	70	56	80.0	73	61	53	86.9	47	39	37	94.9	70	57	45	78.9
One-way Video	2,724	2,284	1,674	73.3	959	810	686	84.7	304	255	197	77.3								
Internet – Delayed Interaction	6,166	4,453	3,348	75.2	6,386	4,250	3,195	75.2	8,483	6,263	4,951	79.1	11,456	8,645	6,855	79.3	12,130	9,371	7,565	80.7
Independent Study	212	175	161	92.0	130	110	101	91.8	98	89	82	92.1	53	53	45	84.9	88	83	72	86.7
Field Experience	50	50	50	100.0	38	38	37	97.4	31	31	31	100.0	50	50	50	100.0	27	27	27	100.0
Laboratory	8,751	7,277	6,341	87.1	9,664	7,504	6,406	85.4	9,187	7,268	6,270	86.3	9,921	8,486	7,500	88.4	10,752	8,987	7,906	88.0
Lecture	103,910	86,231	72,389	83.9	107,328	87,538	72,852	83.2	108,199	91,869	77,570	84.4	115,175	99,925	85,610	85.7	116,838	101,014	85,879	85.0
Work Experience	1,565	1,241	992	79.9	1,497	1,166	859	73.7	1,439	1,149	842	73.3	1,208	984	775	78.8	560	418	321	76.8
Total	123,472	101,804	85,048	83.5	126,174	101,563	84,268	83.0	127,884	107,053	90,063	84.1	138,004	118,276	100,966	85.4	140,536	120,028	101,886	84.9

Note. The blue font refers to distance education sessions, “Enrolled” refers to the number of students who enrolled in the course prior to or after the section start date, GOR refers to the number of students who earned one of the following grades: A, B, C, D, F, P, NP, I, or W (i.e. enrolled at census), “Retained” refers to the number of students who completed the class with one of the following grades (i.e. A, B, C, D, F, P, NP, or I), and “R.R.” is the retention rate or the percent of students who completed the course with an A, B, C, D, F, P, NP, or I grade (“Retained” divided by “GOR”).

Table 3: Success and Retention Rates from 2005 – 2006 to 2009 – 2010, Effect Sizes, and P-Values by Lecture and Distance Education Courses taught by the Same Instructor in the Same Semester.

Academic Year	Lecture Course			Distance Education Course			ES*	P-Value**
	GOR	Succ.	S.R.	GOR	Succ.	S.R.		
Success								
2005 – 2006	797	494	62.0	699	406	58.1	-.08	.125
2006 – 2007	822	483	58.8	930	524	56.3	-.05	.308
2007 – 2008	937	617	65.8	1,079	685	63.5	-.05	.269
2008 – 2009	1,915	1,194	62.3	1,617	1,009	62.4	.00	.976
2009 – 2010	2,709	1,637	60.4	2,111	1,301	61.6	.02	.396
Total	7,180	4,425	61.6	6,436	3,925	61.0	-.01	.441
Retention	GOR	Ret.	R.R.	GOR	Ret.	R.R.		
2005 – 2006	797	683	85.7	699	552	79.0	-.18	.001***
2006 – 2007	822	636	77.4	930	713	76.7	-.02	.726
2007 – 2008	937	790	84.3	1,079	917	85.0	.02	.675
2008 – 2009	1,915	1,613	84.2	1,617	1,295	80.1	-.11	.001***
2009 – 2010	2,709	2,293	84.6	2,111	1,720	81.5	-.08	.004***
Total	7,180	6,015	83.8	6,436	5,197	80.7	-.08	< .001***

Note: GOR refers to the number of students who earned one of the following grades: A, B, C, D, F, P, NP, I, or W (i.e. enrolled at census), "Succ." refers to the number of successful grades (i.e. A, B, C, or P), and "S.R." is the success rate or the percent of students who successfully completed the course with an A, B, C, or P grade ("Succ." divided by "GOR"). "Ret." refers to the number of students who completed the class with one of the following grades (i.e. A, B, C, D, F, P, NP, or I), and "R.R." is the retention rate or the percent of students who completed the course with an A, B, C, D, F, P, NP, or I grade ("Ret." divided by "GOR").

\* 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.