



**Research Briefs from the Office of Institutional Research  
CHC Distance Education Success and Retention Rates  
2005 – 2006 to 2009 – 2010**

**Overview:** The following illustrates the number of grades on record earned (GOR), and the success and retention rates for Crafton Hills College (CHC) students 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 GOR at CHC in internet sessions has increased from 305 in 2005 – 2006 to 1,417 in 2009 – 2010, a 365% increase.
- The success rate in online courses at CHC has increased from 52.1% in 2005 – 2006 to 68.4% in 2009 – 2010, a 31% increase (.684-.521/.521).
- The retention rate in online courses at CHC has increased from 75.4% in 2005 – 2006 to 85.2% in 2009 – 2010, an 13% increase (.852-.754/.754).
- When controlling for term, course, and instructor the overall four year success rate is the same for both lecture (60.1%) and online courses (60.9%).
- In 2009 – 2010 the success rate in online courses (67%) was substantially (ES\* = .11) higher than in lecture courses taught during the same term and by the same instructor (62%).

**Methodology:** Tables 1 and 2 display the success and retention rates for CHC by instruction method from 2005 – 2006 to 2009 – 2010. Instruction method refers to the method of instruction. There are eight methods of instruction identified in Tables 1 and 2: clinical, 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 one-way video at CHC.

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, Figure 2 and Table 3 illustrate 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.

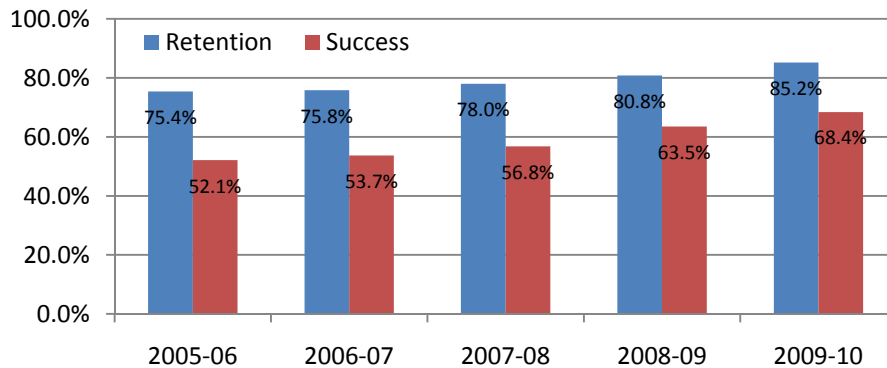
**Definitions:** The number of GOR refers to one of the following grades and is also the number of students enrolled at census: A, B, C, D, F, P (CR), NP (NC), I, or W. Success rate is the number of A, B, C, or P grades divided by the number of GOR, and retention rate is the number of A, B, C, D, F, 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 number of GOR in internet sessions has increased from 305 in 2005 – 2006 to 1,417 in 2009 – 2010, a 365% increase. In contrast, lecture sessions have only had a 24% increase from 2005 – 2006 to 2009 – 2010. Equally important, the success rate in internet sessions has increased from 52.1% in 2005 – 2006 to 68.4% in 2009 – 2010, a statistically significant ( $p < .001$ ) and substantial increase ( $ES^* = .34$ ).

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



\* 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.

Table 3 and Figure 2 indicate that when controlling for term, course, and instructor the overall four year success rate for lecture (60.1%) and online courses (60.9%) is the same for both types of courses. In 2009 – 2010 the success rate in online courses (67%) was substantially ( $ES^* = .11$ ) higher than in the same lecture courses taught during the same term and by the same instructor (62%). 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.

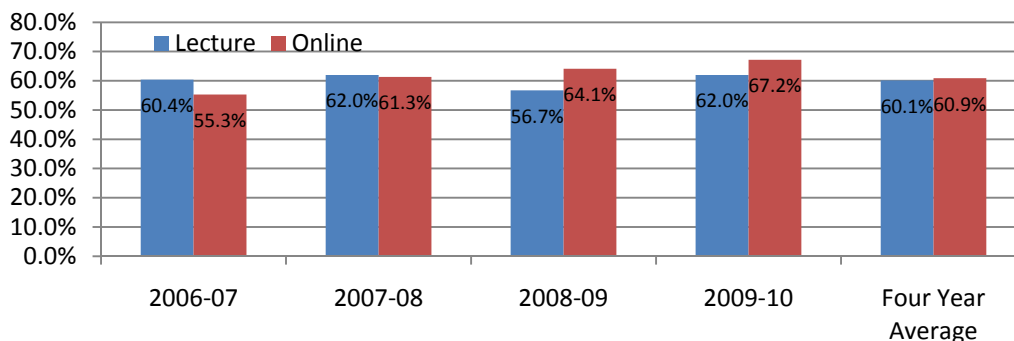


Table 1. CHC Success Rate by Instructional Method from 2006 – 2007 to 2009 – 2010.

Instruction Method	2005 – 2006			2006 – 2007			2007 – 2008			2008 – 2009			2009 – 2010		
	#	N	%	#	N	%	#	N	%	#	N	%	#	N	%
Clinical	93	93	100.0	76	77	98.7	67	68	98.5	92	94	97.9	70	71	98.6
One-way Video	729	1,328	54.9	488	788	61.9									
Internet	159	305	52.1	102	190	53.7	295	519	56.8	1,040	1,638	63.5	969	1,417	68.4
Independent Study	31	32	96.9	55	59	93.2	37	40	92.5	34	41	82.9	33	43	76.7
Field Experience	46	50	92.0	33	38	86.8	29	31	93.5	47	50	94.0	25	27	92.6
Laboratory	1,980	2,602	76.1	2,119	2,881	73.6	1,963	2,702	72.6	2,284	2,986	76.5	2185	2875	76.0
Lecture	18,311	25,813	70.9	19,810	28,247	70.1	20,983	29,769	70.5	23,328	32,800	71.1	22,486	32,065	70.1
Work Experience	95	218	43.6	98	232	42.2	103	226	45.6	47	68	69.1	4	7	57.1
Total	21,444	30,441	70.4	22,781	32,512	70.1	23,477	33,355	70.4	26,872	37,677	71.3	25,772	36,505	70.6

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

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

Instruction Method	2005 – 2006			2006 – 2007			2007 – 2008			2008 – 2009			2009 – 2010		
	#	N	%	#	N	%	#	N	%	#	N	%	#	N	%
Clinical	93	93	100.0	76	77	98.7	67	68	98.5	94	94	100.0	71	71	100.0
One-way Video	993	1,328	74.8	666	788	84.5									
Internet	230	305	75.4	144	190	75.8	405	519	78.0	1,324	1,638	80.8	1,207	1,417	85.2
Independent Study	31	32	96.9	55	59	93.2	38	40	95.0	37	41	90.2	37	43	86.0
Field Experience	50	50	100.0	37	38	97.4	31	31	100.0	50	50	100.0	27	27	100.0
Laboratory	2,330	2,602	89.5	2,494	2,881	86.6	2,378	2,702	88.0	2,664	2,986	89.2	2,579	2,875	89.7
Lecture	22,589	25,813	87.5	24,237	28,247	85.8	25,915	29,769	87.1	28,858	32,800	88.0	28,182	32,065	87.9
Work Experience	134	218	61.5	123	232	53.0	141	226	62.4	63	68	92.6	6	7	85.7
Total	26,450	30,441	86.9	27,832	32,512	85.6	28,975	33,355	86.9	33,090	37,677	87.8	32,109	36,505	88.0

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

Table 3. Success and Retention Rates from 2006 – 2007 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**
	#	N	%	#	N	%		
<b>Success</b>								
2006 – 2007	505	836	60.4	272	492	55.3	-.10	.051
2007 – 2008	106	171	62	76	124	61.3	-.01	.904
2008 – 2009	300	529	56.7	202	315	64.1	.15	.034***
2009 – 2010	438	707	62.0	176	262	67.2	.11	.129
Four Year Average	1,349	2,243	60.1	726	1,193	60.9	.01	.684
<b>Retention</b>								
2006 – 2007	702	836	84	398	492	80.9	-.08	.031***
2007 – 2008	133	171	77.8	101	124	81.5	.09	.444
2008 – 2009	471	529	89	245	315	77.8	-.31	< .001***
2009 – 2010	620	707	87.7	222	262	84.7	-.09	.245
Four Year Average	1,926	2,243	85.9	966	1,193	81.0	-.13	< .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.