



**Research Briefs from the Office of Institutional Research  
CHC Distance Education Success and Retention Rates  
2004 – 2005 to 2008 – 2009**

**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 2004 – 2005 to 2008 – 2009 by instruction method.

**Summary of Findings:**

- The number of enrollments at CHC in internet sessions has increased from 326 in 2004 – 2005 to 1,638 in 2008 – 2009, a 402% increase.
- The success rate in online courses at CHC has increased from 50.6% in 2004 – 2005 to 63.5% in 2008 – 2009, a 26% increase (.635-.506/.506).
- The retention rate in online courses at CHC has increased from 72.7% in 2004 – 2005 to 80.8% in 2008 – 2009, an 11% increase (.808-.727/.727).
- When controlling for term, course, and instructor the overall three year success rate (59%) is the same for both lecture and online courses.
- In 2008 – 2009 the success rate in online courses (64%) was statistically significantly ( $p = .034$ ) and substantially ( $ES^* = .15$ ) higher than in the same lecture courses taught during the same term and by the same instructor.

**Methodology:** Tables 1 and 2 display the success and retention rates for CHC by instruction method from 2004 – 2005 to 2008 – 2009. 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, 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.

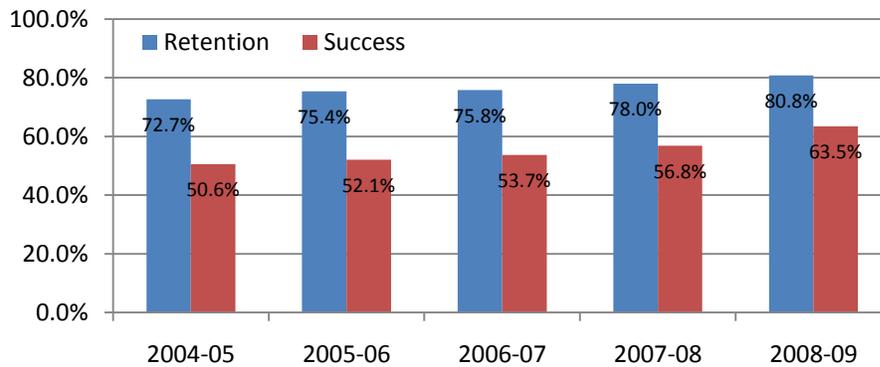
**Definitions:** The number of GOR refers to one of the following grades and is also the number of students enrolled at census: A, B, C, D, F, P (CR), NP (NC), I, or W. Success rate is the number of A, B, C, or P grades divided by the number of GOR, and retention rate is the number of A, B, C, D, F, 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 number of enrollments in internet sessions has increased from 326 in 2004 – 2005 to 1,638 in 2008 – 2009, a 402% increase. In contrast, lecture sessions have only had a 26% increase from 2004 – 2005 to 2008 – 2009. Equally important, the success rate in internet sessions has increased from 50.6% in 2004 – 2005 to 63.5% in 2008 – 2009, a substantial increase (ES\* = .26).

Figure 1. CHC Internet Delayed Interaction Retention and Success Rates from 2004 – 2005 to 2008 – 2009.



\* 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 indicates that when controlling for term, course, and instructor the overall success rate for lecture and online courses is the same for both types of courses, 59%. In 2008 – 2009 the success rate in online courses (64%) was statistically significantly (p = .034) and substantially (ES\* = .15) higher than in the same lecture courses taught during the same term and by the same instructor. 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 2008 – 2009 by Lecture and Online Courses taught by the Same Instructor in the Same Semester.

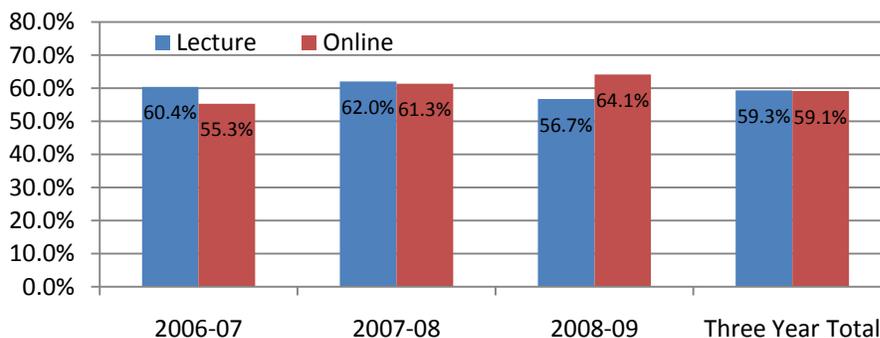


Table 1. CHC Success Rate by Instructional Method from 2004 – 2005 to 2008 – 2009.

| Instruction Method | 2004 – 2005 |        |       | 2005 – 2006 |        |       | 2006 – 2007 |        |      | 2007 – 2008 |        |      | 2008 – 2009 |        |      |
|--------------------|-------------|--------|-------|-------------|--------|-------|-------------|--------|------|-------------|--------|------|-------------|--------|------|
|                    | #           | N      | %     | #           | N      | %     | #           | N      | %    | #           | N      | %    | #           | N      | %    |
| Clinical           | 81          | 81     | 100.0 | 93          | 93     | 100.0 | 76          | 77     | 98.7 | 67          | 68     | 98.5 | 92          | 94     | 97.9 |
| One-way Video      | 778         | 1,403  | 55.5  | 729         | 1,328  | 54.9  | 488         | 788    | 61.9 |             |        |      |             |        |      |
| Internet           | 165         | 326    | 50.6  | 159         | 305    | 52.1  | 102         | 190    | 53.7 | 295         | 519    | 56.8 | 1,040       | 1,638  | 63.5 |
| Independent Study  | 23          | 26     | 88.5  | 31          | 32     | 96.9  | 55          | 59     | 93.2 | 37          | 40     | 92.5 | 34          | 41     | 82.9 |
| Field Experience   | 39          | 45     | 86.7  | 46          | 50     | 92.0  | 33          | 38     | 86.8 | 29          | 31     | 93.5 | 47          | 50     | 94.0 |
| Laboratory         | 2,140       | 2,856  | 74.9  | 1,980       | 2,602  | 76.1  | 2,119       | 2,881  | 73.6 | 1,963       | 2,702  | 72.6 | 2,284       | 2,986  | 76.5 |
| Lecture            | 18,350      | 26,071 | 70.4  | 18,311      | 25,813 | 70.9  | 19,810      | 28,247 | 70.1 | 20,983      | 29,769 | 70.5 | 23,328      | 32,800 | 71.1 |
| Work Experience    | 99          | 231    | 42.9  | 95          | 218    | 43.6  | 98          | 232    | 42.2 | 103         | 226    | 45.6 | 47          | 68     | 69.1 |
| Total              | 21,675      | 31,039 | 69.8  | 21,444      | 30,441 | 70.4  | 22,781      | 32,512 | 70.1 | 23,477      | 33,355 | 70.4 | 26,872      | 37,677 | 71.3 |

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 2004 – 2005 to 2008 – 2009.

| Instruction Method | 2004 – 2005 |        |       | 2005 – 2006 |        |       | 2006 – 2007 |        |      | 2007 – 2008 |        |       | 2008 – 2009 |        |       |
|--------------------|-------------|--------|-------|-------------|--------|-------|-------------|--------|------|-------------|--------|-------|-------------|--------|-------|
|                    | #           | N      | %     | #           | N      | %     | #           | N      | %    | #           | N      | %     | #           | N      | %     |
| Clinical           | 81          | 81     | 100.0 | 93          | 93     | 100.0 | 76          | 77     | 98.7 | 67          | 68     | 98.5  | 94          | 94     | 100.0 |
| One-way Video      | 1,056       | 1,403  | 75.3  | 993         | 1,328  | 74.8  | 666         | 788    | 84.5 |             |        |       |             |        |       |
| Internet           | 237         | 326    | 72.7  | 230         | 305    | 75.4  | 144         | 190    | 75.8 | 405         | 519    | 78.0  | 1,324       | 1,638  | 80.8  |
| Independent Study  | 24          | 26     | 92.3  | 31          | 32     | 96.9  | 55          | 59     | 93.2 | 38          | 40     | 95.0  | 37          | 41     | 90.2  |
| Field Experience   | 45          | 45     | 100.0 | 50          | 50     | 100.0 | 37          | 38     | 97.4 | 31          | 31     | 100.0 | 50          | 50     | 100.0 |
| Laboratory         | 2,483       | 2,856  | 86.9  | 2,330       | 2,602  | 89.5  | 2,494       | 2,881  | 86.6 | 2,378       | 2,702  | 88.0  | 2,664       | 2,986  | 89.2  |
| Lecture            | 22,324      | 26,071 | 85.6  | 22,589      | 25,813 | 87.5  | 24,237      | 28,247 | 85.8 | 25,915      | 29,769 | 87.1  | 28,858      | 32,800 | 88.0  |
| Work Experience    | 141         | 231    | 61.0  | 134         | 218    | 61.5  | 123         | 232    | 53.0 | 141         | 226    | 62.4  | 63          | 68     | 92.6  |
| Total              | 26,391      | 31,039 | 85.0  | 26,450      | 30,441 | 86.9  | 27,832      | 32,512 | 85.6 | 28,975      | 33,355 | 86.9  | 33,090      | 37,677 | 87.8  |

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 2008 – 2009, 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   | 62.0 | 76                        | 124 | 61.3 | -.01 | .904      |
| 2008 – 2009      | 300            | 529   | 56.7 | 202                       | 315 | 64.1 | .15  | .034      |
| Total            | 911            | 1,536 | 59.3 | 550                       | 931 | 59.1 | -.00 | .909      |
| <b>Retention</b> |                |       |      |                           |     |      |      |           |
| 2006 – 2007      | 702            | 836   | 84.0 | 398                       | 492 | 80.9 | -.08 | .031      |
| 2007 – 2008      | 133            | 171   | 77.8 | 101                       | 124 | 81.5 | .09  | .444      |
| 2008 – 2009      | 471            | 529   | 89.0 | 245                       | 315 | 77.8 | -.31 | < .001    |
| Total            | 1,306          | 1,536 | 85.0 | 744                       | 931 | 79.9 | -.14 | .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.