	Office of Research & Planning	*Prepared by*: Keith Wurtz and Barbara Nichols

Research Briefs from the Office of Institutional Research
CHC Distance Education Success and Retention Rates by Age, Ethnicity and Gender
2008 – 2009 to 2009 – 2010

Overview: The following illustrates the success and retention rates for Crafton Hills College (CHC) students from 2008 – 2009 to 2009 – 2010 who were enrolled in Distance Education (DE) internet course sections only by age, ethnicity and gender.

Summary of Findings:
- The number of students at CHC in Distance Education courses decreased from 1,638 in 2008-2009 to 1,417 in 2009-2010, a 15% decrease.
- In 2008-2009, African American (48.8%) and Native American (50.0%) students were statistically significantly and substantially less likely to complete a DE course than all DE students (63.5%).
- Statistically significant and substantial differences between specific groups and the entire group of selected students **were not** found for age and gender in 2008-2009 and for age, gender, and ethnicity in 2009-2010.

Methodology: CHC student demographic data, retention and success rates were gathered from Datatel for academic years 2008-2009 and 2009-2010. The filter for this data was the Distance Education instruction method DE72, in which faculty and students interact asynchronously via threaded discussion, email, etc. (e.g., online) with limited face to face contact.

Retention rate is defined as the number of A, B, C, D, F, CR/P, NC/NP, or I grades divided by the total number of grades on record (GOR): A, B, C, D, F, CR/P, NC/NP, W or I.

Success rate is defined as the number of A, B, C, or CR/P grades divided by the total number of grades on record (GOR): A, B, C, D, F, CR/P, NC/NP, W or I.

The "four-fifths rule" or the "80% rule" was applied to identify any substantial differences in the overall retention and success rates between the groups examined. The "four-fifths rule" originated with the Equal Employment Opportunity Commission and is used to determine if any race, sex, or ethnic group is experiencing an adverse impact by the use of employment selection procedures (Title 29-Labor §1607.4). According to the EEOC,

> A selection rate for any race, sex, or ethnic group which is less than four-fifths (or eighty percent) of the rate for the group with the highest rate will generally be regarded by the Federal enforcement agencies as evidence of adverse impact, while a greater than four-fifths rate will generally not be regarded by Federal enforcement agencies as evidence of adverse impact.

In this case, the "four-fifths rule" is being used to determine whether there are substantial differences. *It is important to mention that, as is done by the EEOC, comparisons were made to the overall retention and success rates and not within age, ethnicity, or gender (e.g.: male to female).* Upon request future research can explore differences within age, ethnicity, and gender. A substantial difference exists when multiplying the total percent of students within a group by 80% results in a percentage that exceeds any other percentage within the group. Accordingly, a difference exists between the specific group and the entire group of selected students.

As an illustration, the percentage of African American (48.8%) and Native American CHC students (50.0%) fell below the overall success rate within the 2008 – 2009 academic year. Specifically, if we multiply the overall 2008 – 2009 CHC DE success rate of 68.4% * 80% we get 54.7%. Any ethnic group with a success rate lower than 54.7% would be considered to have a large enough difference from the group to warrant further examination.

It is important to note here that according to §1607.4 of Title 29, "Greater differences in selection rate may not constitute adverse impact where the differences are based on small numbers and are not statistically significant…"   The Chi-Square statistic was used to identify statistically significant differences between the groups and the entire group of selected students. In order to show significance, "p" or the probability that the difference is due to chance, needs to be less than .05.

Findings:

Age by Retention, and Success. In 2008-2009, students who were between 40 – 49 years old had the highest retention rate (87.1%, see Table 1). For all of the other age ranges the retention rate remained above 80% with the exception of students who were 20 - 24 years old (79.7%) and 30 – 34 years old (76.7%). At the same time, using the 80% rule described in the Methodology Section, there were no substantial statistically significant differences between the age ranges and the overall retention rate of 80.8%.

Table 1: 2008-2009 CHC Distance Education Student Retention by Age.

Age	Retained	Total	% Retained
19 or younger	358	437	81.9
20-24	514	645	79.7
25-29	178	220	80.9
30-34	92	120	76.7
35-39	63	78	80.8
40-49	88	101	87.1
50 or older	31	37	83.8
Total	1,324	1,638	80.8

80.8% * 80% = 64.6%

Chi-Square = 5.015, df = 6, p = .542

In 2009-2010 students who were 50 years old or older had the highest retention rate (95.7%, see Table 2). For all of the other age ranges the retention rate remained above 80% with the exception of students who were 25 – 29 years old (79.1%). Again, using the 80% rule described in the Methodology Section, there were no substantial statistically significant differences between the age ranges and the overall retention rate of 85.2%. It is also important to note that the distance education retention rate increased from 80.8% in 2008 – 2009 to 85.2% in 2009 – 2010.

Table 2: 2009-2010 CHC Distance Education Student Retention by Age.

Age	Retained	Total	% Retained
19 or younger	340	389	87.4
20-24	452	544	83.1
25-29	163	206	79.1
30-34	89	99	89.9
35-39	57	65	87.7
40-49	83	90	92.2
50 or older	22	23	95.7
Unknown	1	1	100.0
Total	1,207	1,417	85.2

85.2% * 80% = 68.2%

Chi-Square = 17.169, df = 7, p = .016

In 2008-2009, students who were 50 years old or older had the highest success rate (75.7%, see Table 3). For all of the other age ranges the success rate remained above 60% with the exception of students who were 19 years old or younger (57.9%). Again, using the 80% rule there were no substantial statistically significant differences between the age ranges and the overall success rate of 63.5%.

Table 3: CHC Distance Education Student Success by Age 2008-2009.

Age	Successful	Total	% Successful
19 or younger	253	437	57.9
20-24	417	645	64.7
25-29	141	220	64.1
30-34	76	120	63.3
35-39	54	78	69.2
40-49	71	101	70.3
50 or older	28	37	75.7
Total	1,040	1,638	63.5

63.5% * 80% = 50.8%

Chi-Square = 11.811, df = 6, p = .066

In 2009-2010, students who were 50 years old or older had the highest success rate (95.7%, see Table 4). For all of the other age ranges, the success rate varied from 63.6% (25-29 year olds) to 83.1% (35-39 year olds). Using the 80% rule there were no substantial statistically significant differences between the age ranges and the overall success rate of 68.4%.

Table 4: CHC Distance Education Student Success by Age 2009-2010.

Age	Successful	Total	% Successful
19 or younger	259	389	66.6
20-24	354	544	65.1
25-29	131	206	63.6
30-34	78	99	78.8
35-39	54	65	83.1
40-49	70	90	77.8
50 or older	22	23	95.7
Missing	1	1	100.0
Total	969	1,417	68.4

68.4% * 80% = 54.7%

Chi-Square =29.023, df = 7, p = .000

Ethnicity by Retention, and Success. In 2008-2009, students who considered themselves to be Other ethnicity, had the highest retention rate (87.5%, see Table 5). For all the other ethnicities, the retention rate remained above 70%. Using the 80% rule there were no substantial statistically significant differences between individual ethnic groups and the overall retention rate of 80.8%.

Table 5: CHC Distance Education Student Retention by Ethnicity from 2008-2009.

Ethnicity	Retention	Total	% Retained
Asian	63	77	81.8
African American	59	84	70.2
Hispanic	300	369	81.3
Native American	13	20	65.0
Other	7	8	<mark>87.5</mark>
Caucasian	818	993	82.4
Decline to State	43	58	74.1
Missing	21	29	72.4
Total	314	1,324	80.8

80.8% * 80% = 64.6%

Chi-Square = 14.182, df = 7, p = .048

In 2009-2010, Native American students had the highest retention rate (100%, see Table 6). For all the other individual ethnicities the retention rate remained above 80% with the exception of African American students (79.2%). Using the 80% rule, there were no substantial statistically significant differences between individual ethnic groups and the overall retention rate of 85.2%.

Table 6: CHC Distance Education Student Retention by Ethnicity 2009-2010.

Ethnicity	Retention	Total	% Retained
Asian	54	66	81.8
African American	61	70	79.2
Hispanic	275	305	90.2
Native American	8	8	<mark>100.0</mark>
Other	14	15	93.3
Caucasian	744	887	83.9
Decline to State	28	33	84.8
Missing	23	26	88.5
Total	1,207	1,417	85.2

85.2% * 80% = 68.2%

Chi-Square = 12.1356, df = 7, p = .089

In 2008-2009, Asian students had the highest success rate (67.5%, see Table 7). Using the 80% rule there was a substantial statistically significant difference between the African American (48.8) and Native American (50%) students and the other individual ethnic groups and the overall success rate of 63.5%. This difference indicated that in 2008 – 2009 African American and Native American students would be less likely to be successful in a DE course than the overall success rate for all of the ethnic groups.

Table 7: CHC Distance Education Student Success by Ethnicity from 2008-2009.

Ethnicity	Successful	Total	% Successful
Asian	52	77	67.5
African American	41	84	48.8
Hispanic	217	369	58.8
Native American	10	20	50.0
Other	5	8	62.5
Caucasian	664	993	66.9
Decline to State	33	58	56.9
Missing	18	29	62.1
Total	1,040	1,417	68.4

68.4% * 80% = 54.7%

Chi-Square = 19.418, df = 7, p = .007

In 2009-2010, students who considered themselves to be Other ethnicity, had the highest success rate (86.7%, see Table 8). Using the 80% rule there were no substantial statistically significant differences between the other individual ethnic groups and the overall success rate of 68.4%. In addition, the differences found for African American and Native American students were not found in the 2009 – 2010 academic year.

Table 8: CHC Distance Education Student Success by Ethnicity 2009-2010.

Ethnicity	Successful	Total	% Successful
Asian	44	66	66.7
African American	44	77	57.1
Hispanic	208	305	68.2
Native American	5	8	62.5
Other	13	15	86.7
Caucasian	619	887	69.8
Decline to State	21	33	63.6
Missing	15	26	57.7
Total	969	1,417	68.4

68.4% * 80% = 54.7%

Chi-Square = 9.567, df = 7, p = .214

Gender by Retention and Success. In 2008-2009, female students had the highest retention rate (81.9%, see Table 9). For male students, the retention rate was 78.7%. Using the 80% rule, there were no substantial statistically significant differences between male or female and the overall retention rate of 80.8%.

Table 9: CHC Distance Education Student Retention by Gender from 2008-2009.

Gender	Retained	Total	% Retained
Female	912	1,113	81.9
Male	406	516	78.7
Missing	6	9	66.7
Total	1,324	1,638	80.8

80.8% * 80% = 64.6%

Chi-Square = 3.588, df = 2, p = .166

In 2009-2010, female students had the highest retention rate (86.1%, see Table 10). For male students, the retention rate was 83.3%. Using the 80% rule, there were no substantial statistically significant differences between male or female and the overall retention rate of 85.2%.

Table 10: CHC Distance Education Student Retention by Gender from 2009-2010.

Gender	Retained	Total	% Retained
Female	736	913	86.1
Male	415	498	83.3
Missing	6	6	100.0
Total	1,207	1,4,17	85.2

85.2% * 80% = 68.2%

Chi-Square = 2.988, df = 2, p = .224

In 2008-2009, female students had the highest success rate between genders (66.1%, see Table 11). For male students, the success rate was 58.1%. Using the 80% rule, there were no substantial statistically significant differences between male or female and the overall success rate of 63.5%.

Table 11: CHC Distance Education Student Success by Gender from 2008-2009.

Gender	Successful	Total	% Successful
Female	735	1,113	66.1
Male	300	516	58.1
Missing	5	9	55.6
Total	1,040	1,638	63.5

63.5% * 80% = 50.8%

Chi-Square = 9.734, df = 2, p = .008

In 2009-2010, female students had the highest success rate between genders (70.4%, see Table 12). For male students, the success rate was 64.5%. Using the 80% rule, there were no substantial statistically significant differences between male and female and overall rate of 68.4%.

Table 12: CHC Distance Education Student Success by Gender from 2009-2010.

Gender	Successful	Total	% Successful
Female	643	913	70.4
Male	321	498	64.5
Missing	5	6	83.3
Total	448	969	68.4

68.4% * 80% = 54.7%

Chi-Square = 5.934, df = 2, p = .051