

**Academic Coaching Pilot**  
April 26, 2010

**To: Provost Robert Koob**

From: Academic Coaching Committee

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# Executive Summary

## *Cooperative Academic Coaching Leads to Student Success*

### **The Challenge**

Fall 2009 first time freshmen at Cal Poly faced a more stringent implementation of the university's academic probation policy than in previous years as a result of shrinking enrollment dollars. Anticipating that this would potentially lead to an increase in student dismissals, the University was challenged to implement an effective support program to make every conceivable effort to retain its qualified students.

### **The Action**

A cooperative academic coaching intervention was executed, and its effectiveness assessed, to assist the University in support of its students experiencing first-quarter academic difficulty in four of the six colleges on its campus volunteering to take part of the effort. Advisors from the Colleges of Agriculture, Architecture, Business, Engineering and the departments of Student Support Services and Evaluations worked together in carrying out the workshop intervention, supported by the Admissions Office employing its CRM tool set. A description of this intervention is attached.

### **The Result**

The Winter term 2010 Academic Coaching intervention had a significant positive effect on students' self-efficacy, spring term enrollment, and GPA. Statistical analysis of the effort is attached in the Academic Coaching Study memo.

### **Committee's Next Steps**

- Study effects of "resource utilization" as it relates to student persistence.
- Monitor student persistence of Fall 2009 pilot cohort to assess long-term persistence.
- Develop predictive modeling to provide early intervention to 'at risk' students for incoming class of 2010.

### **Recommendations**

- Build continuing cooperative model for intervention across all colleges and campus offices.
- Build and utilize "Retain" CRM software to achieve optimal communications and relationship management.
- Provide early intervention to identified 'at risk' students for incoming class of 2010.
- Empower team attending NACADA Retention Institute to fully explore retention strategies to recommend campus policy and practices for unified advising effort.

# **Note of thanks:**

## **The Academic Coaches:**

Amy Swanson (OCOB), Anya Bergman (COSM), Brad Kyker (CAFES), Greg Roldan (CENG), Helen Bailey (Registrar's Office), Kristi Weddige (COSM), Kristen Meier (OCOB), Meghan Farrier (COSM), Susan Sparling (SAS).

## **Workshop Presenter:**

Charity Romano (OCOB).

## **CRM Leadership:**

Al Nunez

## **Statistical Analysis:**

Prof. Heather Smith & Matt Carlton (COSM), Alex Herrington and Huey Dodson.

**Students Assisting:**...the incredible staff of students powering the Admission's and Orfalea College of Business' support for the entire effort.

## **Provost's Office:**

Asst. Vice Provost Kimi Ikeda  
Diane Dixon and Debra Sherberne

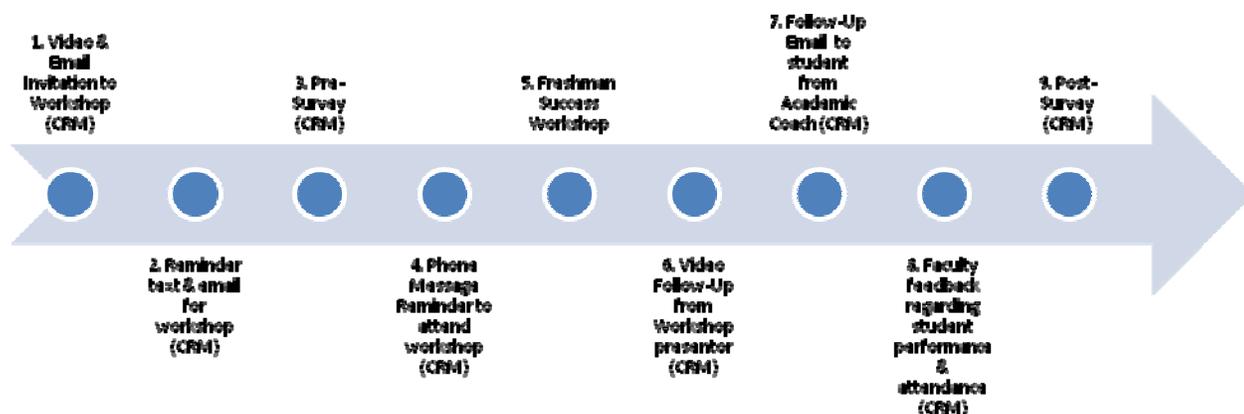
## **Admissions Office:**

Asst. Vice Provost Jim Maraviglia

# Description of Intervention

Our intervention with students included several components and tool sets. Though the main focus was around the use of a workshop and academic coaching techniques, the use of Customer Relations Management (CRM) Software was a notable addition to the overall intervention. The workshop and academic coaching provided the theoretical approach, while the CRM software provided a mode of intentional and strategic messaging to students and faculty of students in the pilot group. The intervention timeline and use of CRM is outlined below, as well as a more comprehensive description of the workshop and academic coaching. We believe the combined components of our intervention contributed to its success, though the measureable student success was focused on the actual workshop and self-efficacy measurements, rather than use of CRM software.

## *Timeline of Intervention Components:*



1. After Fall grades were posted, pilot group students were sent an email/video invitation to attend a Freshman Success Workshop. (CRM)
2. Students who did not RSVP in a timely manner were sent follow-up email and text messages. (CRM)
3. During the 1<sup>st</sup> week of the quarter, students were sent the survey to be completed before the workshop. (CRM electronic survey).\*
4. Students were sent a phone message and reminder to attend workshop. (CRM)
5. Freshman Success Workshop takes place during the 2<sup>nd</sup> week of the quarter.
6. Students were sent a follow-up Video message from workshop presenter to remind and encourage students to stay on track with the goals they made at the workshop.
7. Students were sent a personalized follow-up email from their academic coaches during the fourth week of the quarter—specifically inquiring about the progress of student’s action plan from the workshop. (CRM)

8. Students were sent an email indicating faculty concern. (CRM) \*\*
9. Students were sent a survey again.\* (CRM)

\*Control group students were also sent surveys at this time.

\*\*Randomized group of students within the control and pilot group were selected to get feedback from instructors. Instructors of these students were emailed through the CRM and asked to give feedback regarding student performance and attendance. Concerns were then relayed to the students directly. No correlation was found in GPA or Self Efficacy of students who received faculty feedback.

#### ***Using CRM Software:***

Using Customer Relations Management software allowed thorough and strategic communication with students. These communications allowed for timely invitations, reminders and follow-up to the workshop. The CRM also allowed us for a sophisticated tracking mechanism to communicate with faculty of pilot students, asking them to comment on student attendance and performance. Faculty could easily respond electronically and students were then automatically emailed a notice indicating that there was concern.

Although full affect the CRM could not necessarily be measured through this experiment, the use of this software is worth noting because it allowed for such thorough pre- and post- communication around the workshop. We believe this helped reinforce the importance of the workshop and a 97% attendance at the workshop.

#### ***Description of Workshop and Academic Coaching Technique:***

The purpose of the workshop is to reach students early in the quarter with a positive and motivating message to inspire students to reach their highest potential for the quarter. Because goal-making, and motivation are all linked to student success, the workshop used academic coaching techniques, which focused on motivation and strategic goal setting. The workshop was comprised of two parts—a large-group presentation, followed by breakout groups of 10-12 students led by academic coaches. During the main presentation, a myriad of strategies for student success were discussed, including time management, office hours, study habits, tutoring, health, social & extra-curricular activities and overall life balance. Students were also reminded of the many resources on campus that can support their growth in these areas. At the end of the presentation, students were challenged to consider the strategies they wanted to commit to trying for the quarter. In the breakout sessions that followed, students were given worksheets to help articulate their goals for the quarter and the specific action steps they would implement to invest in their own success. Because of the small group atmosphere, every student shared their goals with the group to help reinforce their commitment as well as establish a form of accountability. Coaches were also able to offer feedback and encouragement during the process.

Perhaps the most notable component of the workshop was the overall approach and tone of the workshop. The workshop presenter strategically approached students with a positive regard and full faith that they could succeed if they chose to implement good strategies for success. Very little reference to academic probation or the negative effects of academic status were made. Instead, students were challenged to make an honest

assessment of the barriers from success that they had experienced; and from there, create a strategic plan for overcoming those barriers. This positive regard and motivational attitude was also exhibited by the academic coaches in the breakout sessions. The tone of the workshop was an intentional shift from some of the more traditional academic probation workshops, in which students are thoroughly warned about their academic status and potential failure and then given direction and resources to help improve their academic standing.

# Statistical Analysis

## Contents of Statistical Analysis

- I. Statistical Summary
- II. Introduction
- III. Methodology
- IV. Results
- V. Appendix

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Guided by:

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## **I. Statistical Summary**

Freshmen who were on academic probation (AP) were randomly put into either a control or treatment group. The control group received whatever counseling services their respective college normally gave, college specific control conditions are in the Appendix. The treatment group was required to go to an academic coaching workshop in lieu of their college advising. We investigated the effects of the workshop treatment on students' self-efficacy and performance. The responses we looked at were: GPA, spring quarter enrollment, and self-efficacy.

The workshop treatment had a significant effect on all three of the responses of interest. Those students who attended the workshops had significantly higher Winter GPAs than those who did not attend. Also, there was a statistically significant difference in the proportion of students who raised their Cumulative GPA above 2.0 between the treatment and control groups.

Additionally, those who attended the workshops had a significantly higher rate of spring enrollment than those who did not attend. On the same point, students in the College of Engineering had a significantly lower rate of spring enrollment than those in the other three colleges.

Finally, the students who attended the workshops showed significantly more positive changes in attitude, as measured by the five attitude indices, than those who did not attend.

## **II. Introduction**

This memorandum is meant to clarify and document the details of the statistical analysis for the Academic Coaching Study. The information contained in this memo is meant to be helpful toward meeting your goals of keeping Cal Poly freshmen enrolled and on task.

As we understand it, the main interest of the study was to observe the effect of academic coaching seminars on the attitude and performance of Cal Poly freshmen on academic probation.

A preliminary memo (02/10/10, A. Herrington) was written describing the survey results from the first survey taken. As a result, this memo looks to describe the change in the attitudes and performance of the students in the study.

### III. Methodology

Before we began our analysis we outlined the objectives of the study and trends to look out for. We established that there were three responses we would predict and explain given the data.

**NOTE:** Though we sought to explain the response variables with the predictor variables listed, not all predictors were statistically significant. The predictors in **bold** turned out to be significant.

- 1) **GPA** - We investigated whether or not the treatment had a positive effect on student GPA. We explained Winter quarter GPA responses with combinations of several predictors:
  - a. Self-efficacy survey response indices
  - b. Treatment Group vs. Control**
  - c. College (COSAM, CAFES, etc.)
  - d. Faculty Contact
  
- 2) **Spring Enrollment** - We explored whether or not being in the treatment group increased the chances of staying enrolled for Spring 2010. We estimated the probability of spring enrollment based on the following factors:
  - a. Treatment Group vs. Control**
  - b. College**
  - c. Faculty Contact

3) **Attitude** – Finally, we investigated if being in the treatment group had an effect on students' attitudes as indicated by the five self-efficacy indices. We predicted attitude changes with the following predictors:

**a. Treatment Group vs. Control**

b. College

c. Faculty Contact

In this part of the analysis we used only those students who completed both the first *and* the second survey, otherwise differences in self-efficacy could not be assessed. Also, in order to attribute changes in self-efficacy to the effect of being in a workshop, the student must have taken the first survey *before* he/she attended the workshop. Of the 317 students in the sample, 228 met these criteria.

In the analysis process we came across a discrepancy in fall quarter GPAs between two of the data files we were given. This turned out to be caused by students re-taking fall attempted classes in the winter, thus altering their original fall GPA. We used their original fall GPAs for all analysis purposes.

## IV. Results

In order to aid the communication of statistical significance, the following asterisk code is used to point out significant p-values:

- \* indicates a p-value between 0.10 and 0.05
- \*\* indicates a p-value between 0.05 and 0.01
- \*\*\* indicates a p-value less than 0.01

Below is a table describing the sample size distribution across each college in the study.

<i>Sample Size Distribution</i>		Control	Treatment	Total
College	CAFES	43	45	88
	OCOB	14	15	29
	CENG	64	64	128
	COSAM	36	36	72
	Aggregate	157	160	317

**Table 1** – The number in each cell represents the number of students in that cross classification.

### 1) GPA

This section describes findings about the changes in students' GPA. Below is a table summarizing GPA findings:

<i>GPA Summary Statistics (Average GPA)</i>		Control			Treatment			Treatment vs. Control	
		Fall GPA	Winter GPA	Change in GPA	Fall GPA	Winter GPA	Change in GPA	Winter GPA p-value	Change in GPA p-value
College	CAFES	1.492	2.102	0.565	1.463	2.328	0.866	0.1411	0.0717*
	OCOB	1.417	2.311	0.785	1.609	2.258	0.649	0.8027	0.5805
	CENG	1.323	1.897	0.578	1.347	2.144	0.797	0.1157	0.1692
	COSAM	1.371	2.128	0.734	1.387	2.491	1.061	0.0512*	0.1018
	Aggregate	1.389	2.042	0.628	1.414	2.280	0.857	0.0081***	0.0147**

**Table 2** – Note that the “Change in GPA” statistic is not the difference between the average Fall and Winter GPAs, but the average of the difference between the Fall and Winter GPA for *each student*.

Interestingly, within each college a significant effect due to treatment was not detected. However, *cumulatively* we can detect a statistically significant effect of the treatment on both winter GPA and change in GPA. This is due to the fact that the cumulative sample size is large enough to detect smaller differences that the smaller sample sizes, those within each college, cannot.

We also wanted to see if the treatment affected whether or not a student's Cumulative GPA rose above 2.0. Below is a table summarizing our findings:

<i>Summary of Cumulative GPA (Percent above 2.0)</i>		% GPA above 2.0 <b>Control</b>	% GPA above 2.0 <b>Treatment</b>	Treatment vs. Control <b>p-value</b>
<b>College</b>	<b>CAFES</b>	30.2%	47.7%	0.0945*
	<b>OCOB</b>	42.0%	40.0%	0.8759
	<b>CENG</b>	37.5%	52.4%	0.0918*
	<b>COSAM</b>	36.1%	48.5%	0.2983
	<b>Aggregate</b>	35.7%	49.0%	0.0169**

**Table 3** – We found that the treatment had a statistically significant effect on the percent of students raising their Cumulative GPA above 2.0.

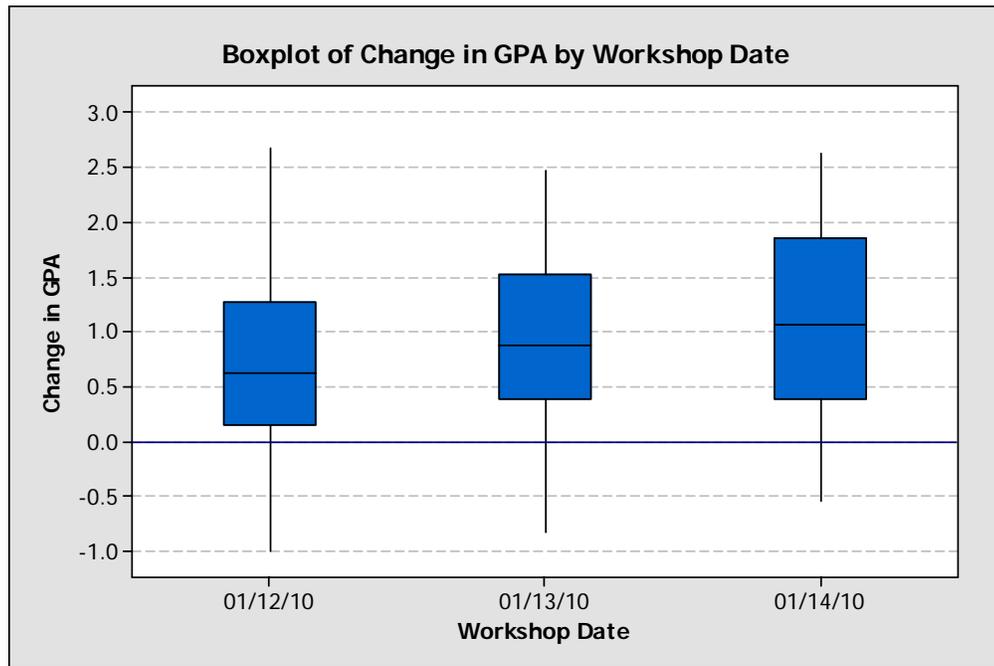
Raising one's Cumulative GPA gets harder as more classes are taken, therefore we investigated whether the treatment had an effect on their Winter GPA only. Below is a table summarizing the results:

<i>Summary of Winter GPA (Percent above 2.0)</i>		% GPA above 2.0 <b>Control</b>	% GPA above 2.0 <b>Treatment</b>	Treatment vs. Control <b>p-value</b>
<b>College</b>	<b>CAFES</b>	60.5%	63.6%	0.7605
	<b>OCOB</b>	57.1%	53.3%	0.8367
	<b>CENG</b>	48.4%	58.7%	0.2449
	<b>COSAM</b>	61.1%	66.7%	0.6315
	<b>Aggregate</b>	55.4%	61.3%	0.2925

**Table 4** – Interestingly, there were no statistically significant differences between the treatment and control group's Winter GPAs.

It seems somewhat contradictory that the Winter GPAs are not significantly different between the control and treatment groups when their Cumulative GPAs are. We attribute this phenomenon to the retroactive grade changes that occur when a class is retaken, artificially inflating the Cumulative GPA.

In the process of checking statistical assumptions for validity, we came across some unexpected differences. Below is a box plot to compare the impact different workshop dates had on the change in student's GPA.

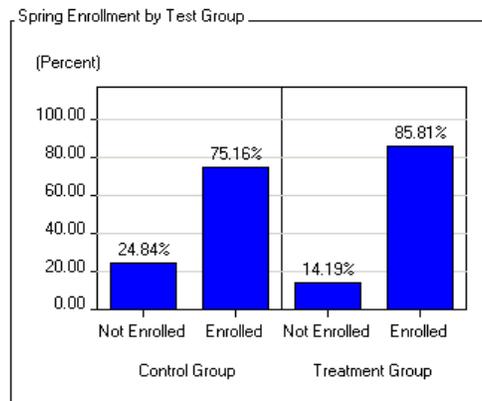


**Figure 1** – Above it can be seen that the Change in GPA's seems to be the best on January 14<sup>th</sup>, though these are only moderately significant differences (p-value = 0.0825\*).

Since students were not randomly assigned to different workshop dates, we cannot attribute differences in their performance to which workshop they attended. However, if the workshops *were* different from one another in some respects, it could explain the disparity above.

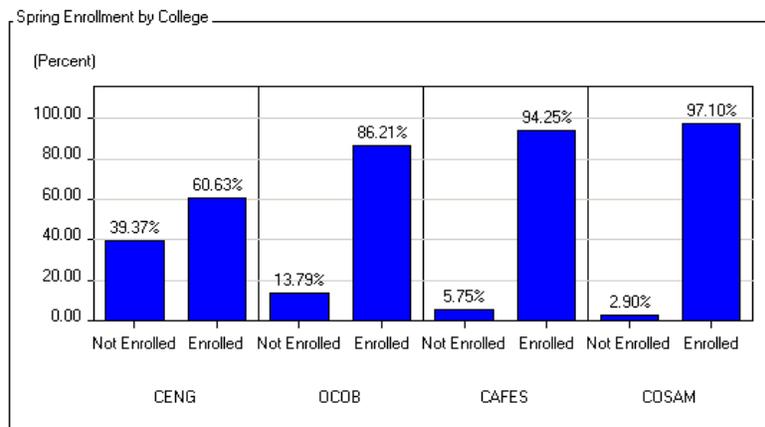
## 2) Spring Enrollment

Another response we modeled was whether or not a student stayed enrolled in Cal Poly for the spring quarter. Below are bar charts comparing the rate of students enrolled by test group and college:



**Figure 2** – We can see that the non-enrollment rate is greater for the control group.

Spring enrollment rates were significantly higher for those in the treatment group ( $p$ -value = 0.0177\*\*). We found that the odds of staying enrolled spring quarter were about **6.00 to 1** for those in the treatment group, and **3.03 to 1** for the control. In other words the odds of spring enrollment were about **2 times greater** for those in the treatment group than those in the control.



**Figure 3** – The non-enrollment rate is much greater in CENG than any other college.

Also, it seemed that a much larger proportion of CENG students did not stay enrolled spring quarter than all other colleges ( $p$ -value < 0.0001\*\*\*). We found that the odds of staying enrolled spring quarter are 10.27 times *less* for those in the College of Engineering than those in the other colleges (1.45 to 1 for those in CENG, and 15.82 to 1 for those in other colleges). See the Appendix for a more detailed table.

Of those who were not enrolled for spring quarter some were disenrolled by disqualification and others voluntarily disenrolled. Below is a table displaying these rates.

<i>Disenrollment</i>	Treatment		Control		Aggregate	
	Count	Percent	Count	Percent	Count	Percent of All AP Freshmen
<b>Voluntary</b>	3	13.6%	5	12.8%	8	2.6%
<b>Disqualification</b>	19	86.4%	34	87.2%	53	17.0%
<b>Total</b>	22	36.1%	39	63.9%	61	19.6%

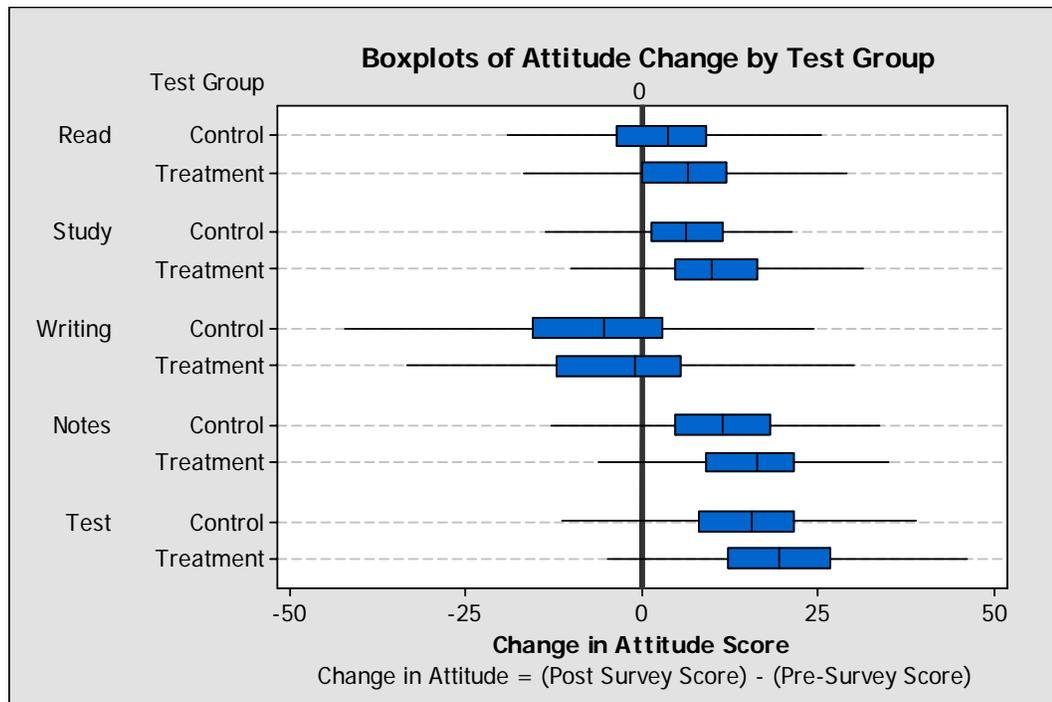
**Table 5** – We can see that although there are more disqualifications in the control group (34), the *rate* of disqualification in the control group (87.2%) is very similar to the rate of disqualification in the treatment group (86.4%).

The difference in disqualification vs. voluntary disenrollment rates was not statistically significant (p-value = 0.6928\*\*). In other words, there is no evidence to say that the treatment had an effect on *why* the student was not enrolled.

### 3) Attitude

An interesting aspect of the self-efficacy index responses was that all indices increased on average except the writing index. However, the writing self-efficacy index decreased significantly less for those in the treatment group. Attitude changes did not seem to be affected by which college the student came from.

Below is a graph displaying box plots comparing the *change in attitude* for each self efficacy index between the treatment and control groups.



**Figure 3** – For each self-efficacy index we can observe a positive shift in attitude change from the control to treatment group.

Attitude Summary Statistics (Average Scores)	Control			Treatment			Change in Attitude Treatment vs. Control p-values
	1st Survey	2nd Survey	Change in Attitude	1st Survey	2nd Survey	Change in Attitude	
<b>Reading</b>	68.11	71.33	3.22	71.50	77.94	6.44	0.0410**
<b>Study</b>	64.07	70.39	6.31	66.64	76.92	10.28	0.0045***
<b>Writing</b>	73.67	68.49	-5.18	75.61	74.66	-0.95	0.0523*
<b>Note Taking</b>	57.27	68.55	11.28	59.35	75.30	15.94	0.0016***
<b>Test Prep</b>	52.35	67.09	14.74	54.56	74.13	19.56	0.0018***

**Table 6** – The post treatment survey responses were compared to the pre-treatment survey responses for each attitude index. Only those students who took the 1<sup>st</sup> survey *before* the workshop were considered valid for comparisons.

## V. Appendix

### Control Conditions by College

**CENG** – The students in the control group received an email encouraging them to take advantage of College of Engineering’s free tutoring and other campus resources, in addition to the option of seeking help from the college advisors.

**OCOB** – The students in the control group were required to go to a workshop in addition to seeking help from college advisors. OCOB students were, in effect, given the pilot intervention in their college, but in smaller groups.

**CAFES** – The students in the control group received an invitation to a intervention workshop (not required) and a required visit to their college advisor to develop an action plan. They were also required to fill out a blackboard online survey.

**COSAM** – The students in the control group received an invitation to an intervention workshop in addition to the option of seeking help from college advisors.

### Sample distribution by Workshop Date

<i>Workshop Date Distribution</i>		<b>Attendance</b>
<b>Workshop Date</b>	1/12/2010	63
	1/13/2010	69
	1/14/2010	23
Total		155

**Figure 4** – Note that the total number of students who attended the workshop is five less than the number of students in the treatment group. This is because five students from the treatment group did not attend a workshop. There was a 97% attendance to the workshop.

### Survey Completion Rates

<i>Survey Completion</i>		<b>Treatment</b>		<b>Control</b>		<b>Aggregate</b>	
		Completed	% of Group	Completed	% of Group	Completed	% of Sample
Survey	1st	145	91%	150	96%	295	93%
	2nd	134	84%	117	75%	243	77%

**Figure 5** – This table shows the number of students in the sample to complete the first and second surveys.

## Spring Enrollment Rates

<i>Spring Enrollment</i>		Treatment		Control		Group Aggregate	
		Enrolled	% of Group	Enrolled	% of Group	Enrolled	% of College
College	<b>CAFES</b>	43	97.7%	39	90.7%	82	94.3%
	<b>OCOB</b>	13	86.7%	12	85.7%	25	86.2%
	<b>CENG</b>	45	71.4%	32	50.0%	77	60.6%
	<b>COSAM</b>	32	97.0%	35	97.2%	67	97.1%
	<b>College Aggregate</b>	133	85.8%	118	75.2%	251	80.5%

**Table 7** – This table shows a more detailed view of spring enrollment rates.