Access to Higher Education and the Role of Academic Outreach Programs: Understanding the Dynamics of Service Learning

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Career Based Outreach Program Evaluation
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The work reported in this report is a part of the evaluation of Student-Developmental Outreach efforts of UCLA, provided by special outreach funding from the University of California Office of the President. It is intended to inform on the effectiveness of using a service-learning model to strengthen preparation of prospective students' resolve to be competitively eligible for admissions to UC.

The findings and opinions of this report do not necessarily reflect the conclusions reached by those directly responsible for the implementation, administration and management of the Student-Developmental Outreach efforts, since the data are based on the first two years of the outreach efforts while they are still in its developmental state.

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EXECUTIVE SUMMARY

Access to higher education and improving the equity in college admissions continues to be a major educational policy issue. For more than three decades in California, affirmative action existed alongside programs designed to enhance students' academic preparation for college and focused primarily on students with below-average rates of University of California (UC) eligibility and enrollment. However, this commitment and focus on affirmative action by the UC as a remedy to past inequities was dramatically changed in 1995 when the UC Regents eliminated the consideration of race, ethnicity, and gender in University admissions. As a result of this and the advent of Proposition 209, the University of California is relying on outreach as its primary tool for recruiting a demographically diverse student body.

What has become apparent to those involved with academic outreach, is that the traditional approaches will not be enough to ensure a diverse representation of students at the most selective University of California campuses, such as UC Los Angeles and Berkeley. In addition, more than 40% of the educationally disadvantaged K-12 students in California reside in Los Angeles County, presenting both great opportunity and significant challenges to UCLA's outreach efforts.

UCLA has embraced the challenge to actively help students become competitively eligible with a new, comprehensive, and theory-based program that integrates the techniques of optimal learning within a service learning framework, called the Career Based Outreach Program (CBOP). It is designed specifically both to increase the academic achievement of students in K-12, so that they will be competitively eligible for UCLA, and to increase the academic achievement of those students as undergraduates, providing services to assist them in becoming competitively eligible for graduate school.

This report describes the CBOP program and its impact on 9th graders' and undergraduates' academic attitudes and behaviors, study habits, desire to teach / volunteer, academic performance, and pursuit of college or graduate school.

Conceptual Framework and Approach to the Evaluation

CBOP is a partnership between UCLA's outreach program, UCLA's graduate and professional schools, known as Campus Partners, and selected high school students in 19 high schools, known as High School Partners. CBOP incorporates a service learning approach with optimal learning strategies and other special

activities for participating students at the high schools and at UCLA to increase the pipeline for undergraduate and graduate admission.

CBOP utilizes a cyclical service learning approach that links undergraduate and high school students in acquiring specific optimal learning strategies. Undergraduate students (Fellows) from educationally disadvantaged groups formally learn techniques of optimal learning and are charged with teaching them to and mentoring high school students. The high school students (Scholars) are expected to tutor middle school students (junior Scholars) in these optimal learning strategies,[a]which are intended to promote the maximum learning and performance that an individual is capable of at a given time. The idea is that teaching the behaviors and attitudes that are associated with academic success increases mastery, and that both Fellows and Scholars are expected to change in ways that will increase their subsequent persistence and school success (Anderson, 1998; Doby, 1997).

PALS, the Personal Academic Learning System, is a model for optimal learning and performance and the core of CBOP's approach. PALS is based on a set of principles and belief statements and features a pro-active plan and concrete steps for improving learning. These steps include individual preparation, group dialogue and interaction, instruction, practice, feedback, and homework. Scholars and Fellows participate in formal courses and workshops to support these goals and high school Scholars participate in subject-specific academic excellence workshops. Undergraduate Fellows have been identified by UCLA professional schools and are involved in ongoing network activities to support continuing affiliation and aspirations for graduate school. The program is based on literature supporting the benefits of service learning and factors that influence college retention. (For a synthesis of the theory and research on college student retention that underlies the CBOP approach please refer to Anderson, 1985, 1998; Astin, 1975, 1977, 1984, 1993; Astin & Sax, 1998; Cope & Hannah, 1975; Doby, 1997; Noel & Levitz, 1996; Pace, 1987; Rose, 1989; Tinto, 1987; Trent & Medsker, 1967.)

The study is designed to evaluate the operation and impact of CBOP. Adopting a value added approach, the evaluation centers on the value added for high school students receiving CBOP services and one-on-one mentoring by UCLA undergraduates, and for UCLA undergraduates who are participating in the program. Furthermore, because the ultimate goal is to improve high school students' competitive eligibility, the evaluation also examines what factors and conditions appear to influence or support increases in student achievement, attitudes toward learning, and behaviors consistent with successful learning and performance, such as service learning and optimal learning strategies, all of which are necessary for a student to be a competitively UC eligible student from a high school or a 2-year college.

[a] Optimal Learning is a systematic approach to acquiring knowledge-generating insights, solving problems, and demonstrating learning, which produces the maximum level of performance on academic tasks that a person is capable of achieving at a specific point in time (Anderson, 1998).

The evaluation approach involves quasi- and true experimental designs that collect longitudinal data on undergraduate and high school students participating in CBOP and comparison students within the same schools (at high schools and UCLA). Data sources include surveys, interviews, site visits and collection of archival data. Overall the evaluation assesses the effect of participation on the undergraduate Fellows, on the high school students receiving service in the participating CBOP high schools, and on the overall high school institutions. Its findings carry broader significance by expanding the information available about service learning generally and addressing specific strategies for reaching out to educationally disadvantaged high school students.

Evaluation Questions

The evaluation centers around two questions.

- What are the effects of participation in CBOP on the Fellows?
- What is the effect of the CBOP services performed by the CBOP Fellows on the high school Scholars?

The unit of analysis for the evaluation is both the school and the individual, whether it be an undergraduate or a high school student.

Results: What Are the Effects of Participation in CBOP on the Fellows?

The impact of CBOP participation is measured by comparing the trends of the Fellows against the trends of the Comparison Fellows and the Non-Fellows. To make this type of comparison, the Comparison Fellows and the Fellows should be comparable groups prior to the Fellows participation in CBOP. The background characteristics and admission criteria in terms of SAT and grade point average at time of admission to UCLA are similar. The service background and beliefs of Comparison Fellows, Fellows, and all the undergraduates in undergraduate course ED193 are very similar. Overall, the Comparison Fellows are an adequate group with which to compare over time trends and attitudes of Fellows, Non-Fellows, and the two groups combined, despite their small sample size.

The Effects of the Undergraduate Course ED193

Based on experiential education learning theory, undergraduate course Education 193, “Community Service Learning and Student Achievement,” involves undergraduates in promoting the academic achievement of high school, junior high school and elementary school students from low-income communities. During the lecture component of the course, students are taught tutorial methods drawn from cognitive learning and motivation theories such as generative, deep processing, attribution, and self-efficacy theories. Service learning and tutorial assistance are also addressed within the context of forming mentor, peer counseling, and personal

support relationships. During CBOP discussion sections, students are further trained on the Personal Academic Learning System (PALS) and supplemental learning tools.

The aim of ED193 is to instill optimal learning techniques in undergraduates, improve their academic performance, and ultimately have them pursue graduate studies with new and directed enthusiasm. Optimal learning techniques are expected first and foremost to improve undergraduate's study habits, beliefs about learning, motivation, confidence, desire to improve, and, ultimately, grades.

ED193 appears to have had a differential effect on Fellows' and Non-Fellows' study habits. The course managed to maintain the Fellows' study habits compared to the slight decline in study and preparation hours for the Non-Fellows and the Comparison Fellows. Non-Fellows and Comparison Fellows studied about half an hour less. Non-Fellows studied 8.2 hours on average for a class prior to ED193, and studied 7.4 study hours at the end of the course. Comparison Fellows studied only 5.9 hours during the fall and then studied 5.5 hours for an average class in the spring quarter of 1999.

Additionally, the frequency of PALS behaviors engaged in prior to the course is not significantly different according to the self-reported PALS scale. At the end of the course the Comparison Fellows' frequency of engaging in PALS activities decreased slightly over the course of the academic year, whereas for the Fellows and Non-Fellows, the frequency of PALS activities increased slightly. At the end of ED193, Fellows and Non-Fellows reported engaging in the PALS behaviors "about half of the time," whereas the Comparison Fellows still reported "rarely," making them statistically different. Thus, ED193 does appear to slightly increase the frequency of PALS behaviors.

Prior to ED193, slightly more than half of the Fellows (57%) and Non-Fellows (55%) and roughly one third of the Comparison Fellows (30%) considered poor study skills as a top barrier to their academic achievement. After receiving instruction about optimal learning techniques and PALS, very few of the Fellows (14%) and none of the Non-Fellows still considered poor study skills as a top barrier to their academic achievement. However, 11% more Comparison Fellows (41%) considered poor study habits a top barrier. This indicates that through the ED193 course, Fellows and Non-Fellows believed that they had acquired better study skills, and that poor study skills were no longer hindering their academic achievement.

Moreover, the course appears to have no impact on the percent of undergraduates who receive tutoring or the number of hours they receive tutoring. Prior to ED193, about half of the Fellows, Non-Fellows, and Comparison Fellows received tutoring. Of those receiving tutoring, they were tutored approximately 3 hours a week. After the course, all three groups had a slight decline in the percent receiving tutoring and the number of hours tutored a week.

At the root of study habits are a person's beliefs about learning. We looked into two concepts of learning that are emphasized as part of PALS prior to and after ED193. Students reported their opinions on the best way to learn a concept and about who is responsible for their learning.

Prior to the course, Fellows, Non-Fellows and Comparison Fellows indicated that they believed that the best way to learn a concept is by reading about it multiple times. Comparison Fellows still reported this at the end of the course, whereas both the Fellows and Non-Fellows moved from the best way to learn as "reading about it multiple times" to "teaching it to others." Hence, ED193 slightly changed a student's beliefs and approach to the best way to learn a concept.

Moreover, Fellows, Non-Fellows, and Comparison Fellows, prior to ED193, reported "I'm responsible for my own learning," and "Mostly I am responsible for my own learning, with some help from teachers and parents." Comparison Fellows did not change their beliefs about learning over the course of the year, whereas Fellows' beliefs shifted slightly more towards "I am responsible for my own learning," and Non-Fellows shifted slightly down towards "Mostly I am responsible for my own learning with some help from teachers and parents." These differences in beliefs, however, prior to or after the course, are not significantly different for the three groups. Hence, ED193 does not appear to impact heavily students' beliefs about who is responsible for their learning.

Besides aiming to impact study habits and students' beliefs about learning, ED193 could also affect students' desire to teach others or serve the community. Prior to the course, Fellows and Non-Fellows reported spending 5 hours a week serving the community. Comparison Fellows reported a similar number of hours (6.0 hours) devoted to serving the community per week. For the quarter in which students took ED193, Non-Fellows reported an increase of 1.5 hours per week devoted to community service—a total of 6.7 hours a week. Fellows, on the other hand, reported 4.9 hours a week, slightly fewer ($^{-}$0.2) than prior to the course. Comparison Fellows also reported slightly fewer hours ($^{-}$0.7) at 5.3 hours a week.

During the quarter prior to ED193, 68% of Fellows, 76% of Non-Fellows, and 65% of Comparison Fellows indicated that they had taught others. After ED193, 86% of Fellows and 96% of Non-Fellows reported having taught others; these are large increases. But 68% of Comparison Fellows reported having taught others, which is almost identical to what they reported for the fall quarter 1998. Thus, ED193 definitely increased the number of undergraduates who taught others. This can be explained by the opportunities for service and teaching accompanying the overall course and the section chosen: LINCS, America Reads, CBOP, or Community Service.

Moreover, Fellows, Non-Fellows, and Comparison Fellows have a strong sense of civic responsibility. Prior to and after ED193, all Fellows and Non-Fellows intended to serve the community in the future. Comparison Fellows also had strong

intentions to serve the community in the future: 92% in early winter and 100% in spring.

By promoting students' involvement in their own learning and enhancing the awareness of their own ability to learn, optimal learning strategies may also lead to increases in students' grades. We found that by participating in ED193, students improved their study habits in terms of the number of hours studied, hours prepared for lectures, and hours studied in groups; increased the frequency with which they prepared, studied, asked questions, worked on problem sets, and engaged in discussion about what they were learning; and increased the number of hours they spent teaching others. Combined, these changes could lead to better work habits and better grades. However, the impact on grades from ED193 is non-existent for Fellows and very slight for Non-Fellows, equalizing their overall cumulative grade point averages.

The Effects of Teaching and Mentoring High School Students

Teaching optimal learning techniques to high school students and mentoring them about the process of achieving access to higher education is expected to deepen the undergraduate's own knowledge of how to be an optimal learner in areas such as study habits, beliefs about learning, ability to change, and self-esteem. In addition, those students providing the service are expected to have an increased sense of civic responsibility, such as a stronger desire to teach and serve, be a role model, mentor others, and reach out to their communities.

Overall, Fellows' study habits and skills were different after service learning as compared to prior service learning and prior to the ED193 course. Students reported studying slightly fewer hours per class and preparing less for lectures than prior to service learning and prior to the ED193 course, and studying about the same number of hours in groups as prior to service learning and the ED193 course. However, when they were asked to report how often they engaged in specific PALS behavior (PALS frequency scale) and asked to rate their PALS skills (self-rating of PALS skills), the findings suggest that Fellows were implementing PALS as often as they were in the course and that their skills (study skills and habits, understanding lectures, understanding readings and assignments, remembering course material, and focusing attention during lectures) had increased. In addition, fewer Fellows received tutoring as compared to prior to service learning (38.5% compared to 51.5%), although those that did receive tutoring were tutored the same number of hours per week (2.3 hours).

Fellows also had frequent contact with more graduate and professional students during ED193 (2.9 students) than after service learning (1.3 students). This suggests that Fellows were improving their study skills and were engaging in PALS behaviors. The impact of this improvement can be seen through the lower number of Fellows who need tutoring. However, Fellows may also have constraints on their time during the quarters they provide service learning to Scholars, which cuts into

the amount of time they spend on certain activities such as studying per class, preparing for lectures, and meeting with graduate and professional students.

Mentoring high school students does not seem to have affected Fellows' beliefs about learning, their desire to improve or their academic motivation over and above the impact of the ED193 course. Curiously, the Fellows' academic confidence appears to be affected only during the ED193 course. Thus, it appears that mentoring the high school students did not help Fellows maintain their overall academic confidence across several areas: ability to teach others what you are learning, ability to take tests, confidence before an exam, confidence in my ability to master class material, and confidence in my ability to succeed in graduate and professional school.

Service learning does appear to enhance the Fellows' civic responsibility and self-image. After their experience of mentoring high school students, all the Fellows were motivated to be role models in the community. All of the Fellows also continued to plan to volunteer in the future and volunteered roughly 7 hours per week. During their mentoring experience, they reported devoting roughly 6 hours a week to the community, which is about an hour more a week than reported prior to service learning and the ED193 course. It is unclear however whether the 6 hours a week are all devoted to CBOP. Fellows could be making the trade-off between mentoring high school students with CBOP and devoting time to other community service work. Fellows could also be including in this calculation their prep time and the driving time to the high school sites. More Fellows also reported teaching others during the time they were mentoring the high school students, which is to be expected since part of their responsibility with CBOP is a teaching function.

In addition, Fellows' ratings on Rosenberg's self-image scales of self-esteem, interpersonal threat, and intensity of discussion prior to and after their service learning experience indicated no statistically significant changes; however, the slight movements were all consistently in positive directions.

Overall Effects of CBOP on Fellows' Academic Aspirations

Moving from the effects of mentoring high school students to the potential effects on Fellows of themselves being mentored and receiving special services, we also explored the impact of CBOP on Fellows' academic aspirations. Indicators used to measure these effects include a student's decision to declare a major or to pursue graduate or professional school, take standardized tests (e.g., GRE, LSAT, etc.), and take specific action to gather information about graduate/professional school options. We compared these measures of academic aspirations for the Fellows, Non-Fellows, and Comparison Fellows.

Results show that Fellows, Non-Fellows, and Comparison Fellows had similar percentages of students who had declared a major in the fall of 1998 with little increase over the academic year 1998-99. Of the approximately 15% in each group

that had not declared a major in fall 1998, only one Fellow, two Non-Fellows, and one Comparison Fellow decided to declare a major by the end of the evaluation period. This is not surprising considering that roughly 40% are seniors and 30% are juniors. In addition, the majors most commonly declared were similar across the Fellows, Non-Fellows and Comparison Fellows.

When asked in what area they would most like to pursue a career, respondents in all groups had education as the top choice, with 47.1% of Non-Fellows indicating education. Fellows became significantly more interested in education over the course of the year, moving from 19.6% in the fall to 31.1% by the spring. Law and medicine were, respectively, the second and third most popular career areas for Fellows, whereas Comparison Fellows chose business second and law third. Non-Fellows differed in that they consistently chose social welfare second (following education), while their third choice changed from business to medicine between the fall and the spring.

Virtually all Fellows, Non-Fellows, and Comparison Fellows already indicated at the outset of the 1998/99 school year that they planned to attend graduate or professional school, with one additional Non-Fellow deciding by the end of the evaluation period to attend a graduate or professional school. Despite this, all of them may not have taken actions that would prepare them for graduate school or have them admitted. Fellows, Non Fellows, and Comparison Fellows were therefore also asked a range of questions regarding specific steps they may have taken in preparing to apply to graduate school, such as collecting information about graduate schools, attending orientations and workshops, and taking standardized tests.

Fellows, Non-Fellows, and Comparison Fellows were asked whether they had gathered information about graduate and professional schools including information on application, financial aid, campus life, specific faculty, reputation, average time to degree, and alumnus. Results show that, by spring quarter 1999, Fellows had significantly higher rates of gathering information on campus life, specific faculty, reputation, average time to degree, alumni, and scholarship/financial aid information, and obtaining applications compared to Non-Fellows or Comparison Fellows. Fellows also reported much higher participation in orientations and workshops at graduate schools, which makes sense in light of their sponsorship by the CBOP professional school partners. However, Fellows, Non-Fellows, and Comparison Fellows reported approximately the same levels of satisfaction with informational presentations and access to faculty at graduate/professional schools in the beginning of 1997/98. Fellows' satisfaction increased very slightly over the academic year 1997/98, whereas Non-Fellows and Comparison Fellows showed a minimal decrease. These slight shifts however are not statistically significant.

Half of the Fellows (51.7%) reported receiving mentoring from graduate and professional schools, whereas none of the Non-Fellows reported this type of

mentoring. Additionally, 44% of the Comparison Fellows reported receiving mentoring from graduate and professional schools, which is not statistically different than the Fellows. We also found that Fellows spent a significantly higher total number of hours with graduate and professional school mentors than did both Non-Fellows and Comparison Fellows. During the fall quarter 1998, Fellows reported spending an average of 15 hours with graduate student and/or faculty mentors, whereas Non-Fellows and Comparison Fellows spent an average of 5 hours.

In short, Fellows appear to have taken more action to become informed about graduate and professional schools, apply to them, and submit financial aid information. Fellows also attended more orientations and workshops provided at graduate schools and received more mentoring.

What Are the Effects of the CBOP Services Performed by CBOP Fellows on Scholars?

Because comparison groups were selected randomly or from similar intact classrooms, there should be no significant differences across the Scholars and Comparison Scholars. Scholars and Comparison Scholars had similar demographics and family backgrounds as well as community service backgrounds. In terms of studying, roughly a quarter of the Scholars and Comparison Scholars reported poor study skills as their top barrier to academic achievement. Just over 90% of both groups planned to go to college immediately after graduating from high school. The Scholars also resembled the Comparison Scholars in terms of the hours spent studying. Students reported spending between 7 and 8 hours studying for each class during the week. Between 5 and 6 hours were spent preparing for lectures for each class. Scholars reported spending slightly more time studying in groups, serving the community and receiving tutoring, but these differences were not statistically significant. Between 91% and 95% of students reported completing homework assignments several times per week. Fewer students in both groups reported actively participating in class this often (60%). Moreover, the Scholars and Comparison Scholars also held similar beliefs about education prior to the CBOP program. The most popular ways to learn a concept in both groups were to write about it or to read about it multiple times. However, we did find differences in the two groups in terms of the percent who taught others and the percent who received tutoring. Prior to involvement in CBOP a few more Scholars than Comparison Scholars had served as tutors. Significantly more Scholars than Comparison Scholars also reported teaching others in the previous semester. Overall, the Comparison Scholars are a very adequate group with which to compare the over-time trends and attitudes of the Scholars.

In the first semester of their freshman year, Scholars and Comparison Scholars had almost identical study habits. They both studied about 7 hours for a typical

class, prepared roughly 5.5 hours for class, and studied in groups a similar number of hours: (2.6 hours for the Scholars and 2.2 hours for Comparison Scholars). Moreover, over the course of the year Comparison Scholars and Scholars appear to have behaved in a similar pattern concerning study habits. The study habits that we measured were engaged in slightly (but not significantly) less often for both groups over the course of their freshman year. There was also a slight (but not significant) increase in both groups' self-rating of their overall use of PALS. At both the beginning of the year and at the end, however, both Scholars and Comparison Scholars reported engaging in PALS behaviors only between 1 = *rarely* or 2 = *about half of the time,* which is not very often. There was also a slight (but not significant) decrease in both groups' self-rating of their PALS skills of (a) study skills and habits, (b) understanding of material presented in class, (c) understanding of readings and assignments, (d) ability to remember class material, and (e) ability to focus attention during class.

However, over the course of their freshman year, CBOP did appear to influence Scholars' behaviors and beliefs in a few important and statistically significant ways. First, prior to CBOP, roughly one quarter of Scholars (28%) and Comparison Scholars (25%) reported that poor study skills were a top barrier to their academic achievement. By the end of their freshman year and after receiving instruction about optimal learning techniques and PALS, fewer Scholars (a decrease of 1.7%) reported that poor study habits were a top barrier to their academic achievement, whereas more Comparison Fellows (an increase in 0.8%) reported that poor study habits were a top barrier by the spring of 1999. CBOP appears to have affected the Scholars belief that they have acquired better study skills and whether their study skills are hindering their academic achievement; this is a result we also found for the Fellows after taking ED193.

Additionally, participation in CBOP is associated with an increase in the number of college students that Scholars had frequent contact with over the course of the year. At the beginning of the year Scholars and Comparison Scholars had frequent contact with 2.2 college students. At the end of the year, the Scholars had frequent contact with 2.2 more college students (4.5 total), and the Comparison Scholars had contact with only 0.78 more college students (3 total). CBOP therefore provides high school students with more frequent contact with more college students than they would have without CBOP. This contact, presumably with the Fellows, provides high school students with more support and mentorship.

As noted above, despite randomization and the construction of similar comparison groups, the Scholars and Comparison Scholars differed across the percent who had received tutoring, 29.6% and 17.7% respectively, prior to CBOP participation. Without other measures of academic performance, other than the knowledge that all students in the selection pools had earned a 3.0 GPA by the first quarter of the freshman year, we cannot decipher whether the Scholars received

more tutoring because of a lower level of ability or because they were motivated to achieve better grades and seeking out tutoring.

Despite the difference in the percentages of Scholars and Comparison Scholars that received tutoring, those that did receive tutoring received a similar number of hours of tutoring in a week at the beginning of the year: 2.5 for Scholars and 2.3 for Comparison Scholars. By the end of the year, more Scholars (2.7%) received tutoring, whereas fewer Comparison Scholars (6.7%) received tutoring. The number of hours of those tutored increased slightly (but not significantly), 0.5 hours for Scholars and 0.9 hours for Comparison Scholars. This indicates that Scholars via CBOP are seeking out and obtaining tutoring. In the long run, this tutoring could impact course grades and academic achievement.

At the root of study habits are a person's beliefs about learning. We looked into two concepts of learning that are emphasized as part of PALS. Scholars and Comparison Scholars at the beginning of the year and at the end of the year reported that the best way to learn was "writing about it." In terms of their beliefs about who is responsible for their learning, Scholars leaned toward "I am responsible for my own learning" and Comparison Scholars toward "Mostly I am responsible with the help from teachers and parents." However the slight changes in the scales are not statistically different.

Besides attempting to improve study skills and changing a student's underlying beliefs about learning, CBOP attempts to instill a sense of urgency and ability to change in students. At the beginning and end of their freshman year, Scholars and Comparison Scholars had similar levels of academic motivation, academic confidence, and desire to improve. The changes over the course of the year were very slight (and insignificant) movements in the scale scores for these three measures. Therefore, CBOP appears not to impact Scholars' academic confidence, motivation, or desire to change despite the efforts of the Fellows and the CBOP Academies.

CBOP intends to also affect students' desire to teach others or serve the community. At the beginning of the year, 88% of Scholars and Comparison Scholars wanted to devote time serving the community in the future. In addition, Scholars and Comparison Scholars reported spending 5.9 and 5 hours a week, respectively, currently serving the community. By the end of the year, however, the number of hours converged between the two groups to 5 hours a week for the Scholars and 5.3 hours for the Comparison Fellows. At the end of the year, more Scholars reported a desire to serve the community in the future (an increase of 2.9%), whereas fewer Comparison Scholars reported a desire to serve the community in the future (a decrease of 3.7%). Thus, CBOP appears to be related to Scholars' desire to serve the community and to have added to their sense of civic responsibility.

Conclusions and Recommendations

The evaluation results indicate that the undergraduate service providers in the Career Based Outreach Program were positively impacted by the sponsorship of the graduate and professional schools, by the ED193 course, "Service Learning and Student Achievement," and by their experience of mentoring the high school students. But the Scholars are largely unaffected by CBOP activities and services.

Discussion of Findings

Undergraduates who participate in CBOP as Fellows were positively affected by every aspect of their experience. First of all and not surprising since it is a key component of Campus Partner sponsorship, Fellows attended more orientations and workshops provided at graduate schools and received more mentoring than Non-Fellows or Comparison Fellows. As a result of the mentoring by the Graduate and Professional Schools, Fellows took more action to become informed about graduate and professional schools, to apply to them, and to submit financial aid information. Fellows also planned to take the LSAT, MCAT, and CBEST significantly more than either the Non-Fellows or the Comparison Fellows. The increased action and planning by the Fellows indicates a stronger level of commitment to the pursuit of graduate school. This is extremely important since 100% of all three groups reported that they plan to attend graduate school. Interestingly, there was also an increased interest in the field of education and subsequent planning for a graduate degree in education among the Fellows over the course of 1998/99.

Secondly, we have found that, by participating in ED193, Fellows maintained or slightly improved their study habits as compared to the Comparison Fellows, whose study habits relaxed over the course of the year.[b] Fewer Fellows reported that having poor study skills was a top barrier to their academic achievement as compared to the Comparison Fellows. With these changes came also a small increase in academic confidence and a decline in Fellows' desire to improve from a "strong desire to improve" to an "average desire." Findings also suggest that the ED193 course did not impact students' grades during the quarter that Fellows took the course or in the quarter immediately following ED193. Fellows and Comparison Fellows earned a consistent term and cumulative grade point average over the course of the year.

Thirdly, ED193 also impacted undergraduates' sense of civic responsibility. After learning about service and its potential impacts on communities in ED193, 99% of the Fellows were motivated to be role models in the community as compared to 28% prior to the ED193 course. All of the Fellows also continued to plan to volunteer

[b] Specifically, Fellows increased slightly the number of hours studied in a group; increased the frequency with which they prepared, studied, asked questions, worked on problem sets, and engaged in discussion about what they were learning; and increased their self-ratings of their study habits, understanding of lectures, readings, assignments, and ability to remember course material and to focus during lectures.

in the future and volunteer roughly 7 hours per week. Engaging in optimal learning techniques and participating in ED193 also increased the number of Fellows (by about 20%) who spent time teaching others as compared to the Comparison Fellows.

Furthermore, ED193 had a differential impact on Fellows and Non-Fellows. Fellows tended to study on average more hours in a group, to devote fewer hours to the community, and to have a slightly stronger belief that they are solely responsible for their own learning than did the Non-Fellows by the end of the course.

The Fellows' experience with mentoring high school students did not seem to have further affected their study habits and skills, their beliefs about learning, their desire to improve, or their academic motivation over and above the impact of the ED193 course. Fellows also had frequent contact with more graduate and professional students during ED193 (2.9 students) than during their service learning experience (1.3 students). However, after service learning even fewer Fellows received tutoring as compared to prior to service learning (38.5% compared to 51.5%). This may suggest that Fellows were feeling even more confident in their study skills and learning and hence felt less the need for assistance.

These changes in undergraduates' academic attitudes, behaviors, and aspirations were not passed on to the high school students in the program. Small effects were found for the high school students in a few areas. CBOP appears to have affected the Scholars' belief that they have acquired better study skills and whether their study skills are hindering their academic achievement. Participation in CBOP also was associated with an increase in the number of college students that Scholars had frequent contact with over the course of the year, which is a direct result of their interactions with Fellows. Finally, at the end of the 1998/99 school year, more Scholars reported a desire to serve in the community in the future (an increase of 2.9%), whereas fewer Comparison Scholars reported a desire to serve the community in the future (a decrease of 3.7%).

The limited impact of CBOP on the high school students is not a surprise considering the poor program participation of the Scholars across the high schools. Even though the program participation data are limited, they suggest that there is a low Scholar attendance at Saturday academies at all of the six evaluation sites and very low attendance at weekly sessions with the Fellows at two of the evaluation sites.

Recommendations

CBOP has been a catalyst for mobilizing undergraduates to teach and serve high school students in 19 high schools across Los Angeles County. On average, four to five undergraduates served at each of the sites providing approximately 650 hours of service and mentoring. The benefits of these hours of mentoring and teaching are apparent for the undergraduates as they improve their study skills and sense of direction for future graduate studies.

Importantly, the increased interest in the field of education and the subsequent planning for a graduate degree in education among the Fellows over the course of 1998/99, could possibly have positive implications for the current teacher shortage in California and the need for minority teachers.

Overall, CBOP manages academic activities and events for hundreds of undergraduates and thousands of high school students. The Fellows, who are providing the services to the Scholars, are faced with juggling their studies, practicing PALS, attending events offered by the Campus Partners, driving to high schools once a week, preparing for weekly sessions, and building relationships with the Scholars. In addition, at the school sites a myriad of mentoring and tutoring programs exist, and CBOP is not the only outreach effort from local colleges and universities. Moreover, the focus of the high school counseling environment is on seniors. Thus, the individualized academic plans that are developed with the Fellows and the Scholars are an important mechanism for measuring the progress of the high school students *prior to their senior year* and could be helpful to the counselors, as well as to Scholars and their parents. Given this context, it is recommended to strengthen the relationship between CBOP site teams, Fellows, and high school counselors. A strong relationship between these groups could facilitate high school students being enrolled and planned into the courses that they will need to get into college as well as leverage the academic counseling resources available at the individual sites. In addition, increasing the number and type of CBOP activities and events that include or require high school counselors would appear to only help CBOP in its efforts to raise the percentage of students completing the A-F requirements for admission to UC.

Furthermore, for CBOP to have the intended impact of increasing UC competitive eligibility, participation in the core CBOP activities by all the Scholars particularly at this early stage is very important. With concerted efforts by CBOP program staff and increased participation by Scholars, the potential benefits for the high school students will, it is hoped, be seen in the future as Scholars begin to engage in more college-going behaviors and enroll in courses that will admit them into colleges and universities, especially the UC campuses. Indirectly, college counselors also could benefit from this individualized attention from the Fellows considering the high number of students each counselor must counsel on courses and test preparation for college, even though their primary focus is on seniors.

In conclusion, the evaluation recommends that CBOP focus on increasing program participation and intensity for all the Scholars. Participation in key activities by Scholars at all grade levels as they continue on through high school is a necessity if CBOP is to change their study habits and college-going behaviors. The weekly sessions need to be intense and powerful experiences. As found with the Fellows, PALS and mentoring can affect students' academic behaviors, attitudes, aspirations and sense of civic responsibility.

ACCESS TO HIGHER EDUCATION AND THE ROLE OF ACADEMIC OUTREACH PROGRAMS: UNDERSTANDING THE DYNAMICS OF SERVICE LEARNING

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I. INTRODUCTION

Background and Context

Access to higher education and improving the equity in college admissions remains a major educational policy issue, given the continued underrepresentation of many racial and ethnic groups in higher education today (*Minority Undergraduate Participation in Post-secondary Education*, 1995). Over the last three decades in California, affirmative action existed alongside programs designed to enhance students' academic preparation for college, and focused primarily on students with below-average rates of University of California (UC) eligibility and enrollment. The programs concentrated on racial and ethnic minorities with historically low college-going rates, low-income students from rural and other underserved geographic regions, and women in certain traditionally male-dominated academic fields such as engineering. However, this commitment and focus on affirmative action by the UC as a remedy to past inequities was dramatically changed in 1995 when the UC Regents eliminated the consideration of race, ethnicity, and gender in University admissions, leaving intact other admission criteria designed to promote greater geographic and socioeconomic diversity within the student body. As a result of this and the advent of Proposition 209, the University of California is relying on outreach as its primary tool for recruiting a demographically diverse student body.

Moreover, what has become apparent to those involved with academic outreach is that the traditional approaches to outreach will not be enough to ensure a diverse representation of students at the most selective University of California campuses, such as UCLA and UC Berkeley, where the average freshman admitted

has a high school GPA above 4.1 and a combined SAT score above 1310. In addition, more than 40% of the educationally disadvantaged K-12 students in California reside in Los Angeles County, presenting both great opportunity and significant challenges to UCLA's outreach efforts.

UCLA has embraced the challenge to actively help students become competitively eligible with a new, comprehensive, and theory-based program that integrates the techniques of optimal learning within a service learning framework, called the Career Based Outreach Program (CBOP). It is designed specifically to increase the academic achievement of both students in K-12, so that they will be competitively eligible for UCLA, and those undergraduates providing the CBOP services, so that they also will be competitively eligible for graduate school.

Service learning, the combination of volunteer service and education, is a form of experiential education that has been used in schools and colleges for more than 30 years (Rhoads, 1998). The appeal of service learning lies in its promise to increase achievement in both K-12 and higher education. The service learning model promotes active learning, or strategies to boost students' involvement and engagement in education as a means of increasing both their motivation and their mastery of educational concepts. This model of learning via serving focuses on techniques to acquire specific "optimal learning" strategies. Undergraduate students (Fellows) from educationally disadvantaged groups formally learn techniques of optimal learning and are charged with teaching them to and mentoring high school students. The high school students (Scholars), in time, are expected to tutor middle school students in these optimal learning strategies.[1] The idea is that teaching the behaviors and attitudes that are associated with academic success increases mastery, and that both Fellows and Scholars are expected to change in ways that will increase their subsequent persistence and school success (Anderson, 1998; Doby, 1997). The Personal Academic Learning System (PALS)[2] is a model for optimal learning and performance and the core of CBOP's approach.

[1] Optimal Learning is a systematic approach to acquiring knowledge generating insights, solving problems, and demonstrating learning, which produces the maximum level of performance on academic tasks that a person is capable of achieving at a specific point in time (Anderson, 1998).

[2] PALS is contrasted with the "American Paradigm" of learning described by Professor James Stigler. PALS learning and performance system builds on the work of Graham Wallis, who depicted the cycle of thinking involved in generating insights and having illuminating "light bulb" experiences in the learning and discovery process.

The evaluation of CBOP is important as it provides information to those responsible for post-secondary outreach efforts at the policy and practitioner levels about the effectiveness of an innovative outreach approach, factors that make a difference in program success, and recommendations for program design and implementation. Moreover, to date, the promise of service learning remains largely untested and unverified. Although anecdotal evidence abounds, there is little empirical information about the effects of participation in service learning or the effect of optimal learning techniques.

The evaluation approach involved quasi- and true experimental designs to collect longitudinal data on undergraduate and high school students participating in CBOP and comparison students within the same schools (at high schools and UCLA). Overall, the evaluation assesses the impacts of participation on the undergraduate Fellows, those receiving service in the high schools, and the high school institutions. Its findings carry broader significance by expanding the information available about service learning generally and addressing specific strategies for reaching out to educationally disadvantaged high school students.

Organization of the Report

This report is divided into five sections. The first section has described the overall goals and context of the evaluation. Section II provides the conceptual framework and methodology for the research presented in the rest of the report.

Section III addresses results for the question "What are the effects of participation in CBOP on the Fellows?" Findings are based on the Community Service Learning and Student Achievement Survey administered according to a pre-/post-design to all participants in the course; the Service Learning Survey administered according to a pre-/post-design to all Fellows who provided serves to high school students; and the Outreach Survey administered in early winter and spring to a group of undergraduates who were recruited for CBOP but did not participate. The findings are supplemented with undergraduate data collected from the UCLA registrar, admissions, and financial aid offices.

Section IV responds to results for the question "What is the effect of the CBOP services performed by CBOP Fellows on Scholars?" This section first presents high school performance data using student-level and school-level measures of student achievement, student course-taking, high school course offerings, and demographic

data collected from the Los Angeles Unified School District and University of California Office of the President. Then it presents information on the high school counseling environment from findings based on high school site interviews at the six evaluation sites with the CBOP liaison and high school counselor. Finally, the section investigates the impact of CBOP services on the Scholars. Findings are based on surveys administered to 9th graders in the six evaluation sites who participated in CBOP and a randomly selected group of 9th graders who did not participate in CBOP.

The concluding section summarizes the major findings and provides recommendations.

The appendices to this report describe the research methods for the undergraduate surveys, the high school surveys, and the site visits.

II. CONCEPTUAL FRAMEWORK AND APPROACH TO EVALUATION

CBOP is a partnership between UCLA's outreach program, UCLA's graduate and professional schools, known as Campus Partners, and selected high school students in 19 high schools, known as High School Partners. CBOP incorporates a service learning approach with optimal learning strategies and other special activities for participating students at the high schools and at UCLA to increase the pipeline for undergraduate and graduate admission. Below we describe the goals of the program, the service learning concept on which CBOP is based, and the principles and primary activities that define its approach. This section closes with a summary of the questions and design that drive our evaluation inquiry.

Career Based Outreach Program (CBOP): Goals and Approach

CBOP goals support the overall outreach goals of UCLA, which are to work toward a long-term vision of a level playing field, where all children will get what they need to fulfill their maximum potential, including:

- adult and peer culture within schools, in which high academic achievement, college attendance, efforts and persistence are valued and expected;
- rigorous, high-quality academic curriculum;
- excellent instruction to facilitate student mastery of the academic curriculum and enable students to "learn how to learn";

- intensive academic support programs, which promote student learning and success;

- parent and community connections that support optimal achievement.

Within these overarching goals, CBOP's specific programmatic objectives are to increase the competitive eligibility of students in Grades 9 through 12 for admission to UCLA and to increase the academic competitiveness of prospective applicants to UCLA graduate studies or professional schools. Specifically, the charge is to:

- by 2002, increase the number of eligible graduates by 100% (from 429 UC eligible CBOP high school students in the 19 partner schools in 1997 to 858 in 2002);

- by 2002, increase the number of competitively eligible graduates by 150% (from 105 UC eligible CBOP high school students in the 19 partner schools in 1997 to 260 in 2002);

- by 2002, have every partner CBOP high school graduate 10 or more students who are competitively eligible for admission to UC;

- have undergraduate and high school students acquire specific optimal learning strategies through CBOP's cyclical service learning approach to improve their study skills and habits;

- engage college students in preparing and informing high school students for college as well as motivate them to pursue their own graduate studies;

- enhance undergraduate and high school students' academic learning through service and optimal learning strategies that result in a heightened sense of personal change, talent awareness, responsibility for your own learning and social responsibility; and

- enrich the institutional support (via individual counseling and mentoring) provided to high school students about taking and passing courses that directly prepare them for admission to UC, such as A-F requirements and honors and AP courses.

CBOP's Programmatic Approach: Focus on Service Learning and Optimal Learning Strategies

CBOP utilizes a cyclical service learning approach, which links undergraduate and high school students in acquiring specific optimal learning strategies. Undergraduate students (Fellows) from educationally disadvantaged groups

formally learn techniques of optimal learning and are charged with teaching them to and mentoring high school students. The high school students (Scholars) are expected to tutor middle school students (junior Scholars) in these optimal learning strategies,[3] which are intended to promote the maximum learning and performance that an individual is capable of at a given time. The idea is that teaching the behaviors and attitudes that are associated with academic success increases mastery, and that both Fellows and Scholars are expected to change in ways that will increase their subsequent persistence and school success (Anderson, 1998; Doby, 1997).

PALS, the Personal Academic Learning System, is a model for optimal learning and performance and the core of CBOP's approach. PALS is based on a set of principles and belief statements and features a pro-active plan and concrete steps for improving learning. These steps include individual preparation, group dialogue and interaction, instruction, practice, feedback, and homework. Scholars and Fellows participate in formal courses and workshops to support these goals, and high school Scholars participate in subject-specific academic excellence workshops. Undergraduate Fellows are identified by UCLA professional schools and are involved in ongoing network activities to support continuing affiliation and aspirations for graduate school. The program is based on literature supporting the benefits of service learning and factors that influence college retention. (For a synthesis of the theory and research on college student retention which underlies the CBOP approach please refer to Anderson, 1985, 1998; Astin, 1975, 1977, 1984, 1993; Astin & Sax, 1998; Pace, 1987; Cope & Hannah, 1975; Doby, 1997; Noel & Levitz, 1996; Rose, 1989; Tinto, 1987; Trent & Medsker, 1967.)

The Literature on Service Learning

"Service learning" refers to activities that combine volunteer work with educational learning and growth for the service provider. It "combines a strong social purpose with acknowledgement of the significance of personal and intellectual growth for its participants" (Giles, Honnet, & Migliore, 1991, p. 7). Almost all service learning programs are sponsored by schools, ranging from the elementary grades through post-baccalaureate professional programs. Gray et al. (1998) offer a thorough definition of what service learning is, and is not:

[3] Optimal Learning is a systematic approach to acquiring knowledge generating insights, solving problems, and demonstrating learning, which produces the maximum level of performance on academic tasks that a person is capable of achieving at a specific point in time (Anderson, 1998).

> The "service" component of service learning is any unpaid activity that is intended to assist individuals, families, organizations, or communities in need. Service in this context may involve work that requires little or no training, such as serving meals in a homeless shelter, or it may involve highly skilled work, such as providing medical or legal services to indigent individuals. The service experience may be a one-time special event, such as a clean-up day in a community, or a long-term commitment, such as spending one morning each week in a social service agency.
>
> The "learning" component of service learning involves structured efforts to promote the development of the volunteer, such as acquiring new skills or knowledge or developing a deeper understanding of social problems. Learning may occur as part of a class or it may occur as a co-curricular activity. The learning activities are referred to as "reflection" because the volunteers are encouraged to reflect on their experiences as service providers. Typical reflection activities involve journal keeping, discussion, reading, or writing term papers.
>
> Service learning is also distinguished from community service or pure volunteerism by its emphasis on the development and growth of the service provider and "its direct connection to the academic mission of the sponsoring college or university" (Rhoads, 1998, p. 279). It differs from field studies or other forms of experiential learning by its emphasis on addressing social problems. In practice, however, the boundary between service learning and other forms of volunteerism or experiential learning is fuzzy at best. (pp. 5-6)

Service learning aims both to meet the needs of the communities served and to improve student's civic responsibility, academic development, and life-skills. However, little research has been conducted to determine the extent to which service learning fulfills these goals.

Most existing research on service learning has examined its effects on students. For example, Astin and colleagues, in two different longitudinal studies, found a wide range of positive effects of volunteerism during college on student development in three general areas: civic responsibility (commitment to serving the community, intent to participate in volunteer work in the future); academic development (aspirations for advanced degrees, contact with faculty); and life-skills development (self-rated leadership, understanding of community problems, and interpersonal skills) (Sax, Astin, & Astin, 1996). Specific outcomes that were favorably affected by service participation are persistence in college, interest in graduate study, critical thinking skills, leadership skills, and commitment to promoting racial understanding. Astin and colleagues (Sax et al., 1996) also found that service participation is associated with a number of long-term affective or value outcomes, including commitment to participating in community action programs,

helping others in difficulty, participating in programs to help clean up the environment, promoting racial understanding and developing a meaningful philosophy of life. These studies controlled for a variety of differences between volunteers and non-volunteers at college entry and admitted that the two groups were quite different at entry to college. Thus, the possibility that the outcomes were attributable to pre-existing group differences cannot be fully dismissed. In addition, these studies do not differentiate service learning from community service or volunteerism.

Similar results have been found in several other national studies. Eyler, Giles, and Braxton (1997) found small, but positive effects of participation in service on a range of outcomes pertaining to students' values and attitudes related to citizenship and social justice and their self-rated scales. Gray et al. (1998) found that students in courses with a service component reported larger gains in civic participation (intended future involvement in community service) and life skills (interpersonal skills and understanding diversity). Warren (1997) found that through active learning processes, students not only learn the content, but also improve their critical thinking, learn to manage their time, practice interpersonal listening and speaking skills, become better writers, and gain a sensitivity to cultural differences. Again, these studies report large differences between participants and nonparticipants prior to the service experience.

Of other available quantitative studies on service learning, most involve only limited samples within one institution, and a large number of studies use a posttest only design to assess differences in participants in service learning and other students (e.g., Cohen & Kinsey, 1994; Greene & Diehm, 1995). Because of the limited generalizability and weakness of these designs, this research does not provide much insight into the overall importance of service learning or its benefits for the service providers or their recipients.

Some qualitative research on service learning and student outcomes also has been conducted. For example, Rhoads (1998) in a study based on participant journals, formal and informal interviews and participant observation describes the contribution of service learning to students' understanding of others, citizenship, societal problems, and self-exploration. Conrad and Hedin (1982) studied 30 experiential education programs by interviewing participants and conducting case studies. They found that students felt they learned more in these programs and had been helped to improve their feelings of self-worth compared to classroom courses

without a service component. This type of research provides good context for processes of change that may occur within an individual during a service learning experience.

Overall, then, while there is some evidence of effectiveness, there is limited empirical support for the diverse claims made about the significant benefits of service learning. The existing evidence suggests that participation in service has been small, but significant and fairly widespread positive effects on students' civic responsibility (generally defined in terms of their interest in community service and volunteerism), self-rated interpersonal skills, and more involvement and awareness in their education. These findings are consistent with other research about the benefits of experiential learning (Boyer Commission, 1998; Experiential learning in Higher Education, 1997; Study Group on the Conditions of Excellence in American Higher Education, 1984).

The Service Learning Model in CBOP

CBOP Fellows and Scholars are thus involved in service learning by teaching and mentoring younger students. Undergraduate Fellows are paired with selected high school Scholars, and, in time, the high school Scholars are expected to tutor their younger, middle school peers. The primary strategies are as follows.

- Engage college students in service learning that helps prepare high school students for college. During weekly meetings at high school sites, Fellows plan and teach optimal learning strategies and help their Scholars with tutoring. They also provide information to students and their families about college and its entrance requirements; and mentor and support their Scholars' college aspirations, including encouraging them to take college preparatory coursework and completing Individualized Academic Plans.

- Enhance academic learning for undergraduates and high school students through optimal learning strategies and tutoring opportunities. Academic learning is the acquisition of discipline-based knowledge and skills needed for college entry and retention or for graduate school entry and retention. The application and teaching of optimal learning strategies is intended to have benefits for both Fellows and Scholars. For example, by college students providing instruction in PALS, it is expected that college students will advance towards becoming optimal learners. Saturday academies similarly are intended to support high school student's learning and prepare them to do well in the coursework and tests needed for UCLA admission.

- Enrich the institutional support for high school students via individual counseling and mentoring, Saturday academies, and parent workshops. Through the mentoring process, CBOP provides high school students with individual counseling and mentoring about what courses to take and activities to be involved in to better prepare themselves for admission to the University of California. It also informs parents of what is required. It is hoped that these mentoring and information services will create pressure for change, e.g., offering more of the specific courses which students need for UCLA admissions. Through increasing students' learning and performance, the program seeks to change schools' and teachers' expectations for students.

Specific High School Activities for Scholars

Services for high schools Scholars thus include the following.

1. Weekly meetings with Fellows. Fellows work to develop curriculum and weekly lesson plans to teach optimal learning techniques to the Scholars. Each session is designed to address one or more of the essential elements of the PALS paradigm. A year-long agenda was developed to ensure that the core themes of study skills, preparation and participation in academic classes, helping students identify academic weaknesses and strengths, changing students' beliefs and perceptions about learning, improving students' academic confidence, and motivation were addressed. The main focus of the weekly sessions is to train Scholars to use the PALS system on a day-to-day basis to reinforce and maximize learning and success in their core academic subjects. As determined by the school partner, weekly, hour-long sessions occur before, during, or after school. During these meetings, Scholars also receive one-on-one mentoring and tutorial assistance and support in core subject areas.

2. Saturday academies. In addition to the weekly sessions held for Scholars at the high school sites, the Career Based Outreach Program sponsors several Saturday academies on UCLA's campus during the academic year. Saturday academies were created to reinforce weekly sessions and instructions in PALS and to expose Scholars to the various careers and professions available to them once acquiring a college degree and/or attending graduate or professional school.

During the 1998-99 academic year, CBOP offered a series of Saturday academies that included an initial orientation in which District representatives, parents, teachers, counselors, and Scholars were provided with an overview of the goals and objectives of the Career Based Outreach Program. Scholars, parents, and

High School Partners were then provided the opportunity to meet with the CBOP staff and Fellows to discuss the objectives of the program and the activities in which they would participate as Scholars and High School Partners throughout the year. Additional academies focused on the preparation of effective questions, provided students with an opportunity to take the PSAT, and learn about the academic criteria for admissions into a UC. Saturday academies were also used to provide Scholars with continued academic guidance in the core areas of language arts, science, history, social science, geography, mathematics, and technology. An end-of-the-year academy provided Scholars, Fellows, and School and Campus Partners a chance to reflect and dialogue about their experiences as participants in the program. Recognition and awards were given to participants and supporters of the program who made significant contributions throughout the year.

3. Individualized Academic Plans. As part of CBOP's ongoing commitment to increase the number of 9th through 11th graders eligible for admission into UCLA, Scholars received one-on-one academic advisement throughout the school year. Using the universities' academic criteria for admissions and the guidelines for academic advisement established by UCLA's Early Academic Outreach Program (EAOP), Fellows assisted Scholars in developing a three-year individualized academic plan. Fellows worked with Scholars to help them identify their academic strengths and weaknesses and helped them to develop and articulate their academic and career objectives. Together Scholars and Fellows worked to create a plan that would help them to reach their goals. Plans were also crafted to assist Scholars in meeting their long-term academic goals, such as attending graduate or professional school and their ultimate career objectives.

4. Tutorial assistance and/or referral. Fellows worked closely with both Scholars and CBOP coordinators to help secure additional resources as determined by the needs of the Scholars or schools to help CBOP participants excel and achieve maximum success in their academic progress. Fellows helped Scholars to identify the areas in which they might need additional academic support and assistance and worked with Scholars and teachers using PALS to provide them with tutorial support.

5. Mentoring from CBOP Fellows. As an essential component of all CBOP activities, the development of close, supportive mentor relationships, was an ongoing objective and an integral component to ensuring the success of CBOP in helping Scholars to reach their academic and personal goals. Fellows worked with

Scholars to provide them with academic and personal guidance. Activities were designed to provide Scholars and High School Partners with individualized support and resources to develop long- and short-term plans to promote academic and personal achievement and success.

6. Parent workshops at UCLA. As part of CBOP's mission to establish meaningful relationships with Scholars, High School Partners and parents, CBOP sponsored several parent workshops for the parents/guardians of CBOP participants. These workshops, hosted at UCLA, were sponsored to familiarize parents with the objectives of the program, and to promote their active participation in CBOP activities. Several informational workshops were also sponsored to provide parents with information on standardized tests preparation and dates, and UC admissions, tuition costs and the availability of grants and financial aid.

7. College Preparatory Resource binder. In addition to the ongoing weekly instruction offered to Scholars at the high school sites, the Saturday academies, and the individualized academic guidance and mentoring, all Scholars were given a College Preparatory Resource binder that included information on additional college preparatory resources offered at UCLA and collaborative partners. A reference guide with an overview of UCLA's academic requirements, academic programs and majors, and supplementary information on standardized test preparation and test dates, and essential tools to reinforce and support the learning and practice of the Personal Academic Learning System (PALS) was provided to all Scholars.

CBOP Program Activities for Undergraduate Fellows

As one of its programmatic objectives, the Career Based Outreach Program also works to increase the academic competitiveness of UCLA undergraduates to UCLA graduate and professional schools. This component is served by a campus partnership between CBOP and the following UCLA graduate and professional schools:

Graduate School of Education & Information Studies;

Anderson Graduate School of Management;

College of Letters and Science, Physical and Life Science Division;

School of Dentistry;

School of Engineering and Applied Sciences;

School of Law;

School of Medicine;

School of Public Health;

School of Public Policy and Social Research;

University Extension.

In general, all nine Graduate and Professional School Partners provided their Fellows with a similar base level of services, including academic planning and preparation, enrichment activities, and mentoring. Below is a description of each of these services. There are some differences among the services offered by the professional schools, however. This is primarily because several of the professional schools were only in their first year of implementation, while others (e.g., the School of Law and the Anderson Graduate School of Management) already had well-developed foundations in outreach programs into which they were able to integrate CBOP.

Overall, CBOP Fellows receive a range of services from the graduate and professional schools aimed at increasing Fellow preparation, eligibility, focus, and motivation for pursuing graduate education. Primarily, they provided Individualized Academic Plans, support and enrichment activities, and assistance for test preparation courses. Five of the nine professional school partners provided Fellows with a formalized Academic Plan, which generally entailed systematic, long-term planning of undergraduate courses, applying to graduate school, and regularly scheduled meetings to review progress. The other four schools had not yet been able to implement Individual Academic Plans, though they offered many of these services on a more ad hoc basis, often in the context of mentoring or enrichment activities. All professional school partners conducted an orientation day and at least three other workshops / activities for Fellows over the winter and spring quarters. The nine professional schools also all offered referral and financial assistance for test prep courses, either in cooperation with UCLA Extension or through previously-established relationships with commercial centers such as Kaplan. Fellows received 100% funding for courses offered through UCLA Extension. Graduate school partners reported varying levels of utilization of this service by Fellows. For example, the Graduate School of Education & Information Studies reported a very high turn-out for a GRE preparation course, while Life and Physical Sciences reported very minimal participation.

The services provided to the Fellows are the following.

1. Multi-year, individualized academic development plans. Professional school partners assist CBOP Fellows in developing a long-term strategy for successful admission into graduate school. Individual academic plans provide a structure for Fellows to optimize their undergraduate time through course planning and goal setting. Fellows receive one-on-one counseling to target their aspirations, assess academic weaknesses and strengths, and to develop a plan of action. Plans are designed to outline the steps needed for admission into graduate school, particularly time-sensitive steps such as GPA improvement, taking standardized tests, prerequisite courses that are only offered in selected quarters, and application deadlines.

2. Test preparation. In conjunction with graduate school advising, Fellows receive referral and a financial stipend for a standardized test preparation course (e.g., for GRE, LSAT, MCAT, GMAT). CBOP has developed a partnership with UCLA Extension to offer test prep courses to Fellows at a reduced price.

3. Enrichment and support activities. Throughout the academic year, CBOP professional school partners regularly schedule enrichment and support activities to enhance Fellows' ability to pursue professional/graduate studies. Activities may include workshops on applying for graduate school and writing essays, information sessions on grants and financial aid, networking and career events with professional guest speakers. Faculty and staff from graduate/professional schools also sponsor lectures, visits to research facilities, and other events to provide Fellows with exposure to the graduate school environment. Some schools also provide Fellows with opportunities for community service and field trips related to their area of study and career objectives.

4. Mentoring. CBOP professional school partners are asked to provide each Fellow with a mentor who will provide guidance and support. The mentor may be a graduate student, faculty member, or advisor from the graduate or professional school. Mentors are available to meet with Fellows on a regular basis to discuss issues or questions a Fellow may have about college, graduate school, personal and career development. Mentor relationships are intended to give Fellows a more informal source of information about pursuing graduate school, and to provide real-life role models that can give Fellows confidence and motivation.

Additionally, Fellows are enrolled in Education 193 (ED193), a special course designed to help students become optimal learners and the basis for teaching optimal learning strategies to their high school scholars.

Evaluation Approach

This study was designed to evaluate the operation and impact of CBOP. Adopting a value-added approach, the evaluation centers on the value added for high school students receiving CBOP services and one-on-one mentoring by UCLA undergraduates, and for UCLA undergraduates who are participating in the program. Furthermore, because the ultimate goal is to improve high school students' competitive eligibility, the evaluation also examines what factors and conditions appear to influence or support increases in student achievement, attitudes toward learning, and behaviors consistent with successful learning and performance, such as service learning and optimal learning strategies, all of which are necessary for a student to be a competitively UC-eligible student from a high school or a two-year college.

The evaluation approach overlaps an experimental and quasi-experimental design with a range of data sources, including surveys, interviews, site visits and collection of archival data. The effects of CBOP were assessed primarily through a comparison group methodology.

Evaluation Questions and Outcomes of Interest

The evaluation centers around two questions.

- What are the effects of participation in CBOP on the Fellows?
- What is the effect of the CBOP services performed by the CBOP Fellows on the high school Scholars?

Question 1 focuses on the impact of the "Community Service Learning and Student Achievement" course, which teaches the Fellows about PALS and optimal learning; the impact of the service component of the CBOP program on the service providers; and overall effects that CBOP might have on undergraduates academic aspirations and achievement. Question 2 investigates the impact of the undergraduates' weekly sessions and Saturday academies on the participating high school students.

The evaluation of CBOP is intended to answer these questions and thereby determine whether the program achieved its goals. However, the evaluation does not indicate whether CBOP is more effective than other approaches to outreach, nor does it indicate whether service learning is more effective than other pedagogical methods.

The unit of analysis for the evaluation is the individual, whether an undergraduate or a high school student.

Through a review of the literature on service learning and discussions with CBOP program staff at all levels (high school students, undergraduates, program staff, and faculty), we defined three domains of possible undergraduate and high school student impacts for CBOP:

Academic attitudes and behaviors. Optimal learning techniques are expected to impact undergraduates' study skills, preparation before class, dialogue and participation in class, their beliefs and perceptions about learning, their desire to improve, academic confidence, and academic motivation. By promoting their involvement in learning and enhancing their awareness of their own ability to learn, optimal learning strategies may also lead to increases in students' grades.

Service learning attitudes and behaviors. Teaching optimal learning techniques to high school students and mentoring them about the process of achieving access to higher education is expected to deepen the undergraduates' own knowledge of how to be an optimal learner and how to maneuver the process of attaining graduate education. Those students providing the service are expected to have an increased desire to teach and serve, be a role model, mentor others, and reach out to their communities. (These effects are expected for the high school students once they begin mentoring and tutoring middle school students.)

Academic performance and aspirations. Better study habits, increased urgency about learning, and more awareness about and understanding of one's own talents through service and optimal learning techniques may lead to increases in student grades and a clear idea of what academic path to follow. As a result an undergraduate might declare a major, change a major, decide to pursue graduate or professional school, or narrow in on a particular occupation or job that matches his or her interests and skills. Or a high school student might decide to take a more challenging course, decide to pursue any type of college or university, decide to raise his or her sights to attend a higher caliber institution (such as a University of

California), or narrow in on a particular occupation or job that matches their interests and skills.

Evaluation Design and Comparison Groups

Evaluation, along with much social science research, is generally limited in the extent to which it can attribute connections between observed processes and conditions to observed effects since there are many uncontrolled variables likely to affect the outcomes in the targeted sites. Our evaluation design, however, uses experimental and quasi-experimental methods in addition to interviews to provide a rigorous solution to this problem.

This study utilizes a quasi- and true experimental design to collect longitudinal data on undergraduate and high school students participating in CBOP and comparison students within the same schools (high schools and UCLA). This type of data allows us to describe the differences in the above-mentioned areas across students participating and not participating in CBOP, and to test for the statistical significance between the two populations of students.

Quasi-experimental design. In the absence of being able to randomly assign students to CBOP and comparison groups at UCLA, we identified comparison groups of students who were likely to be as similar as possible to the Fellows. Similarly, we established a comparison group of 9th graders with similar characteristics to Scholars at the two high school sites where random assignment was not possible.

Undergraduates were recruited by CBOP to join the program via several avenues. Presentations were made to groups such as Academic Student Support, which serves African American students; Mecha Cal Mecca, which serves Latino and Chicano; RAIN, which serves American Indians; and SPEAR, which serves Filipinos. Mailings went out to all UCLA freshman, sophomores, and juniors who graduated from CBOP high schools, students with inner city zip codes, all work study recipients, and non-work study African American and Latino students who had a 3.0 GPA and above. Anyone interested in being a Fellow submitted an application to the CBOP program. The applications were subsequently reviewed by the graduate and professional schools that are CBOP Campus Partners.[4] The

[4] The CBOP Campus Partners are the College of Letters and Science, Physical and Life Science Division; Anderson Graduate School of Management; Graduate School of Education & Information Studies; School of Dentistry; School of Engineering and Applied Sciences; School of Law; School of Medicine; School of Public Health; and School of Public Policy and Social Research.

Campus Partners selected the undergraduates that they felt were qualified for their programs and whom they would like to sponsor as Fellows. The selection of Fellows was primarily based on academic standing and the undergraduates' interest in their specific graduate studies.

To establish a group of students similar to this selected group of Fellows, we assembled all the lists of undergraduates from the CBOP office that received a mailing or attended a presentation during the recruitment efforts in 1997/98 and 1998/99 and that were still enrolled in UCLA. The potential group of Comparison Fellows numbered about 1,400. Out of this large pool, 50 agreed to be surveyed biannually for a small payment.

A second group of comparison students was formed from the students enrolled in the "Community Service Learning and Student Achievement" course, ED193, who were not Fellows. This comparison group is termed Non-Fellows. Because ED193 is the core service learning course in which all Fellows are enrolled, the Non-Fellows represent a group of undergraduates who may be similar in their initial service learning orientations.

At two of the high school evaluation sites, the high school administration decided that participants in CBOP would be those students enrolled in one particular honors English class. To establish a group of students similar to this selected group of Scholars, we identified the group of 9th graders at each of the schools that were enrolled in three other honors English or math classes. Roughly, 30 Scholars and 90 Comparison Scholars were identified at these two schools. Both of these cohorts of 9th graders (Scholars and Comparison Scholars) will be tracked as they move from 9th to 12th grade.

True experimental design. A true experimental design with randomly assigned program and comparison students permits the strongest test of program effects. Such a design is rarely possible in education studies, but we were fortunate to be able to implement it in four of the high school sites.

During the fall of 1998/99, the evaluation team randomly selected program participants and nonprogram participants from potential pools of students identified by the school administration in four high school sites where the size of the applicant pool for CBOP exceeded CBOP's capacity to serve all applicants. Nonprogram participants were placed on the waiting list and considered as Comparison Scholars. The applicant pool identified by the high school

administration was typically all 9th-grade students in the school who had a 3.0 GPA by December of their freshman year; one school provided us with a list of 9th-grade students in a college-bound program. On average, 50 to 60 CBOP Scholars were selected and 60 to 100 comparison students. Both of these cohorts of 9th graders (Scholars and Comparison Scholars) will be tracked as they move from 9th to 12th grade.

In the six high schools, 440 high school students were selected as Scholars and 516 as Comparison Scholars. At UCLA, 120 undergraduates were chosen as Fellows, 153 additional undergraduates enrolled in ED193 were chosen as Non-Fellows, and 50 undergraduates were selected as Comparison Fellows.

Comparison group strategy. In summary, then, this evaluation employed a comparison group strategy over a number of groups:

- a group of Fellows in the CBOP program with a group of Comparison Fellows, who were undergraduates at UCLA recruited to be CBOP Fellows, but decided not to participate;

- the participants enrolled in the "Community Service Learning and Student Achievement" course, which includes the Fellows, and the group of undergraduates identified as Non-Fellows;

- A cohort of 9th graders in 1998/99 who were selected (randomly in four of the six sites) as Scholars in the CBOP high schools with a cohort of 9th graders in the same high schools, whom we call Comparison Scholars. These cohorts of Scholars and Comparison Scholars will be tracked as they move from 9th to 12th grade.

In spring of 1999, program staff and counselors at each of the six evaluation sites were interviewed about their school's approach and organizational structure for preparing students for college, implementation and integration of CBOP into their college-preparatory efforts, counseling activities at the high school site, parental involvement in college-preparatory issues, and the high school's relationship to UC and its role in promoting UC as an option for its students. (See Appendix A for High School Interview Methodology and Protocol.)

In general, this evaluation approach and design, which used experimental and quasi-experimental methods, provided a rigorous framework for investigating the impact of service learning and outreach through CBOP at UCLA. Additionally, the interviews of program staff and counselors provided a much richer context and comparison base for the overall analysis.

Data Sources

Outcome data and measures of attitudes and behaviors were collected through surveys administered at UCLA and at the six high school sites and existing databases. Survey administration occurred at several times during the academic year. Fellows and Non-Fellows received surveys during the fall (pre- and post-class) or winter (pre- and post- the second session of the class) depending on which class they attended, and also early and late spring (pre- and post-service learning experience in the high schools). Comparison Fellows received a pre-survey during the winter and a post-survey in late spring. Scholars and Comparison Scholars received pre-surveys during the winter and post-surveys in early spring. Survey administration was conducted in conjunction with ED193 at UCLA for the Fellows and Non-Fellows. The surveys for the Comparison Fellows were administered by mail, e-mail, and at specified times on UCLA campus. (See Appendix B for the Undergraduate Survey Methodology.) At the high school sites, we administered the surveys to the Scholars and Comparison Scholars either during class time or during the lunch hour with the assistance and scheduling of the Assistant Principals or CBOP liaison. (See Appendix C for the High School Survey Methodology.)

Existing data on outcomes was collected from several sources: UARS, the University Admission and Relations with Schools data; financial aid data, admissions data; transcripts; degree progress reports, and EAOP program data. UARS has extensive data on courses taken, test scores, and post-secondary tracking. EAOP maintains additional data to those provided by UARS which are programmatic in nature; that is, whether the student has an academic plan and general career interests. Program participation data for the Fellows and Scholars were collected by the CBOP office. In addition, district and high school transcript and demographic data were obtained for each high school student in LAUSD for the last two years. (The 1998/99 LAUSD data for the high schools will not be available until the end of summer 1999. Data for Lynwood Unified School District will be available at the end of summer 1999. Negotiations are still in process with Inglewood Unified School District.)

Data including high school information about each school's approach and organizational structure for preparing students for college; implementation and integration of CBOP into their college-preparatory efforts; counseling activities at the high school site; parental involvement in college-preparatory issues; and each high school's relationship to UC and its role in promoting UC as an option for its

students were collected in spring 1999 via interviews with program staff and counselors at each of the six evaluation sites. (See Appendix A for High School Interview Methodology and protocol.)

In general, this evaluation approach and design, which used experimental and quasi-experimental methods supplemented by interviews and secondary institutional data, provided a rigorous framework for investigating the impact of service-learning and outreach through CBOP at UCLA. Additionally, the evaluation will assist UCLA in knowing whether and why they were able to meet their specific numeric outreach goals and programmatic goals.

Limitations of the Study

One major limitation of this study is that the data are from only one institution. This program is offered only at UCLA and is unique in its design; the generalizability of its findings to all service-learning programs is limited.

Another limitation is the small sample sizes for the undergraduate participants (Fellows) and the comparison group (Comparison Fellows). Although the entire group of Fellows consists of 120 undergraduates, our overall response rate was low (57%) and yielded only 68 Fellows in the study. Comparison Fellows also were very difficult to entice into the study with an overall response rate of 4% yielding only 27 Comparison Fellows who took both the pre and post surveys. Despite the low numbers, the Comparison Fellows are very similar across background characteristics and beliefs at college entry and in college.

Additionally, this report uses the LAUSD student-level data collected by the district for 1997/98 to describe the context of the high school environment instead of the 1998/99 data. The 1998/99 student-level data from LAUSD were not available in time for this report.

III. RESULTS: WHAT ARE THE EFFECTS OF PARTICIPATION IN CBOP ON THE FELLOWS?

The Career Based Outreach Program aims to enhance the academic development and aspirations of the undergraduate service providers. The CBOP activities set up to accomplish this goal are (a) learning the PALS system via ED193 “Community Service Learning and Student Achievement,” (b) teaching and

mentoring high school students, and (c) sponsorship by a graduate or professional school. We looked into the impact of these activities on the Fellows in terms of their academic attitudes and behaviors, service learning attitudes and behaviors, and academic performance and aspirations.

What Are the Effects of the Undergraduate Course ED193?

Optimal learning techniques are expected to affect undergraduate's study habits and beliefs and ultimately their grades. To understand the effect of optimal learning techniques and the effect of the course, we compared the participants enrolled in the ED193 "Community Service Learning and Student Achievement" course, which includes the CBOP Fellows, to a group of undergraduates who were recruited to be Fellows but decided not to participate. The latter group is identified as Comparison Fellows. The Comparison Fellows provide us with a benchmark of habits, beliefs, and behaviors of similar undergraduates against which to compare the changes in the participants in the ED193 course. We also provide information on the differences between the participants in the course who are CBOP Fellows and those who chose to be in one of the other sections of the course—America Reads, LINCS, or other community service work—who are identified as Non-Fellows.

The next part of this section reviews results of the impact of the class in two broad areas of analysis.

First, we describe the background characteristics and beliefs of the Comparison Fellows, Fellows, Non-Fellows, and all the undergraduates who took ED193, which combines Fellows and Non-Fellows. We focus on (a) student characteristics, (b) student achievement in high school and at college entry, (c) students' background in service during high school, (d) student beliefs about learning, and (e) students' study habits and service behaviors in their last term.

Next, we look more closely at the changes in study habits, beliefs about learning, ability to change, and measures of community service and teaching associated with the Fellows, Non-Fellows, and Comparison Fellows to understand the impact of the "Community Service Learning and Student Achievement" course. In addition, we compare the term and cumulative grade point averages of the Fellows, Non-Fellows and Comparison Fellows prior to, during, and immediately following the quarter they participated in the ED193 course.

Differences Between Fellows, Non-Fellows, and Comparison Fellows

In general, the Comparison Fellows had an ethnic background similar to that of the Fellows, but differ significantly from all the undergraduates enrolled in ED193 (Fellows and Non-Fellows combined) in terms of ethnicity (see Table 1). Comparison Fellows as a group included more African American, more Chicano/Latino, fewer Asian, fewer White, and fewer Other students than the Fellows and Non-Fellows combined. In terms of parental background, the three groups were similar in terms of father's education, but differed slightly in terms of mother's education. Comparison Fellows had more educated mothers than the Fellows, but were similar in mother's education to all the undergraduates in the class.

Despite the slight difference in parental background, Comparison Fellows received work study at the same rate as and received amounts of financial aid similar to both the Fellows and the Fellows and Non-Fellows combined. The average number of sources of aid was higher by one source for the Fellows compared to the other two groups but can be accounted for by their CBOP Fellowship source. In terms of a student's grade point average upon admittance to UCLA, we examined high school grade point averages for non-transfer students, and college grade point averages from their prior college for transfer students. Fellows, Comparison Fellows, and the undergraduates in the ED193 class had a similar average grade point average at admittance of 3.7; the high school grade point average and the transfer grade point average were also similar for the three groups. Furthermore, the SAT composite, math and verbal scores of the Fellows, Non-Fellows, and Comparison Fellows were not significantly different at college entry. These measures indicate that the Fellows, Non-Fellows and Comparison Fellows had very similar admission criteria in terms of SAT and grade point average at the time of admission to UCLA. Additionally, the distribution of majors and the distribution of undergraduate's year in college (i.e., freshman) for the three groups were very similar. The majors were primarily political science, sociology, psychology, history, and the designated "Other" category. The Fellows, Non-Fellows, and Comparison Fellows were also primarily seniors, 44%, 39%, and 34% respectively. Comparison Fellows had a slightly higher percentage of sophomores at 32% than Fellows (16%) and Non-Fellows (21%).

Table 1

Background Characteristics of Undergraduates in ED 193 and Comparison Fellows (*N*=350)

	NF&F (*N*=301)	F (*N*=148)	NF (*N*=153)	CF (*N*=49)
Percent male	28.7	28.1	29.2	32.6
Percent transfer students	20.1	21.1	0.0	24.4
Mother's education				
Less than high school	27.4	31.5#	23.8	24.0#
High school graduate / GED	19.5	20.2#	18.8	13.0#
Business / AA / Some college	26.3	29.2#	23.8	21.7#
BA	15.8	11.2#	19.8	19.6#
Some graduate school	3.2	3.4#	3.0	2.2#
Graduate / Professional School	7.9	4.5#	10.9	20.0#
Father's education				
Less than high school	21.6	25.0	18.6	24.4
High school graduate / GED	20.5	20.5	20.6	8.9
Business / AA / Some college	22.7	25.0	20.6	26.7
BA	13.5	14.8	12.4	17.8
Some graduate school	2.2	1.1	3.1	8.9
Graduate / Professional school	19.5	13.6	24.7	13.3
Ethnicity				
African American	10.6^	12.8*	8.5*	21.7^
Asian	22.8^	25.6*	20.2*	8.7^
Chicano / Latino	35.0^	41.9*	28.7*	54.4^
Native American Indian	0.0^	0.0*	0.0*	2.2^
Other	12.8^	14.0*	11.7*	8.7^
White	18.9^	5.8*	30.9*	4.4^
Financial aid				
Work study	13.6	27.0	0.7	16.3
Percent receive aid	40.0%	79.0%	2.0%	84.0%
Aid received	$14,411	$14,453	$12,756	$13,263
Number sources of aid	7.2^	7.2#	6.3	5.9^#
Grade point averages (GPA)				
High school GPA	3.90	3.89	3.97	3.90
Transfer GPA	3.05	3.05	—	3.25
Admit GPA	3.72	3.71	3.97	3.74
SAT scores				
SAT composite	1073	1075	1010	1068
SAT math	562	564	507	549
SAT verbal	511	511	503	519

Note. NF = Non-Fellow; F = Fellow; CF = Comparison Fellow. The symbols *, ^, or # indicate that the two groups are statistically significant at the $p = 0.01$ level.

In addition, the service background and beliefs of Comparison Fellows, Fellows, and all the undergraduates in ED193 are very similar (see Table 2). Only a few significant differences were found. For instance, a higher percentage of Fellows performed volunteer or community service in high school. This is of importance because volunteering in high school is a strong predictor of future community service (Astin, 1996). However, no difference was found in the amount of community service performed since entering UCLA by Fellows, Non-Fellows, or Comparison Fellows. Nor was there a difference in Fellows during their last term (spring 1998) in their desire to serve the community, having taught others, or having received tutoring in spring 1998. This indicates that Fellows, Non-Fellows, and Comparison Fellows were similar in their attitudes and propensity to serve prior to ED193 and their participation in CBOP. Note that any Fellows who took ED193 prior to fall 1998 were either dropped from the sample or had their grade point averages and other measures recalculated to reflect the appropriate time references of prior, during, and after ED193.

We also found that Comparison Fellows studied significantly less during the last term prior to fall 1998 than Fellows and Fellows/Non-Fellows combined. Comparison Fellows studied per class on average 6.6 hours, whereas Fellows and Non-Fellows reported studying on average 8 hours per class. Non-Fellows studied on average an hour and a half more in groups in the last term prior to ED193 than Fellows. The difference in the number of hours studied in groups between Fellows and Comparison Fellows was not significantly different. Finally, during the fall of 1998 Comparison Fellows reported having a larger number of graduate and professional students (5.8 people) that they had frequent contact with than reported by Fellows (2.0 people) and Non-Fellows (1.7 people). However, they also reported having less frequent contact with those graduate students.

Overall, the Comparison Fellows are an adequate group with which to compare over time trends and attitudes of Fellows, Non-Fellows, and the two groups combined, despite their small sample size.

Table 2
Background and Beliefs of Undergraduates in ED193 and Comparison Fellows

	NF&F (*N*=301)	F (*N*=148)	NF (*N*=153)	CF (*N*=49)
In high school:				
did volunteer work	85.7	94.3*	80.0*	90.9
worked for nonprofit	48.1	56.1	42.6	48.8
in community service organization	71.4	78.1	67.0	75.0
in religious organization	57.1	57.4	57.0	50.0
tutored others	64.1	58.6	68.0	59.5
Since entering UCLA:				
did community service / volunteered	86.5	88.7	85.0	81.82
In last term (spring '98):				
strong desire to serve community	44.5	48.6	41.6	49.0
taught others	69.9	63.9	74.3	66.7
received tutoring	52.9	52.8	53.0	48.9
saw self as role model	54.3	56.9	52.4	55.8
considered poor study skills as top barrier to academic achievement	32.0	28.4	36.0	29.0
ercent who declared major	89.0	93.3	85.2	84.4
ercent who planned to attend graduate / professional school	98.4	100.0	96.9	100.0
o. hours studied per class	8.1^	7.9*	8.2	6.6^*
o. hours prepared for lecture	4.0	4.3	3.8	3.8
o. hours studied in groups	4.9	4.0*	5.5*	3.7
o. hours serving community	5.1	5.1	5.1	5.4
o. hours received tutoring	1.5	1.7	1.4	1.3
o. graduate / professional students had frequent contact with	1.8^	2.0	1.7	5.8^
	% several times a week			
omplete homework assignments	30.0	29.2	30.7	47.8
Actively participate in class	69.1	60.5	75.3	71.7
eliefs held last term (spring '98):				
I'm responsible for own learning	53.5	52.9	54.0	37.8
mostly my responsibility, with help from teachers and parents	30.6	35.7	27.0	40.0
my teacher and I are responsible	15.3	11.4	18.0	22.2
mostly teachers are responsible with help from student and parents	0.6	0	1.0	0
he best way I learn a concept is by:				
teaching it to others	47.7	47.1	48.0	46.7
reading about it multiple times	23.5	24.2	23.0	20.0
writing about it	15.8	12.9	18.0	17.8
memorizing it	12.9	15.7	11.0	15.6

Note. NF = Non-Fellow; F = Fellow; CF = Comparison Fellow. The symbols *, ^, or # indicate that the two groups are statistically significant at the $p = 0.01$ level.

Effects of ED193 on Fellows and Non-Fellows Compared to Comparison Fellows

Based on experiential education learning theory, Education 193, "Community Service Learning and Student Achievement," involves undergraduates in promoting the academic achievement of high school, junior high school and elementary school students from low-income communities. During the lecture component of the course, students are taught tutorial methods drawn from cognitive learning and motivation theories such as generative, deep processing, attribution, and self-efficacy theories. Service learning and tutorial assistance are also addressed within the context of forming mentor, peer counseling, and personal support relationships. During CBOP discussion sections, students are further trained on the Personal Academic Learning System and supplemental learning tools.

The aim of ED193 is to instill optimal learning techniques in undergraduates, improve their academic performance, and ultimately have them pursue graduate studies with new and directed enthusiasm. Optimal learning techniques are expected first and foremost to improve undergraduates' study habits, beliefs about learning, motivation, confidence, desire to improve, and, ultimately, grades.

To investigate these effects, we examined pre- and post-measures of the Fellows and Non-Fellows who took ED193 in the fall quarter of 1998, and winter quarter of 1999. For the pre-measures we asked students to answer according to their behaviors and beliefs in their last term, either spring 1998 or fall 1998, depending on when they took the ED193 course. We compared these pre- and post-measures to measures of Comparison Fellow behaviors and attitudes collected during early winter quarter 1998 and spring quarter 1999. For these pre-measures we asked the students to answer according to their behavior during fall 1998. The analyses that follow were conducted on the sample of undergraduates who answered both the pre and the post surveys: 152 Fellows and Non-Fellows, of whom 68 were Fellows and 84 were Non-Fellows, and 27 Comparison Fellows. The overall response rates for Fellows, Non-Fellows, and Comparison Fellows were 57%, 555, and 4%, respectively. Return rates for each of the surveys for the three groups are reported in Tables B.1 and B.2 in Appendix B. Findings are reported in Table 3.

Study Habits

To assess student study habits, several questions were asked of the Fellows, Non-Fellows, and Comparison Fellows. They reported the number of hours spent on

Table 3

Effect of ED193 on Fellows and Non-Fellows Compared to Comparison Fellow Trends

	F & NF (*N*=152)		F (*N*=68)		NF (*N*=84)		CF (*N*=27)	
	Pre-	Post-Pre-	Pre-	Post-Pre-	Pre-	Post-Pre-	Pre-	Post-Pre-
Study habits								
No. hours studied per class	8.1^	-0.4	8.1#	0.1	8.2	-0.6	5.9^#	-0.4
No. hours prepared for lecture	4.2	0.6	4.4	1.0	4.0	0.3	3.2	0.7
No. hours studied in group	5.1^	-4.4	4.2	1.1*#	5.7	-0.9*	3.0^	0.0#
PALS Frequency Scale	1.6	0.4^	1.6	0.5#	1.6	0.3	1.5	-0.1^#
Poor study skills top barrier	56.3	-49.7^	57.4	-42.7#	55.4	-55.4	29.6	11.1^#
Self-rating of PALS skills	2.2+	0.3^	2.1~	0.3#	2.3	0.2	2.7+~	-0.2^#
Percent received tutoring	51.7	-6.0	52.9	-1.4#*	50.6	-9.6*	46.2	-9.2#
No. hours received tutoring	3.1	-0.7	3.4	-0.9	2.7	-05	2.8	-0.4
No. grad./prof. students have frequent contact with	1.8	0.5	2.1	0.8#	1.5	0.3	3.9	2.4#
Beliefs about learning								
"Best Way to Learn" scale	3.0	0.5	3.0	0.6	3.1	0.4	2.8	0.0
"Responsible for learning"	3.4	0.0	3.4	0.2*	3.4	-0.1*	3.2	0.0
Ability to change								
Desire to Improve scale	3.2	-0.5^	3.4*~	-0.7#	3.0*	-0.3	2.9~	-0.3^#
Academic Confidence scale	2.4	0.4^	2.4~	0.4#	2.4	0.4	2.9~	-0.7^#
Academic Motivation scale	3.5	0.2	3.6	0.2	3.4	0.2	3.7	-0.1
Civic responsibility								
No. hours devoted to community	5.2	0.7	5.1	-0.2*	5.2	1.5*	6.0	-0.7
Percent taught others	72.2	19.6^	67.6	18.6	75.9	20.4	65.4	1.3^
Percent serve community in future	100	0.0^	100	0.0#	100	0.0	92.3	7.7#^

Note. NF = Non-Fellow; F = Fellow; CF = Comparison Fellow. The symbols *, ^, ~,+, or # indicate that the two groups are statistically significant at the $p = 0.01$ level.

average in a week for a typical class studying for the class, preparing for lectures, and studying in groups, and if they received tutoring and the number of hours they received tutoring. They also reported the number of graduate and professional students with whom they have frequent contact.

In addition, we constructed a scale from nine self-reported items about the frequency of PALS behaviors engaged in for a typical class. The following questions were asked on a 5-point scale (4 = *for every class meeting,* 3 = *most all of the time,* 2 = *half of the time,* 1 = *rarely*, and 0 = *never*).

How often do you:

- read assignments before attending a lecture?
- ask yourself questions from the readings before attending a lecture?
- engage in discussions about readings and assignments with others?
- work in small groups covering class assignments (outside of class)?
- do problem sets before attending a lecture on the topic?
- engage in discussion with other students about what you are learning?
- attend faculty office hours?
- use teaching assistant office hours?
- attend review / study sessions?

In the quarter prior to the course, Fellows and Non-Fellows had very similar study habits (see Table 3); they studied about 8 hours for class, prepared 4 hours for lectures, and studied in groups for a similar number of hours: 4.4 hours by the Fellows and 5.7 hours by the Non-Fellows. Comparison Fellows, on the other hand, reported for fall quarter 1998 fewer hours studied on average (5.9 hours), preparing for lectures (3.2 hours) and studied in a group (3 hours) than either the Fellows and Non-Fellows. These self-reported study hours are only slightly higher than what the American Council on Education (ACE) found for freshman, as reported in the *Chronicle of Higher Education*. ACE reports that less than 6 hours is the maximum per week study time for half of the freshman respondents, and that only slightly more than 3% of the respondents indicated that they studied 20 or more hours. Furthermore, according to Michael Moffatt in his book *Coming of Age in New Jersey: College and American Culture* (1989), there is evidence that this minimal study time is also not evenly spaced, but is spent mostly just prior to tests. However, the difference may be a result of the fact that Fellows, Non-Fellows, and Comparison Fellows are primarily seniors (roughly 40%), not freshman.

ED193 appears to have had a differential effect on Fellows' and Non-Fellows' study habits. The course managed to maintain the Fellows' study habits compared to the slight decline in study and preparation hours by the Non-Fellows and the Comparison Fellows. Non-Fellows and Comparison Fellows studied about half an hour less. Non-Fellows studied 8.2 hours on average for a class prior to ED193, and studied 7.4 hours at the end of the course. Comparison Fellows studied only 5.9

hours during the fall and then studied 5.5 hours for an average class in the spring quarter of 1999.

Additionally, the frequency of PALS behaviors engaged in prior to the course was not significantly different according to the self-reported PALS scale. Fellows, Non-Fellows, and Comparison Fellows reported engaging in PALS behaviors 1 = *rarely* or 2 = *about half of the time* (see Table 3). At the end of the course, however, the Comparison Fellows' frequency of engaging in PALS activities decreased slightly over the course of the academic year, whereas for the Fellows and Non-Fellows, the frequency of PALS activities had increased slightly: +0.5 change in the scale for the Fellows, +0.3 for the Non-Fellows, and –0.1 for Comparison Fellows. At the end of ED193, Fellows and Non-Fellows reported engaging in the PALS behaviors "about half of the time," whereas the Comparison Fellows still reported "rarely," making them statistically different. Thus, ED193 does appear to have slightly increased the frequency of PALS behaviors.

Prior to ED193, slightly more than half of the Fellows (57%) and Non-Fellows (55%), and roughly one third of the Comparison Fellows (30%) considered poor study skills as a top barrier to their academic achievement (see Table 3). After receiving instruction about optimal learning techniques and PALS, very few of the Fellows (14%) and none of the Non-Fellows still considered poor study skills as a top barrier to their academic achievement. However, 11% more Comparison Fellows (41%) considered poor study habits a top barrier. This indicates that through the ED193 course, Fellows and Non-Fellows believed that they had acquired better study skills, and that poor study skills were no longer hindering their academic achievement.

We also asked students to rate themselves on a 5-point scale (where 4 = *excellent*, 3 = *very good*, 2 = *good/average*, 1 = *not so good/mediocre*, and 0 = *lacking/weak/poor*) in a typical class on the following PALS behaviors:

- study skills and habits;
- understanding of lectures;
- understanding of readings and assignments;
- ability to remember course material;
- ability to focus attention during lectures.

We combined their self-ratings of these skills into a composite scale ranging from 0 to 4. Overall, Fellows and Non-Fellows rated their behaviors as "good/average," whereas Comparison Fellows rated themselves higher on the scale (2.7), which is closer to "very good" (see Table 3). This difference is significantly different for the two groups. However, after the course Fellows and Non-Fellows overall rated themselves slightly higher at 2.5—halfway between "good/average" and "very good"—whereas the Comparison Fellows' rating of themselves dropped slightly to also be at 2.5. This indicates that ED193 only slightly increases students' ratings of their own PALS behaviors.

Moreover, the course appears to have had no impact on the percent of undergraduates who received tutoring or the number of hours they received tutoring. Prior to ED193, about half of the Fellows, Non-Fellows, and Comparison Fellows received tutoring. Those receiving tutoring were tutored approximately 3 hours a week. After the course, all three groups had a slight decline in the percent receiving tutoring and the number of hours tutored a week.

Comparison Fellows appear to have had frequent contact with a higher number of graduate or professional students than did Fellows or Non-Fellows. Comparison Fellows reported having frequent contact with four students during early winter and six students by the spring of 1999. The Fellows and Non-Fellows, on the other hand, reported having frequent contact with two graduate or professional students prior to ED193 and approximately three students after ED193. These differences are not statistically significant, but CBOP may want to put more effort into Fellows (and Non-Fellows) having contact with more graduate and professional students.

Beliefs About Learning

At the root of study habits are a person's beliefs about learning. We looked into two concepts of learning that are emphasized as part of PALS prior to and after ED193. Students reported their opinions on the best way to learn a concept and about who is responsible for their learning. These two scales are constructed so that the higher the score, the more in-line your beliefs are with PALS.

"Best Way to Learn" Scale

The best way I learn a concept is:

4 = teaching it to others;

3 = reading about it multiple times;

2 = writing about it;

1 = memorizing it.

"Responsible for Learning" Scale

4 = I'm responsible for my own learning;

3 =Mostly I am responsible, with help from teachers and parents;

2 = My teacher and I are responsible;

1 =Mostly teachers are responsible, with help from student and parents.

Prior to the course, Fellows, Non-Fellows and Comparison Fellows averaged a 3 on the "Best Way to Learn" scale indicating that they believe that the best way to learn a concept is by reading about it multiple times (see Table 3). Comparison Fellows still reported this at the end of the course, whereas both the Fellows and Non-Fellows increased slightly on the scale to halfway between "reading about it multiple times" and "teaching it to others." Hence, ED193 slightly changed a students beliefs and approach to the best way to learn a concept.

Moreover, Fellows, Non-Fellows, and Comparison Fellows, prior to ED193, reported "I'm responsible for my own learning," and "Mostly I am responsible for my own learning, with some help from teachers and parents" (see Table 3). Comparison Fellows did not change their beliefs about learning, whereas Fellows' beliefs shifted slightly more towards "I am responsible for my own learning," and Non-Fellows shifted slightly down towards "Mostly I am responsible for my own learning with some help from teachers and parents." These differences in beliefs, however, prior to or after the course, are not significantly different for the three groups. ED193 did not appear to impact heavily students' beliefs about who is responsible for their learning.

Ability to Change

Besides improving study skills and changing a student's underlying beliefs about learning, ED193 attempts to instill a sense of urgency and ability to change in

students. We operationalized ability to change with three different scales measuring academic motivation, academic confidence, and the desire to improve. The content of each of the scales is outlined below. The scales were constructed as 5-point scales ranging from 0 to 4.

Academic Motivation

Statements were rated using 4 = *yes*, 2 = *somewhat*, and 0 = *no*.

- I am strongly committed to working hard and putting more effort into school.
- My determination to succeed in college keeps me academically on track.

Academic Confidence

Statements were rated using 4 = *excellent*, 3 = *very good*, 2 = *good/average*, 1 = *not so good/mediocre*, and 0 = *lacking/weak/poor*.

- Ability to teach others what you are learning;
- Ability to take tests;
- Confidence before an exam;
- Confidence in my ability to master class material;
- Confidence in my ability to succeed in graduate or professional school.

Desire to Improve

Statements were rated using 4 = *very strong desire to improve*, 3 = *strong desire to improve*, 2 = *average desire to improve*, 1 = *weak desire to improve*, and 0 = *no desire to improve*.

- Academically overall;
- Problem-solving skills;
- Preparation / study skills;
- Motivation to learn;
- Questioning / inquiry skills.

Prior to ED193, Fellows, Non-Fellows, and Comparison Fellows had similar levels of academic motivation (see Table 3). There were slight increases in the academic motivation of Fellows and Non-Fellows; however, the difference is slight and not significantly different than the academic motivation of the Comparison

Fellows, indicating no change in the levels of academic motivation after taking ED193. Thus, ED193 did not appear to affect student academic motivation.

Moreover, prior to ED193, Fellows and Non-Fellows had similar levels of academic confidence; they rated their academic confidence halfway between 3 = *very good* and 2 = *good/average,* at 2.4. After ED193, Fellows and Non-Fellows increased their academic confidence slightly to almost reach "very good," at 2.8. Comparison Fellows, on the other hand, started with a higher level of academic confidence of "very good," at 2.9, but decreased almost an entire scale point by the end of the year; they ended with a rating of 2.2 "good / average." Thus, ED193 stabilized and slightly raised students' academic confidence.

Fellows, Non-Fellows, and Comparison Fellows on average reported that they had a "strong desire to improve" in the last term prior to ED193. At the end of ED193 however Fellows and Non-Fellows reported a slightly lower desire to improve, such that on average they both reported as a group an "average desire to improve." The changes were (barely) statistically different for both groups. Comparison Fellows, on the other hand, did not experience this decrease in their desire to improve; they still reported on average a "strong desire to improve" at the end of the year.

Civic Responsibility

Besides aiming to impact study habits, students' beliefs about learning, and students' ability to change, ED193 could also affect students' desire to teach others or serve the community (see Table 3). Prior to the course, Fellows and Non-Fellows reported spending 5 hours a week serving the community. Comparison Fellows reported a similar number of hours (6.0 hours) devoted to serving the community per week. For the quarter in which students took ED193, Non-Fellows reported an increase of an hour and a half per week devoted to community service—a total of 6.7 hours a week. Fellows, on the other hand, reported 4.9 hours a week, slightly fewer (-0.2) than prior to the course. Comparison Fellows also reported slightly (-0.7) fewer hours at 5.3 hours a week.

During the quarter prior to ED193, 68% of Fellows, 76% of Non-Fellows, and 65% of Comparison Fellows indicated that they had taught others. After ED193, 86% of Fellows and 96% of Non-Fellows reported having taught others; these are large increases. But 68% of Comparison Fellows reported having taught others, which is

almost identical to what they reported for the fall quarter 1998. Thus, ED193 definitely increased the number of undergraduates who taught others. This can be explained by the opportunities for service and teaching accompanying the overall course and the section chosen: LINCS, America Reads, CBOP, or Community Service.

Moreover, Fellows, Non-Fellows, and Comparison Fellows have a strong sense of civic responsibility. Prior to and after ED193, all Fellows and Non-Fellows intended to serve the community in the future. Comparison Fellows also had strong intentions to serve the community in the future: 92% in early winter and 100% in spring.

Student Performance

By promoting students' involvement in their own learning and enhancing the awareness of their own ability to learn, optimal learning strategies may also lead to increases in student's grades. We found that by their participating in ED193, students improved their study habits in terms of the number of hours studied, hours prepared for lectures, and hours studied in groups; increased the frequency that they prepared, studied, asked questions, worked on problem sets, and engaged in discussion about what they were learning; and increased the number of hours they spent teaching others. Combined these changes could lead to better work habits and better grades. In this section, we provide the cumulative and term grade point averages prior to, during, and after ED193 for Fellows, Non-Fellows and Comparison Fellows. For Comparison Fellows these periods are the spring 1998, fall 1998, and winter 1998 quarters. For Fellows and Non-Fellows, these periods depend on the quarter in which they took ED193; if Fellows or Non-Fellows participated in ED193 (or ED197) more than once, we used their grade point averages surrounding the first time they took the course. This was determined by their Degree Progress Reports obtained from the Registrar. In comparing grade point averages it is important to note that the distribution of majors and the distribution of undergraduate's year in college (i.e., freshman) for the three groups are very similar. The majors were primarily political science, sociology, psychology, history, and the designated "Other" category. The Fellows, Non-Fellows, and Comparison Fellows were also primarily seniors; Comparison Fellows tended to be more sophomores than juniors.

Comparison Fellows had a significantly higher cumulative grade point average than Fellows and Non-Fellows in the quarter prior to ED193 despite the fact that their high school and admit grade point averages were similar (see Table 4). Comparison Fellows earned in spring 1998 an average grade point average of 3.29; prior to ED193, Fellows earned a 3.14, and Non-Fellows a 3.00 grade point average. This difference in grade point averages could contribute to why Comparison Fellows decided not to join the CBOP program or enroll in ED193.

More importantly, this overall difference in grade point averages for Comparison Fellows eliminates their value as a benchmark for examining comparative trends for Fellows and Non-Fellows. Despite this, we report their term and cumulative grade point averages along with those of the Fellows and Non-Fellows in Figures 1 and 2.

During spring quarter 1998, fall quarter 1998, and winter quarter 1998, Comparison Fellows and Fellows had a consistent term and cumulative grade point average (Figures 1 and 2). Comparison Fellows also had a slightly higher term and cumulative grade point average compared to the Fellows: 3.3 vs. 3.2, respectively. Fellows, on the other hand, had both a slightly higher term and cumulative grade point average than Non-Fellows prior to ED193, but after ED193, Non-Fellows and Fellows earned the same term and grade point averages. This can be explained by the fact that in the quarter in which Fellows and Non-Fellows took ED193, Non-Fellows received higher term grade point averages and hence increased their cumulative grade point averages. This could be attributed to their grade in the ED193 course, which was an A for practically all Fellows and Non-Fellows. In the

Table 4

Grade Point Averages of Undergraduates in ED193 and Comparison Fellows (*N*=350)

	NF&F (*N*=301)	F (*N*=148)	NF (*N*=153)	CF (*N*=49)
Percent male	28.7	28.1	29.2	32.6
Percent transfer students	20.1	21.1	0.0	24.4
Grade point averages				
High school GPA	3.90	3.89	3.97	3.90
Transfer GPA	3.05	3.05	—	3.25
Admit GPA	3.72	3.71	3.97	3.74
umulative GPA prior to ED193	3.07^	3.14#*	3.00*	3.29^#

Note. NF = Non-Fellow; F = Fellow; CF = Comparison Fellow. The symbols *, ^, or # indicate that the two groups are statistically significant at the $p = 0.01$ level.

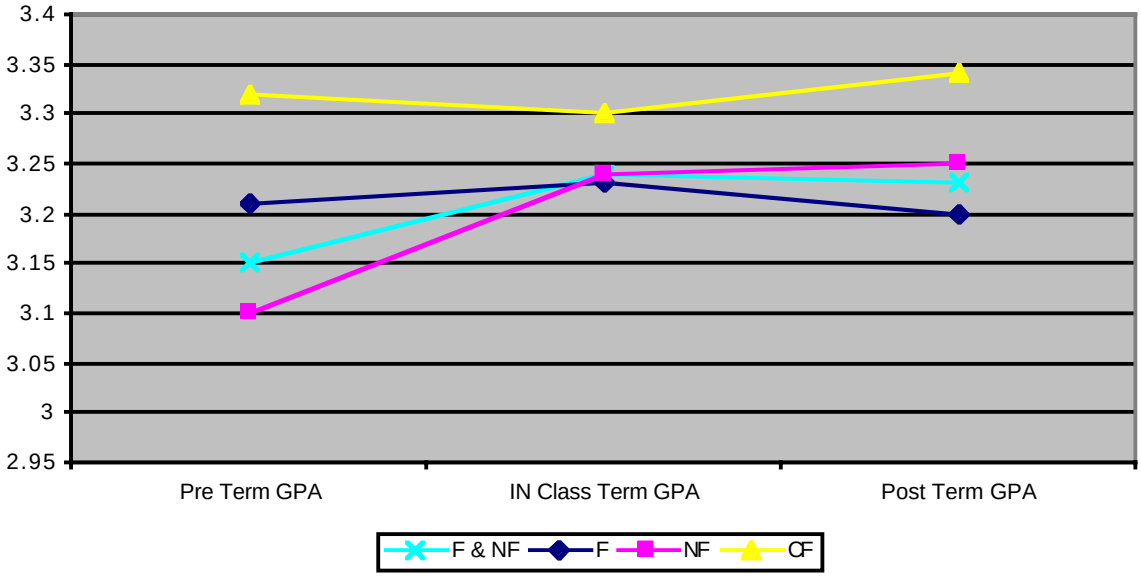

Figure 1. Term grade point average prior to, during, and after ED193 for Fellows, Non-Fellows, and Comparison Fellows.

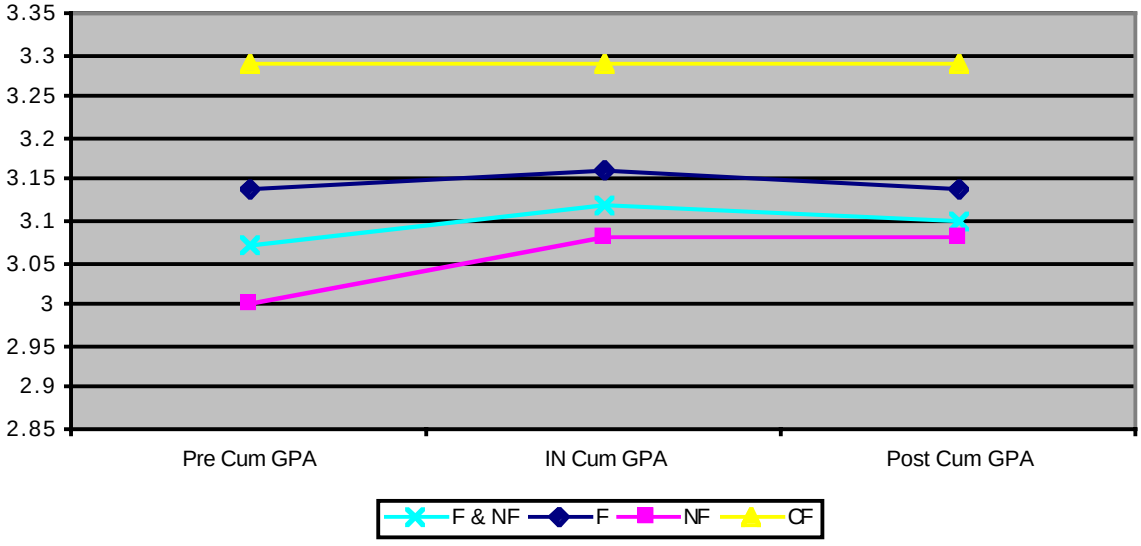

Figure 2. Cumulative grade point average prior to, during, and after ED193 for Fellows, Non-Fellows, and Comparison Fellows.

term immediately following ED193, Fellows' term grade point averages remained the same (from 3.23 to 3.20), as did the term grade point averages for the Non-Fellows (from 3.10 to 3.25).

As a result, the Fellows' and Non-Fellows' cumulative grade point averages stayed the same. This suggests that the ED193 course improved Non-Fellows' grades slightly during the quarter that they took the course. The course does not seem to have impacted Fellows' term or cumulative grade point averages, however. Also, in the quarter immediately following ED193, Non-Fellows were able to maintain the slightly higher term grade point averages. Overall, the impact on grades from ED193 was non-existent for Fellows and slight for Non-Fellows, equalizing their overall cumulative grade point averages.

What Are the Effects of Teaching and Mentoring High School Students?

Teaching optimal learning techniques to high school students and mentoring them about the process of achieving access to higher education is expected to deepen the undergraduate's own knowledge of how to be an optimal learner in areas such as study habits, beliefs about learning, ability to change, and self-esteem. In addition, those students providing the service are expected to have an increased sense of civic responsibility, such as a stronger desire to teach and serve, be a role model, mentor others, and reach out to their communities.

To investigate these effects, we have pre- and post-service learning measures for the Fellows (January 1998 and spring 1999). Table 5 reports pre-ED193, pre-service learning, and post-service learning measures for the Fellows only. We also report the Fellows' answers to open-ended questions about the reasons they were willing to spend time mentoring high school students and the challenges they faced at the high schools. The quantitative and qualitative analyses that follow are conducted only for the sample of Fellows. Findings are reported in Tables 5 through 7. The construction and definition of the measures and scales reported in this section are described.

Fellows' study habits and skills were different after service learning as compared with prior to service learning and prior to the ED193 course. Students reported studying slightly fewer hours per class and preparing less for lectures than prior to service learning and the ED193 course, and studying about the same number of hours in groups as they did prior to service learning and ED193. However, when they were asked to report how often they engage in specific PALS behavior (PALS frequency scale) and asked to rate their PALS skills (self-rating of PALS skills), the findings suggest that Fellows were implementing PALS as often as they were in the course and that their skills (study skills and habits, understanding

Table 5

Effect of Mentoring High School Students on Fellows

	Pre-ED193 (*N*=72)	Pre-SL (*N*=7)	Post-SL (*N*=3)
Study habits			
No. hours studied per class	8.1#	8.3*	7.3*#
No. hours prepared for lecture	4.4	5.4*	3.6*
No. hours studied in group	4.2	5.3*	4.1*
PALS Frequency Scale	1.6	2.1	2.1
Poor study skills top barrier	57.4^	14.7^*	14.7*
Self-rating of PALS skills	2.1	2.5	2.8
Percent received tutoring	52.9#	51.5*	38.5*#
No. hours received tutoring	3.4#	2.5	2.3#
No. grad / prof. students have frequent contact with	2.1	2.9*	1.3*
Beliefs about learning			
"Best Way to Learn" scale	3.0	3.6	3.5
"Responsible for Learning"	3.4	3.6	3.7
Ability to change			
Desire to Improve scale	3.4	2.7	2.7
Academic Confidence scale	2.4	2.8	2.4
Academic Motivation scale	3.6	3.8	3.8
Serving and teaching			
No. hours devoted to comm.	5.1	4.9	6.0
Percent taught others	67.6#^	86.2^	92.3#
Percent motivated to be role model in community they serve	27.8^	99.0^	100.0
Percent serve comm. in the future	100.0	100.0	100.0
No. future volunteer hours a week	—	7.4	6.5
Rosenberg Self-Image Scales[a]			
Self Esteem: high=1,=2; medium=3,=4; low=5,=6	—	1.0	0.7
Interpersonal Threat: high=3; medium=2; low=1	—	1.3	1.0
Intensity of Discussion: high=2; low=1	—	1.2	1.4

Note. SL = Service Learning. The symbols *, ^, or # indicate that the two groups are statistically significant at the $p = 0.01$ level.

[a] Rosenberg, M. (1965). *Society and the adolescent self-image* (Princeton, NJ: Princeton University Press), pp. 304-319.

lectures, understanding readings and assignments, remembering course material, and focusing attention during lectures) had increased. In addition, fewer Fellows were receiving tutoring as compared to prior to service learning (38.5% compared to

51.5%), although those that were receiving tutoring were tutored the same number of hours per week (2.3 hours). Fellows also had frequent contact with more graduate and professional students during ED193 (2.9 students) than after service learning (1.3 students).

This suggests that Fellows improved their study skills and engaged in PALS behaviors. The impact of this improvement can be seen through the lower number of Fellows who needed tutoring. However, Fellows may also have had constraints on their time during the quarters they provided service learning to Scholars, which cut into the amount of time they could spend on certain activities such as studying per class, preparing for lectures, and meeting with graduate and professional students.

Mentoring high school students does not seem to have affected Fellows' beliefs about learning, their desire to improve or their academic motivation over and above the impact of the ED193 course. Curiously, the Fellows' academic confidence appeared to be affected only during the ED193 course. The Fellows' self-reported academic confidence after service learning was identical to the pre ED193 rating: 2.4 on the 5-point scale, with 2 = *good average* and 3 = *very good*. The Fellows rated themselves at 2.8 during ED193. Thus, it appears that mentoring the high school students did not help Fellows maintain their overall academic confidence across several areas: ability to teach others what you are learning, ability to take tests, confidence before an exam, confidence in my ability to master class material, and confidence in my ability to succeed in graduate and professional school.

Service learning did appear to enhance the Fellows' civic responsibility and self-image. After their experience of mentoring high school students, all the Fellows were motivated to be role models in the community. All of the Fellows also continued to plan to volunteer in the future and volunteer roughly 7 hours per week. During their mentoring experience, they reported devoting roughly 6 hours a week to the community, which is about an hour more a week than reported prior to service learning and the ED193 course. It is unclear however whether the 6 hours a week was all devoted to CBOP. Fellows could be making the trade-off between mentoring high school students with CBOP and devoting time to other community service work. Fellows could also be including in this calculation their prep time and the driving time to the high school sites. More Fellows also reported teaching others during the time they were mentoring the high school students, which is to be expected since part of their responsibility with CBOP is a teaching function.

In addition, Fellows' ratings on Rosenberg's self-image scales of self-esteem, interpersonal threat, and intensity of discussion prior to and after their service learning experience indicated no statistically significant changes; however, the slight movements were all consistently in positive directions. Fellows maintained a high self-esteem rating (1=high), a low interpersonal threat rating (1=low) and a medium to low intensity of discussion rating (1=low) prior to their service learning and after it. Refer to Appendix D (pp. 305-319) in Morris Rosenberg's book *Society and the Adolescent Self-Image* (1965) for the construction and content of the scales and scores.

Reasons Fellows Are Willing to Mentor

Since there are many reasons why an undergraduate would decide to dedicate his or her time to CBOP, we asked Fellows to rate how much each of the following four reasons contributed their decision to be involved in CBOP: serving the community, acquiring teaching experience, getting into graduate school at UCLA, and getting into graduate school in general. Sixty percent of the Fellows in January 1999 reported that serving the community was the most important reason to be involved in CBOP. Acquiring teaching experience was the most important for 6% of the Fellows, whereas both serving the community and acquiring teaching experience were the most important reasons for 20% of the Fellows. Ten percent of the Fellows also indicated that getting into graduate school at UCLA was their most important reason for participating, and another 4% indicated that getting into graduate school in general motivated their participation.

Fellows were also asked to respond to the following open-ended question: "What are the primary reasons that you are willing to spend time mentoring high school students?" Their answers fell into nine categories: helping the community / making a difference; increasing student achievement; provide college preparation; personal circumstances of Fellow drives them; increase leadership among high school students; provide support and mentoring; test preparation; increase diversity; and gain teaching experience (Table 6).

A quarter of the Fellows devoted their time to mentoring high school student to "make a difference, no matter how small or big." Nineteen percent wanted to increase student achievement. Better said in the words of a Fellow, "I want to inspire them, light a fire in them, and give them some of my drive and determination to achieve."

Table 6

Reasons Fellows Are Willing to Devote Time to High School Students (*N*=69)

Reason	Percent
Helping the community / Making a difference	22
Increasing student achievement	19
Provide college preparation	13
Personal circumstances of Fellows drives them	9
Provide support and mentoring	7
Diversity	4
Increase leadership among students	3
Provide test preparation	1
Gain teaching experience	1

Providing preparation for college was another reason stated by 13% of the Fellows, but their answers contained several aspects of college preparation. For example, one Fellow explained it as "I feel these kids need to have role models. It demystifies the college experience and makes it something attainable for them." Another state, "These students do not have a link to a college or knowledge of how to get there. Through this program we have become that link." And yet another, "To conquer the fear and help just one student to see a new way of learning and help that one to prepare for college." One Fellow in particular captured the essence of CBOP: "I never had the chance to be mentored in high school. I never had too many people who believed in me. I want to be able to show these children that I will help them get into college. I really care and dreams are possible; college is possible. I also have a dream to go to law school some day."

Primary Challenges Mentoring High School Students

The high schools where the Fellows mentored students were diverse and not without their resource and social issues. Therefore, to help improve the experience of mentoring high school students and provide feedback to CBOP, we asked the Fellows several survey questions about barriers, resource issues, and social issues, and the following open-ended question, "What are the primary challenges that you faced mentoring the high school students?"

For each of the survey questions, roughly half of the Fellows reported that there were no barriers, resource issues, or social issues that we listed that affected them. Of those reporting barriers, half of the Fellows reported that the top three

barriers that they faced with the high school students were students not completing homework (29%), poor time management (16%), and students not understanding the material (13%). Of those reporting resource issues affecting their ability to work with the high school students, the primary barriers were not having access to books / computers (19%) and poor conditions of school facilities (16%). Finally, of those who reported social issues, the top three social issues that the Fellows felt influenced the academic success of the high school students were family commitments (43%), students giving into peer pressure (21%), and personal safety of students (11%).

Again, when Fellows were asked about the primary challenges faced by the high school students they mentored, nearly half indicated "none." For those who responded, the answers fell into ten categories of challenges: time constraints; difficult to build a trusting relationship; low commitment of high school students; high school students don't complete assignments; unclear expectations of our jobs as Fellows; keeping interest of students and presenting material in an interesting manner; lack of resources and support from CBOP; low English and writing ability of high school students; difficult to instill the need to change in students; and the timing of the sessions (Table 7). Time constraints were considered the largest challenge, as reported by 13% of the Fellows.

Table 7

Primary Challenges Fellows Faced Mentoring High School Students (*N*=69)

Challenges	Percent
None	46
Time constraints	13
Difficult to build a trusting relationship	7
Low Commitment of high school students (low attendance, timeliness, and high drop out rate)	7
High school students don't complete assignments	6
Unclear expectations of our jobs as Fellows	4
Keeping the interest of students and presenting material in an interesting manner	4
Lack of resources and support from CBOP	3
Low English and writing ability	3
Difficult to instill the need to change	3
Timing of the sessions (i.e., mornings)	1

How Have Fellows' Academic Aspirations Changed as a Result of CBOP?

Moving from the effects of mentoring high school students to the potential effects on Fellows of themselves being mentored and receiving special services, this section explores the impact of CBOP on Fellow's academic aspirations. Indicators used to measure these effects include a student's decision to declare a major or to pursue graduate or professional school, take standardized tests (e.g., GRE, LSAT, etc.), and take specific action to gather information about graduate / professional school options. We compare these measures of academic aspirations for the Fellows, Non-Fellows, and Comparison Fellows.

Results show that Fellows, Non-Fellows, and Comparison Fellows had similar percentages of students who had declared a major in the fall of 1998 with little increase over the academic year 1998-99 (Table 8). Of the approximately 15% in each group that had not declared a major in fall 1998, only one Fellow, two Non-Fellows, and one Comparison Fellow decided to declare a major by the end of the evaluation period. This is not surprising considering that roughly 40% are seniors and 30% are juniors.

The majors most commonly declared were similar for the Fellows, Non-Fellows and Comparison Fellows. Psychology, sociology, political science, history, and "Other" were the top four choices of major in these groups. Fellows selected political science, psychology, sociology (at 11.1% each), history (10%), and "Other" (29.6%). Non-Fellows leaned substantially more toward psychology and sociology (32 and 16.7%, respectively), with 8% choosing history, 4% political science, and 14% choosing "Other." Comparison Fellows mostly majored in political science and psychology (10.5% each), history (8%), and sociology (3%), with 39.5% choosing "Other." None of the students in any of the three groups declared anthropology or geography as a major.

Table 8

Declaration of Major and Plan to Attend Graduate School

	F & NF (*N*=197)	F (*N*=92)	NF (*N*=105)	CF (*N*=49)
Percent declared major	89.0	93.3	85.2	84.0
Percent planning to attend graduate / professional school	98.4	100.0	96.9	100.0

Note. F = Fellow; NF = Non-Fellow; CF = Comparison Fellow.

When asked in what area they would most like to pursue a career, respondents in all groups had Education as the top choice, with 47.1% of Non-Fellows indicating Education. Fellows became significantly more interested in Education over the course of the year, moving from 19.6% in the fall to 31.1% by the spring. Law and Medicine were, respectively, the second and third most popular career areas for Fellows, whereas Comparison Fellows chose Business second and Law third. Non-Fellows differed in that they consistently chose Social Welfare second (following Education), and their third choice changed from Business to Medicine between the fall and the spring.

Finally, virtually all Fellows, Non-Fellows, and Comparison Fellows already indicated at the outset of the 1998/99 school year that they planned to attend graduate or professional school, with one additional Non-Fellow deciding by the end of the evaluation period to attend a graduate or professional school.

Even though virtually all of the Fellows, Non-Fellows, and Comparison Fellows planned to attend a graduate or professional school, all of them may not have taken actions that would prepare them for graduate school or have them admitted. Fellows, Non Fellows, and Comparison Fellows were asked a range of questions regarding specific steps they may have taken in preparing to apply to graduate school, such as collecting information about graduate schools, attending orientations and workshops, and taking standardized tests.

Moreover, Fellows, Non-Fellows, and Comparison Fellows were asked whether they had gathered information about graduate and professional schools including information on application, financial aid, campus life, specific faculty, reputation, average time to degree, and alumnus (Table 9). Results show that, by spring quarter 1999, Fellows had significantly higher rates of gathering information on campus life, specific faculty, reputation, average time to degree, alumni, scholarship/financial aid information, and information on obtaining applications compared to Non-Fellows or Comparison Fellows.

Table 9

Percentage of Undergraduates Seeking Information on Graduate / Professional School Options Over the Course of 1997 / 98

	F & NF (*N*=268)	F (*N*=119)	NF (*N*=149)	CF (*N*=46)
Application	55.6^	70.6*#	43.6#	32.6*^
Financial aid / Scholarships	45.2^	59.7*#	33.6#	26.3*^
Campus life	44.4	60.5*#	31.5#	45.6*
Specific faculty	32.8	45.4*#	22.8#	34.8*
Reputation	51.9	65.6*#	41.0#	43.5*
Average time to degree	45.9	58.8*#	35.6#	39.1*
Alumnus	28.7^	37.0*#	22.2#	19.5*^

Note. F = Fellow; NF = Non-Fellow; CF = Comparison Fellow. The symbols *, ^, or # indicate that the two groups are statistically significant at the $p = 0.01$ level.

Fellows also reported much higher participation in orientations and workshops at graduate schools, which makes sense in light of their sponsorship by the CBOP professional school partners. However, Fellows, Non-Fellows, and Comparison Fellows reported approximately the same levels of satisfaction with informational presentations and access to faculty at graduate / professional schools in the beginning of 1997 / 98. Fellows' satisfaction increased very slightly over the academic year 1997 / 98, whereas Non-Fellows and Comparison Fellows showed a minimal decrease. These slight shifts, however, are not statistically significant.

Our self-reported survey data show Fellows having taken fewer standardized tests than both Non-Fellows and Comparison Fellows. In fall 1998, Fellows had not taken any standardized tests other than the SAT, whereas Non-Fellows and Comparison Fellows showed between one and four students having taken some of the other tests (LSAT, GRE, MCAT, CBEST, and GMAT). By spring quarter 1999, four of the Fellows surveyed had taken the GRE, though similar increases also took place among Comparison Fellows. When asked what tests they planned to take, Fellows appeared to plan on taking the MCAT and CBEST more than the Comparison Fellows and the LSAT and the MCAT more than the Non-Fellows (Table 10). However due to missing data in these fields, we believe that these numbers may not accurately reflect the true test-taking trends of 1998-99. Anecdotally, we know from professional school interviews that some of the test prep courses were very popular, in particular the GRE and LSAT courses.

Table 10

Percentage of Undergraduates Planning to Take Standardized Tests

	F (*N*=119)	NF (*N*=149)	CF (*N*=46)
LSAT	22.7#	9.3#*	18.4*
GRE	36.0	37.6	32.7
MCAT	16.8#^	7.4#	8.2^
CBEST	13.4^	22.8*	3.3*^
GMAT	3.4	3.3	2.0

Note. F = Fellow; NF = Non-Fellow; CF = Comparison Fellow. The symbols *, ^, or # indicate that the two groups are statistically significant at the $p = 0.01$ level.

Giving and receiving mentoring is a key component of the CBOP services to the Fellows. Fellows receive mentoring from graduate and professional school partners as a way of providing Fellows with personal guidance, motivation, and role models for pursuing their goals. Our research shows that mentorship services differed somewhat between the graduate/professional schools. The majority of schools officially matched each Fellow with a volunteer graduate student and/or faculty mentor to meet with on an optional basis. One of the professional schools required one formal and two informal meetings per month between Fellows and their graduate student mentors, and also provided a voluntary mentorship/internship opportunity with a professional in the field. One of the graduate school partners does not have a formal mentoring program, although its Fellows interact with graduate students, professors and alumni in the context of other events and activities, such as networking dinners and academic workshops.

Half of the Fellows (51.7%) reported receiving mentoring from graduate and professional schools, whereas none of the Non-Fellows reported this type of mentoring. Additionally, 44% of the Comparison Fellows reported receiving mentoring from graduate and professional schools, which is not statistically different than for the Fellows. We also found that Fellows spent a significantly higher total number of hours with graduate and professional school mentors than did both Non-Fellows and Comparison Fellows. During the fall quarter 1998, Fellows reported spending an average of 15 hours with graduate student and/or faculty mentors, whereas Non-Fellows and Comparison Fellows spent an average of 5 hours.

In short, Fellows appear to have taken more action to become informed about graduate and professional schools, apply to them, and submit financial aid information. Fellows also attended more orientations and workshops provided at graduate schools and received more mentoring.

IV. RESULTS: WHAT IS THE EFFECT OF THE CBOP SERVICES PERFORMED BY CBOP FELLOWS ON SCHOLARS?

The Career Based Outreach Program aims to enhance the academic development and aspirations of the high school students participating in CBOP. The CBOP activities set up to accomplish this goal are (a) learning the PALS system via weekly Fellow instruction; (b) providing Saturday and Off-track Enrichment Programs; and (c) mentoring and counseling support via the individualized academic plans, tutoring, and direct mentoring by the Fellows. We looked into the impact of these activities on the Scholars in terms of their academic attitudes and behaviors.

Optimal learning techniques supported by enrichment programs are expected to affect high school students' study habits and beliefs and ultimately their grades. Mentoring and counseling support are intended primarily to provide students with information and guidance about what classes to take to prepare them for college and to increase their chances for admission to UC.

To understand the effect of these CBOP services, we compared the participants in the program identified as Scholars and a group of randomly selected non-participants identified as Comparison Scholars.[5] (Refer to Appendix C and Table C.1 for a detailed discussion of the selection process and the numbers of Scholars and Comparison Scholars that were randomly selected or in a comparison class.) This comparison group provided us with a comparative benchmark of habits, beliefs, and behaviors of similar high school students from which to gauge the effects of CBOP participation.

The next part of this section reviews the impact of CBOP services on high school students in three broad areas of analysis.

[5] Comparison Scholars at two of the high school evaluation sites were not identified via random selection, but were identified as a comparison group because of their enrollment in an honors course similar to the honors course chosen by the group of Scholars.

First, we describe the high school context in which the Scholars operated, particularly in terms of its college preparatory process. We use UC eligibility numbers and high school course-taking patterns as school-level benchmarks. (Course taking and UC eligibility are also being tracked at the individual level for participating Scholars and their comparison group.) We describe the high school counseling environment in the six evaluation sites. These variables also reflect environmental factors that CBOP expects to influence over time through ongoing support to high school students via mentoring and tutoring at each of the high school sites.

Next, we describe the background characteristics and beliefs of the Scholars and Comparison Scholars, including (a) student characteristics, (b) students' prior service during high school, (c) student beliefs about learning, (d) students' study habits, and (e) their academic aspirations.

Finally, we look more closely at the change in study habits, beliefs about learning, ability to change, and measures of serving the community to understand the impact of CBOP services.

High School Performance of CBOP Partner Schools

All of UCLA's outreach efforts aim to increase the UC competitive eligibility of high school students. To monitor progress towards this goal, Table 11 provides the eligibility numbers for all 19 CBOP partner schools, the 15 LAUSD schools, and the three Partner schools in Lynwood and Inglewood USDs for 1996/97 and 1997/98.

Table 11

Competitively Eligible and UC Eligible Graduates in CBOP Partner Schools in 1996/97 and 1997/98

	1996/97			1997/98		
	Comp. eligible	UC eligible	Total eligible	Comp. eligible	UC eligible	Total eligible
15 LAUSD high schools	—	—	—	111	330	441
Three high schools in Lynwood and Inglewood USDs	—	—	—	5	51	56
Totals	105	324	429	116[a]	381[a]	497[a]

[a] These totals are missing St. Bernard's High School, which is a private school for which we do not have data.

However, because CBOP began its outreach efforts with a cohort of 10th graders in 1997/98 and a cohort of 9th graders in 1998/99, these eligibility numbers do not reflect any impact from CBOP and are provided only to establish the baseline trend of eligibility in CBOP Partner Schools. Over time, UCLA aims to:

- increase the number of eligible graduates from 429 UC eligible CBOP high school students in the 19 partner schools in 1997 to 858 in 2002;

- increase the number of competitively eligible graduates from 105 UC eligible CBOP high school students in the 19 partner schools in 1997 to 260 in 2002; and

- have every partner CBOP high school graduate 10 or more students who are competitively eligible for admission to UC.

In addition to UC eligibility measures, additional student-level and school-level benchmarks are being monitored as measures of progress towards increasing competitive eligibility at the CBOP Partner High Schools. Table 12 reports the student-level benchmarks for all 15 LAUSD schools (Overall, Magnet, and Non-Magnet), and for the three LAUSD evaluation sites. Table 13 reports the school-level benchmarks for these same groups of schools. Note that we were not able to negotiate and obtain student-level district data from Lynwood and Inglewood USDs during 1997/98, but we hope to be able to do so in subsequent years. Additionally, the data reported for LAUSD are for 1997/98. The data for 1998/99 will be received from the district during the late summer of 1999, after they have been verified and compiled by the Los Angeles Unified School District. Refer to Appendix E for a description of the data elements, a list of the benchmarks, a list of the schools (Magnet and Non-Magnet), and how the benchmarks were constructed and calculated.

During the 1997-98 academic year, the median percentile on the reading portion of the SAT 9 for the 15 LAUSD CBOP schools was 23.1. For the three evaluation schools the percentile rank was slightly lower, at 19.0. On the math portion of the test the 15 LAUSD CBOP schools had a percentile rank of 31.9. The percentile rank for the three evaluation sites on the math test was 29.4. Magnet school percentiles were higher for the overall CBOP schools and the evaluation schools in both reading and math.

Table 12

Student-Level Benchmarks for the 15 LAUSD High School Partners and the Three LAUSD Evaluation Sites

1997/98	15 LAUSD #	15 LAUSD %	Non-magnet #	Non-magnet %	Magnets #	Magnets %	Three LAUSD evaluation sites #	Three LAUSD evaluation sites %	Non-magnet evaluation sites #	Non-magnet evaluation sites %	Magnet evaluation sites #	Magnet evaluation sites %
No. of students enrolled	48086		43169		4917		12360		11431		929	
No. of 9th graders	14687						2521					
No. of 10th graders	11112						1913					
No. of 11th graders	7899						1491					
No. of 12th graders	6360						1217					
Taken SAT			2947	6.8					813	7.1		
Mean SAT math				417						414		
Mean SAT verbal				407						398		
Taken SAT2			1100	17.2			368	18.9				
Mean %ile SAT9 reading (no. taking test)	21902	23.1	19630	19.6	2909	42.1	5689	19.0	5060	17.0	629	34.8
Mean %ile SAT9 math (no. taking test)	22322	31.9	20043	28.0	2920	51.7	5728	29.4	5103	27.1	625	48.2
9th and 10th graders passing algebra/ integrated math I FALL	10044	20.3	9174	18.6	819	33.33	2406	19.3	2242	18.3	164	33.5
SPRING	9448	18.7	8327	17.4	781	30	2141	17.3	2001	16.2	140	32.9
9th, 10th, and 11th graders passing geometry/ integrated math II FALL	7028	24.6	6319	22.3	1102	28.5	1971	24.9	1732	24.1	239	22
SPRING	6407	24.9	5651	21.3	1012	36.3	1766	26.6	1551	24.7	215	26.4
10th, 11th, and 12th graders passing chemistry FALL	5102	30.4	3842	28.3	1101	34.9	1230	23.7	1021	24.1	209	22
SPRING	4414	33.9	3303	31.2	991	39.5	1068	31.1	881	31	187	31.6
11th and 12th graders passing physics FALL	1122	46.2	797	44.4	289	50.9	375	40.5	288	40.3	87	41.4
SPRING	927	53.7	660	49.2	237	63.3	311	46	239	43.9	72	52.8

Table 13

School-Level Benchmarks for the 15 LAUSD High School Partners and the Three LAUSD Evaluation Sites

1997/98	15 LAUSD #	15 LAUSD %	Non-magnet #	Non-magnet %	Magnets #	Magnets %	Three LAUSD evaluation sites #	Three LAUSD evaluation sites %	Non-magnet evaluation sites #	Non-magnet evaluation sites %	Magnet evaluation sites #	Magnet evaluation sites %
Graduates UC eligible	330	5.2					99	9.2				
Graduates competitively eligible	111	17.4					15	1.3				
Total graduates eligible	441	6.9					114	10.6				
A-F completion		64						60				
Mean number of AP courses offered	17.85		17.87		17.82		21		23.3		18.67	
11th and 12th graders enrolled in AP	15636	16.7					4118					
11th and 12th graders taking AP exam	2618	79.8					802	19.5				
11th and 12th graders who took and passed AP exam with 3 or better	2089						585	72.9				
Receiving AFDC												
Mean drop-out rate		29						24				
Teachers with BA				8.28						4.21		
Teachers with MA		97						97				
		42						38				

Critical to UC eligibility is the completion of the A-F requirements. Central A-F courses include Algebra or Integrated Math I, Geometry, or Integrated Math II, Chemistry, and Physics. In the 15 LAUSD CBOP schools 20.3% of 9th and 10th graders enrolled in Algebra passed with a B or better for the fall semester. In the spring semester this number dropped to 18.7%. Magnet schools had 12-13% more students passing the course with a B or better than the non-magnet schools. Numbers for the three evaluation sites were comparable to the overall numbers.

Passing rates for 9th, 10th, and 11th graders enrolled in Geometry or Integrated Math II were similarly low. About 25% of students enrolled during the fall and spring semesters of the 1997-98 school year passed with a B or better. Again, magnet schools had a higher percentage of students passing with a B or better. This effect was much smaller for geometry than for algebra.

The percentage of students passing Chemistry during their sophomore, junior, or senior year was higher at 30.4% for the fall term and 33.9 for the spring term in the overall 15 schools. This increase at least partially reflects the smaller number of students enrolled in the higher level courses and the smaller number of students enrolled in the higher grades due to drop-out rates.

A similar increase is seen in the percentage of students passing Physics with a B or better. During the spring term, 53.7% of the juniors and seniors enrolled in Physics passed with a B or better. Over 63% of students enrolled in physics at the magnet schools passed with a B or better. The percentage of students passing with a B or better at the three evaluation sites was less than the overall.

Ultimately, 64% of the students graduating from the 15 LAUSD CBOP schools completed the A-F requirements, as estimated by the University California Office of the President (UCOP). In the three evaluation schools 64% of students completed the requirements. As a result, 6.9% of the overall graduates in 1997/98 were UC eligible, as estimated by UCOP. For the three evaluation sites 10.6% of graduates were eligible.

Another factor in student eligibility is AP courses. The average number of AP courses offered at the 15 LAUSD CBOP schools was 17.85 and at the three evaluation sites was 21. Across all schools 15,636 students were enrolled in AP courses. Of these students, 2,618 took AP exams and 2,089 who took the exam passed the exam with a 3 or better. A slightly larger percentage of the students taking AP courses at the three evaluation sites took the exam (19.5%). Yet, a smaller percentage of these

students who took the exam passed with a 3 or better (73%).

Finally, 97% of teachers at the CBOP schools have a bachelor's degree. At the evaluation sites, 42% had a bachelor's degree, while 38% had a master's degree.

High School Counseling Environment

In addition to existing student-level and school-level outcome data collected from district files and high school transcripts, interviews with counselors at each of the evaluation sites provided a rich context and comparison base for understanding the high school students' course-taking and counseling experiences. During the spring of 1999, the coordinators of the CBOP High School Team and counselors from each of the six evaluation sites were interviewed. The goal was to obtain data about the baseline counseling environment and courses offered at the high school level. Program staff and counselors were interviewed about (a) their school's approach and organizational structure for preparing students for college, (b) the implementation and integration of CBOP into their college preparatory efforts, (c) counseling activities at the high school site, (d) parental involvement in college preparatory issues, and (e) their high school's relationship to UC and their role in promoting UC as an option for their students.

Each school's approach and organizational structure for preparing students for college varied. Each school's objectives and approach to ensuring that students are provided with the necessary resources and support to meet the criteria for admissions into a UC or four-year college or university appeared to be related to the specific needs of the particular school's student population, and the ability of the school's teachers, staff and administrators to provide students with the needed personal and academic support within a specific context.

Three areas appear key in each school's approach: (a) academic programming, (b) college preparatory programs, and (c) college counseling and support. All six schools offered a variety of support and resources to students throughout the academic year. Students, teachers, parents, and school staff were viewed as essential components to ensuring students academic achievement and success.

Academic Programming and Class Placement

Counselors interviewed at each of the six evaluation sites worked within guidelines provided by the state of California and their respective school districts to provide students with ongoing, systematic programming throughout the academic

year. In this capacity, counselors play an integral role in ensuring that each student is enrolled in the required courses for their specific grade level, and that these classes are in line with California state-mandated requirements, the specific school district requirements, and the A-F requirements for admissions into a four-year college or university. Depending on the specific school site and the student's grade level, counselors' may use a variety of criteria to determine a student's class placement. Factors considered are the student's academic performance, standardized test scores, grade point average, and interests.

According to the six counselors interviewed, their primary responsibilities as counselors included programming or class placement, conducting parent conferences as determined by a student's academic progress, and providing students with ongoing academic and personal support. At each of the school sites, counselors worked with students to program them for academic classes and provide them with general academic advisement as it relates to class choice twice per academic year. In addition to programming and class placement, counselors also conduct parent conferences, and offer personal and emotional support to students in need. Some also recruit at feeder middle schools.

At all six of the evaluation sites, the counselors work with students via one-on-one programming or group scheduling to make sure that students understand state graduation and four year college or university admissions requirements. According to all six of the counselors interviewed, all students are initially programmed to meet the 220 academic credits required for graduation in the state of California, in addition to the academic requirements for admission into a four year college or university. Academic plans are contoured to the individual student academic performance and interests. For entering freshmen, academic plans are based on math and English placement, standardized test scores and teacher recommendations. For continuing students, placement is based on courses given to students at the 9th-grade level. Plans are then altered depending on the academic performance of the student, teacher recommendations, and student interests. However, one of the six counselors indicated that his decisions are rarely based solely on a student's standardized test score(s). In his opinion, standardized test scores are culturally and racially biased and often not the best indicators of a student's potential. The additional factors that come into play when programming students are what parents have to say, the student's demonstrated motivation to work hard in academic courses, or the student's ability to seek out additional

resources needed to excel. All of the counselors interviewed acknowledged the integral role student's interest plays in class placement.

Currently three of six counselors interviewed use an individualized academic plan or "mini-cum" to facilitate understanding and monitor students' academic progress. The plans are determined by semester and are based on grade-level requirements. One of six counselors interviewed uses student-monitored evaluation sheets where students document the classes they have taken, the grades they received in each of the courses, and the requirements they have yet to meet. Another of the six counselors interviewed discussed an individualized four-year plan that the school is currently working to put in place during the 1999-2000 academic year. At this school, freshmen will be programmed using the newly developed academic plan. It will outline grade-level requirements across four years, and graduation requirements. Students and counselors will work collaboratively to create a tentative four-year plan. At the end of each academic year, counselors will work with students to review their progress in reaching their goals, and make any needed adjustments as demanded by a student's record of academic achievement and or change of interests. Students will also be asked to identify academic or vocational plans beyond high school. A complete academic plan will show four years fleshed out, in addition to the student's "Career Pathway Profile." According to the counselor, the district hopes that a comprehensive plan will encourage students to become more focused and take an active role in thinking about and developing long-term academic and career plans.

An individual school's systematic approach to placing students in the appropriate courses appears directly related to the size of the student population and the number of counselors on staff per each academic track or year. Five of the six counselors interviewed worked in schools where counselors work with student case loads that include *all* grade levels. Because this results in very high student-to-counselor ratios, counselors reported that they typically concentrate their counseling efforts on seniors, and then, time permitting, on all other grades. According to a counselor at one of the five schools, "With so few counselors a great deal of our time is dedicated to working with 12th graders to ensure they are provided with the needed support and ongoing academic advice necessary to meet graduation requirements by the year's end." At these schools, counselors acknowledged that little emphasis is placed on working with entering freshmen. At one of these five sites, the administration was currently in the process of restructuring the counseling

office so that one counselor will work solely with 9th graders. The issues this school hopes to ameliorate are the high rates of absenteeism amongst 9th graders and to provide increased social support to entering freshmen as they transition from middle school to high school.

Three of the six counselors also included in their responsibilities the task of recruiting at feeder middle schools twice annually. According to these counselors, they work in the fall with feeder middle schools to provide 8th graders with a general overview of high school requirements, in addition to the requirements/criteria to qualify for placement in honors or enriched courses. They also provide an overview of the extracurricular activities and enrichment programs offered by the school and host agencies and review the A-F requirements for admission into a four-year college or university. In the spring, counselors meet individually with 8th-grade students to program them for their 9th-grade fall semester.

In short, the six counselors interviewed viewed programming or class scheduling as their primary responsibility. Generally this entails working with students to review graduation and college admissions requirements and to provide them with what they need in terms of class placement. Counselors prepare students through scheduling for college planning; once students expresses an interest in attending college or university, they work with the college counselor to reach their objectives. The degree to which counselors help students allocate the resources to make sound decisions about college choice is a personal decision. One of the six counselors interviewed regarded college counseling as an integral part of his job responsibilities as a high school counselor. Five of the six counselors interviewed suggested that due to extremely high student case loads, there is often little or no time to provide students with direct guidance as it relates to college choice. College counseling is primarily provided by the school's college counselor or advisor or done through college preparatory programs sponsored by the school or outside agencies.

College Counseling and Support Provided to High School Students

All evaluation sites had one college counselor or college advisor on staff. During the 1998-1999 academic year, five of the six evaluations sites had a certificated counselor servicing students in the capacity of college counselor. At one of the six evaluation sites, a member of the school staff managed the College and

Career Center, coordinated all college-related activities, and provided college advisement and support, as needed, to the student body.

According to the six high school counselors interviewed, the college counselor or advisor is responsible for maintenance of the school's college and or career center(s), keeping the staff and student body notified of current college admissions requirements, and notifying the student body of standardized test dates, financial aid, grant or scholarship opportunities, and all school or externally sponsored activities focusing on college-related issues. In addition the college counselor or college advisor serves as the main liaison between all two- or four-year colleges and universities, and college and or university recruiters and the high school site. College counselors or advisors work with counselors to provide students who have expressed an interest in attending college with access to information about two- or four-year colleges or universities. Students are able to arrange visits to college campuses or sign-up to participate in information sessions at the school site with college recruiters. At all of the six evaluation sites' services are made available to all students. However, it is the student alone who is responsible for initiating contact with the college counselor or advisor to ensure his or her participation in the activities and to obtain needed resources or guidance in relation to college choice or decision making.

During the 1998-1999 academic year, all evaluation sites sponsored a college fair for the entire student body. College counselors or advisors work in conjunction with one or more public or private schools in the area or district to coordinate a day for college representatives to disseminate written information or hold presentations for students. At two of the evaluation sites, college fairs are open to both students and the student's family. In addition to the college fair, two of the six evaluation sites sponsored a career day for the students and parents at which area businesses offered informational sessions and disseminated literature aimed at exposing students to a variety of careers and professions.

College counselors also coordinate schoolwide notification of standardized tests and dates and manage the allocation of fee waivers to those students who express a need and qualify. At all evaluation sites, efforts are made to keep students abreast of test dates and to provide support or resources to assist students with test preparation. In addition to the efforts sponsored by each school, private agencies or local area colleges or universities sponsor standardized test preparation workshops at several of the school sites. One of the six evaluations sites hosts a Kaplan-

sponsored SAT preparation course for a small monetary fee. This course is made available to all students with a grade point average of 2.5 or higher. Because space is typically limited, seniors and juniors are given priority. In addition, this school also provides students with access to SAT preparation via the computer. The computer lab is made available to all students from 3:00 to 5:00 PM each day. Another of the six schools receives tutoring assistance from local area colleges. College students work with students on an individual basis in core areas to strengthen skills as needed for test preparation. Another of the evaluation sites offers SAT preparation courses to all students in GATE (Gifted and Talented Enrichment program). The course is organized and facilitated by a GATE program professor and offered once a year. At this site, magnet school students are required to take the PSAT in the 10th grade and the SAT during their junior year. Magnet school students receive standardized test preparation tutorials as part of their everyday instruction.

All counselors mentioned that they begin to encourage students to take the PSAT and the SAT as early as possible, and typically begin to place emphasis on taking the SAT during the junior year. A counselor at one of the six evaluation sites provides all of his students with a resource packet outlining SAT workshops offered to students by local colleges or universities in the area, in addition to a list of books or computer programs that aid in test preparation.

The college counselor or advisor is theoretically available to work with all students, as determined by the student's individual needs. According to counselors at the six schools evaluated, students typically do not seek the assistance of the college counselor until the latter part of the junior year or the beginning of the senior year when it is time to apply for college. In this capacity the college counselor works with students and parents to review academic transcripts, assess students' academic needs and interests, and to provide students with information and support in the selection of colleges and universities that best match students' individual profiles. The college counselor or advisor also assists students in obtaining transcripts, completing applications, and identifying financial support via financial aid, scholarships or grants.

The college counselor or advisor also maintains all databases and documentation related to student college decision making including those regarding specific college or university recruitment efforts at the school site, students' interests in particular colleges or universities, college and or university acceptance rates, and students' final college or university choice. These responsibilities hold true for all

CBOP School Partners participating in the evaluation. Variation in the amount of time each college counselor or advisor spends fulfilling each responsibility appears to be determined by the particular school's demands such as caseload and external support.

In summary, support and assistance for college is available for all high school students but appears to be seen by all the counselors as the sole responsibility of the student in terms of seeking out support for going to college. Moreover, the focus of the counselors attention is on seniors.

College Preparatory Programs Offered at the Evaluation Sites Other Than CBOP

Each of the six evaluation sites offers at least one or more additional programs designed to increase students' academic preparation for the academic challenges of a four-year college or university. The criteria for participation in each of the programs are based on a series of requirements all determined by the individual school and relative to the objective and missions of each program. The numbers of programs and types of programs offered by each CBOP School Partner vary. Differences in programs offered by each of the six schools seem related to the school district and the degree of support offered to the school site by outside agencies. Specifically, schools in the same school district appear to offer the same college preparatory programs to their students and likewise seem to face similar challenges in implementing and coordinating college preparatory efforts.

Each of the evaluation sites currently sponsors the GATE program and offers honors or Advanced Placement (AP) classes to students who qualify. A student's grades and/or scores on state-required tests, such as the Stanford 9, and his or her ability to perform well on a series of tests (or a test) created for the purpose of acceptance into the specific program in a number of areas related to core academic areas are required for participation in all three kinds of programs. Students receive extra credits towards their grade point average for their participation. Four of the six evaluation sites have offered AP, GATE, and honors courses to their students on an ongoing basis for several years. Two of the six evaluation sites, not in LAUSD, are currently working to strengthen and improve the quality of programmatic content and support offered to students who participate in enrichment programs. Additionally one of these evaluation sites is also working to reorganize and hire additional teachers who are qualified to teach honors and AP classes. At another of the non-LAUSD evaluation sites, the GATE program is in the embryonic stages of

development. Having been in place for less than two complete academic years, it currently serves 9th and 10th graders only. Plans are currently underway to extend the program to 11th graders in the upcoming 1999-2000 academic year.

Programs similar to GATE are offered by four of the evaluation sites to students who have demonstrated the ability to excel in their academic courses but who do not meet the grade point average requirements for participation in GATE (or CBOP). These programs are also designed to provide students who have not passed the required tests to enroll in honors or AP courses with extra academic assistance and support. The programs offer a series of instructional classes aimed at giving the middle-range student an extra push in the areas of emotional and academic support needed to increase academic achievement and the student's competitive eligibility for admission into a four-year college or university. They are all partnership programs that involve parents, students and teachers and are sponsored by local area colleges/universities or the school's district. These programs require participation in enrichment courses before or after school three days each week. A teacher, staff member, or school administrator works with the organization to coordinate ongoing activities and support for each program. As participants, students take part in a series of Professional Development lectures and workshops in addition to receiving ongoing mentoring and tutorial assistance from program staff and or high school staff during their first year of participation.

Local colleges or universities sponsor three of the six programs of this type. Two out of three program efforts focus on recruiting and supporting 9th-grade students. Incoming freshmen are recruited from feeder middle schools and participate in a summer enrichment program prior to the fall semester of their 9th-grade year. Additional requirements for participation (in APPI and UPP[6]) include grade point average and contractual commitment between students, parents or guardians, and schoolteachers, in addition to teacher recommendations and the submission of an application. Students must express a commitment to attending a college or university upon completion of high school and demonstrate continued academic progress towards those goals. Parents and students sign a contractual agreement to verify these goals and to ensure the student's ongoing participation throughout the year.

[6] APPI is the Assessment, Planning, Programming and Intervention Program at Inglewood and Morningside. UPPI is the University Prep Program sponsored by California State University at Garfield.

Three of the four programs promote institutional support by providing teachers, administrators and high school staff with resources for curriculum development and professional development in core subject areas (APPI, AFUEL, Humanitas[7]). Curriculum is designed to aid participants in meeting (a) requirements for high school graduation, (b) state-mandated grade-level requirements, (c) and completion of academic requirements for admission into a four-year college or university. Teachers are designated "program instructors," and program participants are placed in these specially designated program classes. Each academic year, students move in a cohort through required academic courses for their current grade level. Some students may be placed in classes that are not specifically designated for participants in their cohort due to the student's choice of foreign language, or in some instances due to math or English placement. Students are also provided the opportunity to participate in special field trips to various colleges and universities. The opportunities for students to gain exposure to the various schools and resources available to them upon completion of high school are viewed as important sources of motivation and are used to encourage students to broaden their visions of community and academic and personal success. One of the six programs (APPI) requires that students participate in program-sponsored enrichment activities during summer months.

At one of the six evaluation sites, a local university provides enrichment and remediation courses during or after school. These classes are made available to students who have fulfilled grade-level requirements and/or A-F requirements and would like to advance, and to students who must repeat grade-level requirements, or need supplementary courses to meet grade-level and/or academic requirements for admissions into a four-year college or university. All of the six CBOP School Partners also work in partnership with community colleges in their area to offer similar remediation or enrichment programs. Students are enrolled in courses at the community college level and receive credits upon completion of each course.

In addition to support programs sponsored by various colleges and universities around the Greater Los Angeles Area, two of the six evaluation sites offer a concentrated magnet program in the areas of math and science. Students are part of a specialized program within the mainstream academic program offered to all students at the school site. Similar, to the college preparatory programs previously

[7] APPI is the Assessment, Planning, Programming and Intervention Program at Inglewood and Morningside. AFUEL is the Academy for Urban Ecology sponsored by the school district. Humanitas is sponsored by the school district and is at Westchester.

discussed, students move through each grade level in cohorts. In addition they take a specialized curriculum with a concentration in mathematics and science. At each of the two schools a counselor has been designated to work with magnet program students throughout their academic career. Students are programmed to meet the requirements of the specific magnet program in addition to grade-level and A-F requirements for admission into a four-year college or university. Participation in the magnet school does not exclude the students from participating in the GATE program or from taking honors or Advanced Placement courses. Students who qualify may participate in the magnet school, in addition to honors or AP courses and any other college preparatory programs offered at the school. Several of the evaluation sites have magnet programs in other areas.

Additional programs available to students, at each of the evaluation sites, include Summer Internships sponsored by various corporations, local government agencies, or universities, and Summer Youth programs that provide students with the opportunity to spend the summer taking classes abroad or at local colleges or universities. Programs such as these appear to have various academic or community service requirements and typically involve an application and/or interviewing process prior to acceptance. External sponsorship of these programs appears to be influenced by the school district and the demographics of the student population.

In the end, this provides a broad context for the college-going support provided to the high school students at the six evaluation sites.

Differences Between Scholars and Comparison Scholars

Because comparison groups were selected randomly or from similar intact classrooms, there should be no significant differences across the Scholars and Comparison Scholars. We found only two differences in the two groups: in the percent who taught others and the percent who received tutoring (see Tables 14 and 15). However, there were no significant differences between Scholars and Comparison Scholars on any of the demographic variables. For both groups, between 55% and 60% of mothers and fathers did not have a high school diploma or equivalent. For both groups, less than 4% of mothers and fathers had a bachelor's degree and less than 6% of mothers and fathers had any graduate or professional school experience. Ethnicity across Scholars and Comparison Scholars was also similar. Chicano/Latino students constituted the largest ethnic group in both

Table 14

Background Characteristics of Scholars and Comparison Scholars (*N*=961)

	Scholars (*N*=443)	Comparison Scholars (*N*=518)
Percent male	40.73	42.19
Mother's education		
Less than high school	56.45	58.90
High school graduate / GED	18.12	12.94
Business / AA / Some college	18.12	20.71
BA	3.14	2.91
Some graduate school	1.39	1.29
Graduate / professional school	2.79	3.24
Father's education		
Less than high school	57.46	59.30
High school graduate / GED	17.54	15.09
Business / AA / Some college	17.91	16.14
BA	3.73	3.51
Some graduate school	.75	2.81
Graduate / professional school	2.61	3.16
Ethnicity		
African American	17.89	15.36
Asian	2.56	0.90
Chicano / Latino	74.12	75.00
Native American Indian	0	0
Other	3.51	3.92
White	1.92	4.82

Scholars and Comparison Scholars. The Scholars had a slightly larger percentage of African American students (18% compared to 15.36%) and Asian students (2.56% compared to 0.9%), and slightly fewer Caucasian students, but the differences were not statistically significant.

In terms of community service background, both the Scholars and the Comparison Scholars were very similar (Table 14). Since entering high school, between 36% and 39% of the students had done some volunteer work. About 18% of students in both groups had worked for a nonprofit organization, and a little over 22% of students were a part of a community service organization. Three percent more Scholars reported being involved in a religious organization, but the difference was not statistically significant.

The two groups did differ in having tutored others, with 48% of Scholars reporting tutoring experience and 38% of Comparison Scholars reporting tutoring

Table 15

Background and Beliefs of Scholars and Comparison Scholars

	Scholars	Comparison Scholars
Since entering high school		
Did volunteer work	38.70	35.86
Worked for nonprofit	17.71	17.61
In community service org	22.65	22.26
In religious organization	29.97	26.91
Tutored others	48.30	38.44
Did community service / Volunteered	37.29	37.38
In last term (spring 1998)		
Strong desire to serve community	33.0	27.5
Taught others	68.71*	54.57*
Received tutoring	29.59*	17.67*
Saw self as role model	48.17	43.08
Poor study skills as top barrier	28.29	24.46
% know their major for college	76.35	74.14
% who plan to attend college immediately after high school	92.36	90.34
No. hours studied per class	7.91	7.39
No. hours prepared for lecture	5.77	5.26
No. hours studied in groups	6.03	5.19
No. hours serving community	5.94	4.97
No. hours received tutoring	2.49	2.31
No. college students had frequent contact with	2.23	2.17
% considered self a role model	75.00	67.23
	Percent said several times a week	
Complete homework assignments	94.55	91.46
Actively participate in class	60.70	59.82
Beliefs held last term (spring 1998)		
I'm responsible for own learning	4.50	4.00
Mostly my responsibility with help from teachers and parents	30.55	24.92
My teacher and I are responsible	52.41	52.62
Mostly teachers are responsible with help from student and parents	12.54	18.46
The best way I learn a concept is:		
teaching it to others	21.29	17.13
reading about it multiple times	30.65	33.33
writing about it	34.84	36.09
memorizing it	13.23	13.15

Note. * indicates a level of statistical significance of p=0.01 effects of CBOP services on Scholars compared to Comparison Scholars.

experience. Thus, prior to involvement in CBOP, the Scholars had served as tutors more than the Comparison Scholars. Interestingly, significantly more Scholars also reported teaching others in the previous semester than did Comparison Scholars. While close to 69% of Scholars said that they taught others during the previous term, only 55% of Comparison Scholars taught others. The groups also differed on the percent who received tutoring. Close to 30% of Scholars said they received tutoring in the term prior to involvement with CBOP, compared to about 18% of students in the comparison group. These were the only significant differences between the groups.

Twenty-nine percent of Scholars reported poor study skills as their top barrier to academic achievement. Similarly, 25% of Comparison Scholars reported this. About 75% of all of the students said they knew what they will select as their major in college. Additionally, just over 90% planned to go to college immediately after graduating from high school.

The Scholars resembled the Comparison Scholars in terms of the hours spent studying as well. Students reported spending between 7 and 8 hours studying for each class during the week. Between 5 and 6 hours were spent preparing for lectures for each class. Scholars reported spending slightly more time studying in groups, serving the community and receiving tutoring, but these differences were not statistically significant. Between 91% and 95% of students reported completing homework assignments several times per week. Fewer students reported actively participating in class this often (60%).

The Scholars and Comparison Scholars also held similar beliefs about education prior to the CBOP program (Table 15). Just over half of both groups believed that they and the teacher share the responsibility for their learning. Only 4% to 5% of students said that they alone were responsible for their own learning. About 13% of the Scholars believed that the teacher held the primary responsibility for learning, whereas about 18% of the Comparison Scholars held this belief. The difference was not significantly different.

The most popular ways to learn a concept in both groups were to write about it or to read about it multiple times. Thirteen percent of students in both groups believed that memorizing was the best way to learn a concept. In the Scholars group, 21% of students said that the best way to learn a concept was to teach it to others,

whereas 17% of Comparison Scholars said this. Again, the difference was not significant.

Overall, the Comparison Scholars are a very adequate group with which to compare over time the trends and attitudes of the Scholars.

Effects of CBOP Services on Scholars Compared to the Comparison Scholars

To investigate the overall impact of CBOP and the services provided to the Scholars by the Fellows, we first briefly describe the extent of Scholar and Fellow program participation and then look more closely at changes in high school Scholars' study habits, beliefs about learning, ability to change, and measures of serving the community. The construction and definition of the measures and scales reported in this section are described above in section III.

Services provided to Scholars by Fellows. Fellows are the main providers of CBOP services to the Scholars. Fellows visit the high school sites once a week to provide instruction, information, and mentoring support to Scholars. Roughly two thirds of the Fellows (64%) get together prior to their weekly sessions to prepare their lectures as a team. On average these Fellows met 8 times to prepare their presentations. More importantly, Fellows on average go out to the sites to serve the Scholars for 9 weekly meetings (which is an average of 65% of all the meetings over the course of the two quarters) with the range between attending only 3 weekly visits up to 17 visits over the course of the winter and spring quarters. Additionally, each Fellow on average attends 1.6 Saturday academies with the Scholars. This attendance information was obtained from Fellows' timesheets submitted to the CBOP office.

Available program participation information for Scholars is very limited. Saturday academy attendance was collected by the CBOP office for all six evaluation sites; however, weekly attendance at the CBOP presentations by the Fellows was only collected for two of the evaluation sites. These data are based on sign-in sheets passed out at Saturday academies and at weekly sessions. (The CBOP office plans to collect more complete program participation data in the coming year.) Based on these limited data, on average a Scholar attended one of the six Saturday academies offered and attended only two of the Fellows' weekly sessions. These averages are so low because there are many Scholars who do not attend at least one Saturday academy. The percentage of Scholars that attended at least one Saturday academy across the six schools ranged from as low as 16% at one school to 60.5% at two of the

schools. The number of Scholars at each site that attended three or more Saturday academies ranged from only one student (out of 24) to a small group of 23 (out of 122) at another site. Moreover, on average only 40% of Scholars attended at least one weekly session with the Fellows at the two evaluation sites for which there were data. At the two sites for which we have data, the numbers of Scholars that attended three or more weekly sessions are 24 (out of 122) and 32 (out of 99) students. For CBOP to make an impact on high school students' study habits, beliefs, aspirations and college-going behavior, there needs to be a more concerted effort at reaching *all* Scholars, monitoring their participation at CBOP activities, and maintaining the commitment of Fellows.

Effects of CBOP services on Scholars. To assess the effect of CBOP services on the Scholars, we looked first at their study habits. Several questions were asked of the Scholars and Comparison Scholars. They reported the number of hours spent on average in a week for a typical class: studying for the class, preparing for lectures, studying in groups, and, if they received tutoring, the number of hours they received tutoring. They also were asked how many graduate and professional students they had frequent contact with. In addition, we constructed a frequency-of-PALS scale from 9 self-reported items about the frequency of PALS behaviors engaged in for a typical class.

In the first semester of their freshman year, Scholars and Comparison Scholars had almost identical study habits (see Table 16). They both studied about 7 hours for a typical class, prepared roughly 5.5 hours for class, and studied in groups a similar number of hours: 2.6 hours for Scholars and 2.2 hours for Comparison Scholars. Moreover, over the course of the year Comparison Scholars and Scholars appear to have behaved in a similar pattern concerning study habits. The study habits that we measured were engaged in slightly (but not significantly) less often for both groups over the course of their freshman year. There was also a slight (but not significant) increase in both groups' self-rating of their overall use of PALS. At both the beginning of the year and at the end, however, both Scholars and Comparison Scholars reported engaging in PALS behaviors only between 1 = *rarely* or 2 = *about half of the time* (see Table 16), which is not very often. There was also a slight (but not significant) decrease in both groups' self-rating of their PALS skills of (a) study skills and habits, (b) understanding of material presented in class, (c) understanding of readings and assignments, (d) ability to remember class material, and (e) ability to

focus attention during class. Both groups rated themselves between 2 = *good/average* and 1 = *not so good/mediocre* in a typical class (see Table 16).

However, over the course of Scholars' freshman year, CBOP did appear to influence their behaviors and beliefs in a few important and statistically significant ways. First, prior to CBOP, roughly one quarter of Scholars (28%) and Comparison Scholars (25%) reported that poor study skills were a top barrier to their academic achievement. By the end of their freshman year and after receiving instruction about optimal learning techniques and PALS, fewer Scholars (a decrease of 1.7%) reported that poor study habits were a top barrier to their academic achievement, whereas more Comparison Scholars (an increase in 0.8%) reported that poor study habits were a top barrier by the spring of 1999. CBOP appears to have affected the Scholars' belief that they had acquired better study skills and whether their study skills were hindering their academic achievement; this is a result we also found for the Fellows after taking ED193.

Additionally, participation in CBOP was associated with an increase in the number of college students that Scholars had frequent contact with over the course of the year. At the beginning of the year Scholars and Comparison Scholars had frequent contact with 2.2 college students. At the end of the year, the Scholars had frequent contact with 2.2 more college students (4.5 total) and the Comparison Scholars had contact with only 0.78 more college students (3 total). CBOP therefore provided high school students with more frequent contact with more college students than they would have without CBOP. This contact, presumably with the Fellows, provided high school students with more support and mentorship.

As noted above, despite randomization and the construction of similar comparison groups, the Scholars and Comparison Scholars differed across the percent who had received tutoring, 29.6% and 17.7% respectively, prior to CBOP participation. Without other measures of academic performance, other than the knowledge that all students in the selection pools had earned a 3.0 GPA by the first quarter of the freshman year, we cannot decipher whether the Scholars received more tutoring because of a lower level of ability or because they were motivated to achieve better grades and seeking out tutoring.

Despite the difference in the percentages of Scholars and Comparison Scholars that received tutoring, those that received tutoring received a similar number of hours of tutoring in a week at the beginning of the year: 2.5 for Scholars and 2.3 for

Comparison Scholars. By the end of the year, more Scholars (2.7%) received tutoring, while fewer (6.7%) of Comparison Scholars received tutoring. The number of hours of those tutored increased slightly (but not significantly), with 0.5 hours for Scholars and 0.9 hours for Comparison Scholars. This indicates that Scholars via CBOP were seeking out and obtaining tutoring. In the long run, this tutoring could impact course grades and academic achievement.

At the root of study habits are a person's beliefs about learning. We looked into two concepts of learning that are emphasized as part of PALS. Students reported their opinions about on the best way to learn a concept and about who is responsible for their learning. (The construction and content of the two scales is reported in section III.) The Best Way to Learn scale reports on "The best way I learn a concept is: 4 = teaching it to others; 3 = reading about it multiple times; 2 = writing about it; or 1=memorizing it. The Responsible for Learning scale equates: 2=My teacher and I are responsible; and 1=Mostly teachers are responsible with help from student and parents.

Scholars and Comparison Scholars at the beginning of the year reported that the best way to learn was "writing about it" (1.9 on the scale). By the end of the year, both groups had shifted upward on the scale by a small amount but remained essentially at a 2 indicating "writing about it" on the scale: a 0.28 increase for Scholars and a 0.18 increase for Comparison Scholars. In terms of their beliefs about who is responsible for their learning, Scholars and Comparison Scholars both reported a 3.4 on the scale, which indicates between 4 = *I'm responsible for my own learning* and 3 = *Mostly I am responsible, with help from teachers and parents.* By the end of the year, the Scholars' and Comparison Scholars' beliefs differed slightly, with the Scholars leaning toward "I am responsible for my own learning" and Comparison Scholars reporting at "Mostly I am responsible with the help from teachers and parents." However the slight changes in the scales are not statistically different.

Besides attempting to improve study skills and changing a student's underlying beliefs about learning, CBOP attempts to instill a sense of urgency and ability to change in students. We operationalized the ability to change with three different scales measuring academic motivation, academic confidence, and the desire to improve. (The content of each of the scales is outlined in section III.)

At the beginning and end of their freshman year, Scholars and Comparison Scholars had similar levels of academic motivation, academic confidence, and desire

to improve (Table 16). At the beginning of the year, they rated their academic confidence halfway between 3 = *very good* and 2 = *good/average* at 2.6. Scholars and Comparison Scholars additionally rated their academic motivation with a 2.8 and 2.7 respectively, which indicates that they were between *somewhat motivated* and *motivated*. They also reported a *strong desire to improve*. The changes over the course of the year were very slight (and insignificant) movements in the scale scores for these three measures. Therefore, CBOP appeared not to impact Scholars' academic confidence, motivation, or desire to change despite the efforts of the Fellows and the CBOP Academies.

Besides aiming to impact study habits, students' beliefs about learning, and students' ability to change, CBOP intended to also affect students' desire to teach

Table 16

Effect of CBOP Services on Scholars Compared to Comparison Scholar Trends

	Scholars (*N*=282)		Comparison scholars (*N*=271)	
	Pre-	Post- / Pre-	Pre-	Post- / Pre-
Study habits				
No. hours studied per class	7.8	-0.80	7.3	-0.74
No. hours prepared for lecture	5.8	-0.43	5.3	0.03
No. hours studied in group	2.6	-0.03	2.2	0.26
PALS Frequency Scale	1.8	0.04	1.7	0.01
Poor study skills top barrier	28.3	-1.70*	24.5	0.80*
Self-rating of PALS skills	1.9	-0.23	1.7	-0.34
Percent received tutoring	29.6^	2.70*	17.7^	-6.70*
No. hours received tutoring	2.5	0.51	2.3	0.93
No. college students have frequent contact with	2.2	2.15*	2.2	0.78*
Beliefs about learning				
Best Way to Learn scale	1.9	0.28	1.9	0.18
Responsible for learning	3.4	0.02	3.4	-0.8
Ability to change				
Desire to improve scale	3.1	-0.08	3.0	0.02
Academic confidence scale	2.6	-0.04	2.6	-0.08
Academic motivation scale	2.8	-0.02	2.7	-0.03
Civic responsibility				
No. hours devoted to community	5.9	-0.94	5.0	0.25
Percent serve comm. In future	88.4	2.90*	87.6	-3.70*

Note. The symbols *, ^, or # indicate that the two groups are statistically significant at the $p = 0.01$ level.

others or serve the community. At the beginning of the year, 88% of Scholars and Comparison Scholars wanted to devote time serving the community in the future (see Table 16). In addition, Scholars and Comparison Scholars reported spending 5.9 and 5 hours a week, respectively, currently serving the community. By the end of the year, however, the number of hours converged between the two groups to 5 hours a week for the Scholars and 5.3 hours for the Comparison Scholars. At the end of the year, more Scholars reported a desire to serve the community in the future (an increase of 2.9%), whereas fewer Comparison Scholars reported a desire to serve the community in the future (a decrease of 3.7%). Thus, CBOP appears to be related to Scholars' desire to serve the community and added to their sense of civic responsibility.

V. CONCLUSIONS AND RECOMMENDATIONS

The evaluation results indicate that the undergraduate service providers in the Career Based Outreach Program were positively impacted by the sponsorship of the Graduate and Professional schools, by the ED193 course, "Service Learning and Student Achievement," and by their experience of mentoring the high school students. But the Scholars were largely unaffected by CBOP activities and services.

In this section, we first summarize the results and present our conclusions regarding the effects of CBOP on undergraduates and on high school students. We then describe limitations or barriers to success and discuss the implications of our findings for CBOP policies and practices.

Summary

Undergraduates who participated in CBOP as Fellows were positively affected by every aspect of their experience. First of all, and not surprising since it is a key component of Campus Partner sponsorship, Fellows attended more orientations and workshops provided at graduate schools and received more mentoring than Non-Fellows or Comparison Fellows. As a result of the mentoring by the Graduate and Professional Schools, Fellows took more action to become informed about graduate and professional schools, to apply to them, and to submit financial aid information. Fellows also planned to take the LSAT, MCAT, and CBEST significantly more than either the Non-Fellows or the Comparison Fellows. The increased action and planning by the Fellows indicates a stronger level of commitment to the pursuit of

graduate school. This is extremely important since 100% of all three groups reported that they plan to attend graduate school. Interestingly, there was also an increased interest in the field of education and subsequent planning for a graduate degree in education among the Fellows over the course of 1998/99.

Secondly, we have found that by participating in ED193, Fellows maintained or slightly improved their study habits as compared to the Comparison Fellows whose study habits relaxed over the course of the year.[8] Fewer Fellows also reported that having poor study skills was a top barrier to their academic achievement as compared to the Comparison Fellows. With these changes came also a small increase in academic confidence and a decline in Fellows' desire to improve from a "strong desire to improve" to an "average desire." Findings also suggest that the ED193 course did not impact students' grades during the quarter that Fellows took the course or in the quarter immediately following ED193. Fellows and Comparison Fellows earned a consistent term and cumulative grade point average over the course of the year.

Thirdly, ED193 also impacted undergraduates' sense of civic responsibility. After learning about service and its potential impacts on communities in ED193, 99% of the Fellows were motivated to be role models in the community as compared to 28% prior to the ED193 course. All of the Fellows also continue to plan to volunteer in the future and volunteer roughly 7 hours per week. Engaging in optimal learning techniques and participating in ED193 also increased the number of Fellows (by about 20%) who spent time teaching others as compared to the Comparison Fellows.

Furthermore, ED193 had a differential impact on Fellows and Non-Fellows. Fellows tended to study on average more hours in a group, to devote fewer hours to the community, and to have a slightly stronger belief that they are solely responsible for their own learning than did the Non-Fellows by the end of the course.

The Fellows' experience with mentoring high school students does not seem to have further affected their study habits and skills, their beliefs about learning, their desire to improve, or their academic motivation over and above the impact of the ED193 course. Fellows also had frequent contact with more graduate and professional students during ED193 (2.9 students) than during their service learning

[8] Specifically, Fellows increased slightly the number of hours studied in a group; increased the frequency with which they prepared, studied, asked questions, worked on problem sets, and engaged in discussion about what they are learning; and increased their self-rating of their study habits, understanding of lectures, readings, assignments, and ability to remember course material and to focus during lectures.

experience (1.3 students). However, after service learning, even fewer Fellows received tutoring as compared with prior to service learning (38.5% compared with 51.5%). This may suggest that Fellows were feeling even more confident in their study skills and learning and hence felt less the need for assistance.

These changes in undergraduates' academic attitudes, behaviors, and aspirations were not passed on to the high school students in the program. Small effects were found for the high school students in a few areas. CBOP appears to have affected the Scholars' beliefs that they had acquired better study skills and about whether their study skills were hindering their academic achievement. Participation in CBOP also was associated with an increase in the number of college students that Scholars had frequent contact with over the course of the year, which is a direct result of their interactions with Fellows. Finally, at the end of the 1998/99 school year, more Scholars reported a desire to serve in the community in the future (an increase of 2.9%), whereas fewer Comparison Scholars reported a desire to serve the community in the future (a decrease of 3.7%).

The limited impact of CBOP on the high school students is not a surprise considering the poor program participation of the Scholars across the high schools. Even though the program participation data is limited, it suggests that there is a low Scholar attendance at Saturday academies at all of the six evaluation sites and very low attendance at weekly sessions with the Fellows at two of the evaluation sites.

Conclusions

CBOP has been a catalyst for mobilizing undergraduates to teach and serve high school students in 19 high schools across Los Angeles County. On average, four to five undergraduates served at each of the sites providing approximately 650 hours of service and mentoring. The benefits of these hours of mentoring and teaching are apparent for the undergraduates as they improve their study skills and sense of direction for future graduate studies.

Importantly, the increased interest in the field of education and the subsequent planning for a graduate degree in education among the Fellows over the course of 1998/99, could possibly have positive implications for the current teacher shortage in California and the need for minority teachers.

Overall, CBOP manages academic activities and events for hundreds of undergraduates and thousands of high school students. The Fellows who are

providing the services to the Scholars are faced with juggling their studies, practicing PALS, attending events offered by the Campus Partners, driving to high schools once a week, preparing for weekly sessions, and building relationships with the Scholars. In addition, at the school sites a myriad of mentoring and tutoring programs exist, and CBOP is not the only outreach effort from local colleges and universities. Moreover, the focus of the high school counseling environment is on seniors. Thus, the individualized academic plans that are developed with the Fellows and the Scholars are an important mechanism for measuring the progress of the high school students *prior to their senior year* and could be helpful to the counselors, as well as to Scholars and their parents. Given this context, it is recommended to strengthen the relationship between CBOP site teams, Fellows, and high school counselors. A strong relationship between these groups could facilitate high school students being enrolled and planned into the courses that they will need to get into college as well as leverage the academic counseling resources available at the individual sites. In addition, increasing the number and type of CBOP activities and events that include or require high school counselors would appear to only help CBOP in its efforts to raise the percentage of students completing the A-F requirements for admission to the University of California UC.

Furthermore, for CBOP to have the intended impact of increasing UC competitive eligibility, participation in the core CBOP activities by all the Scholars, particularly at this early stage, is very important. With concerted efforts by CBOP program staff and increased participation by Scholars, the potential benefits for the high school students will hopefully be seen in the future as Scholars begin to engage in more college-going behaviors and enroll in courses that will admit them into colleges and universities, especially the UC campuses. Indirectly, college counselors also could benefit from this individualized attention from the Fellows, considering the high number of students each counselor must counsel on courses and test preparation for college, even though their primary focus is on seniors.

Limitations and Barriers to Success

CBOP manages academic activities and events for hundreds of undergraduates and thousands of high school students. The Fellows who are providing the services to the Scholars are faced with juggling their studies, practicing PALS, attending events offered by the Campus Partners, driving to high schools once a week, preparing for weekly sessions, and building relationships with the Scholars. By

implementing a well-functioning monitoring system for Scholar program participation and Fellow attendance at the high schools, CBOP could identify during the course of the year when a Scholar or a Fellow appears to be wavering in his or her commitment to the program and, in the end, reach more students and increase the program's contribution to the communities being served.

More importantly, the high school's primary focus of offering high school counseling activities to seniors drastically impacts the success of CBOP in its efforts to increase the competitive eligibility of high school students. The individualized academic plans that are developed with the Fellows and the Scholars are an important mechanism for measuring the progress of the high school students prior to their becoming seniors and could be helpful to counselors, as well as to the Scholars and their parents. These IAPs and CBOP's services need to be integrated more tightly with the high school efforts. Turning CBOP into more than "just another add-on program" requires a culture of the importance of CBOP's vision and a large, active presence on campus. Strong leadership at the high schools or in the district could help facilitate these changes.

Programmatic Implications

If the primary goal of CBOP is to serve high school students and increase their competitive eligibility, site teams and program staff should spend more time supporting the Fellows in serving and mentoring all high school students in the program at each site. In addition to directly monitoring program participation, CBOP might consider providing stronger guidelines with regard to attendance at events and what it means to be a Scholar. For example, guidelines might specify the number of events students can miss before they receive a call, a request for a meeting, or a reminder from someone on the site team. Non-attendance by Scholars should not be tolerated and should be inquired into if repetitive. Additionally, CBOP should emphasize throughout the year the importance of every Scholar to the success of the program. CBOP might also consider providing incentives such as a special academic workshops or money for test preparation for Scholars who attend all sessions. Possibly, Scholar attendance and homework completion could count towards their college-prep credit in the Early Career Preparation (ECP) classes offered to 9th graders.

In conclusion, the evaluation recommends that CBOP focus on increasing program participation and intensity for all the Scholars. Participation in key

activities by Scholars at all grade levels as they continue on through high school is necessary for CBOP to change their study habits and college-going behaviors. The weekly sessions need to be intense and powerful experiences. As with the Fellows, PALS and mentoring can affect students' academic behaviors, attitudes, aspirations and sense of civic responsibility.

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APPENDIX A: HIGH SCHOOL INTERVIEW METHODOLOGY

The site visits were developed to obtain an in-depth understanding of the implementation of CBOP-supported activities and services, and the institutional context for the Scholar, particularly in terms of course-taking and counseling. These site visits included individual interviews with CBOP School Partners and their high school faculty and administrators; direct observation of service learning classes, and of student service settings; and the collection of documents relevant to the evaluation of the Career Based Outreach Program, such as students standardized test scores, semester grades and cumulative records, and transcripts. Researchers visited the six evaluation sites three to four times each academic semester and as needed for follow-up. The evaluation team made a total of 24 visits during Fiscal Year 1998/99.

Site Visit Instruments

Semi-structured interview guides provided flexibility in pursuing the unique nature of each site's organization and operation while ensuring that respondents at each site were asked about a consistent core of topics. These topics included the following:

Description of Overall Counseling Activities at the High School Site

The school's approach and organizational structure for preparing students for college:

- implementation and integration of CBOP into existing college preparatory efforts at the high school site;
- parental involvement in college preparatory issues;
- the high school's relationship to UC and the school's role in promoting attending a UC as an option for its students;
- perceived impact of CBOP services on the institution;
- perceived impact of CBOP services on Scholars;
- challenges for program coordination and implementation;
- suggestions for program improvement.

In addition, researchers supplemented interview data with direct observations of students in student service settings. Researchers also collected documentation about the Career Based Outreach Program, including, as available, program plans and proposals, and annual and site reports on CBOP programmatic activities at the high school site.

Site Selection

All six of the evaluation sites were selected for site visits and all six sites agreed to participate in the interviews and site visits as part of their evaluation activities. The other evaluation activities that the six sites agreed to included assistance by CSE in initial selection of the Scholar and Comparison Scholar cohorts to be tracked as they moved from 9th through to 12th grade; the administration of a Scholar survey twice annually; the collection of student-level data on the Scholars and Comparison Scholars; and interviews of the CBOP coordinator and at least one counselor from the high school site.

Procedures

After School Partners consented to participating in the evaluation, CSE mailed CBOP High School Liaisons an overview of the purpose of the site visits, and a comprehensive list of respondents, CBOP Scholars and Comparison Scholars, to be included in evaluation efforts. In addition, Liaisons were asked to review and modify or provide contact information for all Scholars, and to review tentative dates for survey administration and interviewing. Liaisons were given flexibility in the selection of scheduling dates to accommodate schoolwide plans and personal schedules whenever possible. Telephone calls were made to follow up with Liaisons as needed throughout the 1998-1999 academic year to address questions or concerns pertinent to evaluation plans at their particular school site and to confirm site visitations. Prior to the actual site visit CSE provided Liaisons with notifications and parent consent forms for all CBOP Scholars and Comparison Scholars. Parents and guardians were provided an overview of CBOP evaluation plans for the 1998-1999 Academic year and were asked to give their son or daughter permission to participate in evaluation activities. Memos were sent to CBOP High School Liaisons a week prior to the scheduled date for survey administration or interviews. Liaisons organized the administration of surveys at the high school sites and initiated contact with all school counselors, administrators, and staff to arrange interviews.

Liaisons were told that we would maintain the confidentiality of site-level results, In this way liaisons were encouraged to share their concerns about what they perceive as the causes, barriers, and facilitators of change we seek to explain without fear that they would be implicated for their responses.

UCLA graduate researchers conducted the interviews at the evaluation sites. All interviews were recorded upon obtaining the respondents' permission. Interviews were then transcribed and briefings of site visits were given to all CSE-related staff during weekly staff meetings.

Participants

Respondents at each site included the CBOP High School Coordinator and counselors.

Analysis

After each site visit, notes were transcribed and distributed to all project staff. In addition, briefings on site visits were given at weekly staff meetings. For the analyses presented in this report, a structured set of questions were used to "query' the site visit notes, in order to identify the characteristics, patterns, and trends associated with meeting the objectives and goals of the Career Based Outreach Program.

APPENDIX B: UNDERGRADUATE SURVEY METHODOLOGY

To address the question of what are the effects of participation in CBOP on CBOP Fellows several questionnaires were administered to three similar undergraduate populations at UCLA throughout the 1998-1999 Academic Year. Fellows, UCLA undergraduates in the CBOP program, and Non- Fellows who, like CBOP Fellows, were also enrolled in the "Community Service Learning and Student Achievement" course (ED193) during the fall or, winter quarters of the 1998-1999 academic year, but who had no direct affiliation with the Career Based Outreach Program, were asked to respond to a Pre- and Post-Education 193 Survey. Both cohorts took the pre-ED193 survey during the fall or winter quarter of the 1998-1999 academic year. Fellows were given the option to take the ED193 course either the fall or winter quarter. Fellows completed the questionnaire depending on the actual quarter they were enrolled in the course. The Post-ED193 Survey was administered to both student populations, including CBOP Fellows who took the ED193 course fall 1998 or winter 1999, during the spring 1999 quarter. In addition, CBOP Fellows were asked to respond to a Pre- and Post-Service Learning Survey. The Pre-Service Learning Survey was administered at the beginning of winter quarter 1999, prior to the Fellows' service learning experience at the high school site. The Post-Service Learning Survey was administered during the spring 1999 semester following the Fellows' service learning experience.

Comparison Fellows, undergraduates at UCLA who were recruited to be CBOP Fellows but who decided not to participate were administered a pre-outreach survey during the winter 1998 quarter and a post out reach survey during the spring 1999 quarter.

All undergraduate populations—CBOP Fellows, Non-Fellows, and Comparison Fellows—were given questionnaires that asked respondents to focus on a specific academic quarter or service learning experience. The questionnaires included questions that focused on three key areas: (a) academic attitudes and behaviors, (b) service-learning attitudes and behaviors, and (c) academic performance and aspirations. In addition, the questionnaire for all groups included a set of items regarding prior community service involvement, work experience, and academic and career interests. CBOP Fellows and Non-Fellows were later given a second set of questionnaires that asked respondents to focus on their academic development and aspirations pre- and post-enrollment in the "Community Service

Learning and Student Achievement" course (ED193), and their service learning experience.

All surveys were approved by UCLA's Human Subject Protection Committee.

Sample Selection

CBOP staff was asked to submit lists of all active CBOP Fellows during the 1998-1999 academic year to CSE staff. All active Fellows were considered as potential respondents. CSE staff also worked with the facilitator of the ED193 course to establish a comparison group of students with academic backgrounds and interests similar to those of CBOP participants. This cohort, called Non-Fellows, consisted of undergraduates participating in the ED193 course but who were part of service learning outreach efforts other than CBOP. During each academic quarter, UCLA offered four sections of ED193. Each section was geared to train undergraduates to use PALS as required by the specific service-learning initiative that they were a part of (CBOP, American Reads, Community Service, or LINCS).

CSE staff also worked with the CBOP administration to assemble a cohort of similar undergraduates, Comparison Fellows, who did not enroll in ED193. This group was pulled from the lists of remaining students who received a mailing or attended a presentation during CBOP recruitment efforts during the 1997-1998 or 1998-1999 academic year, but chose not to participate in the Career Based Outreach Program.

Recruitment of CBOP Fellows was done via presentations to groups on UCLA's campus that offered academic or social support to primarily African American, Latino or Chicano, Native American and Filipino undergraduates. These presentations were developed, organized and facilitated by CBOP staff during the 1997 and 1998 fiscal year. Additional mailings were also sent to all UCLA freshmen, sophomores, and juniors who were of African-American, Latino or Chicano, Native American, or Filipino descent, with grade point averages of 3.0 or above. Recruitment efforts were specifically geared to reach students who graduated from CBOP high schools, lived in the inner city, or were work study recipients. Those students with similar backgrounds and records of academic achievement who were not contacted via CBOP recruitment efforts during 1997-1998 or 1998-1999, but expressed an interest in being a Fellow, submitted applications to the CBOP program. The selection of CBOP Fellows was based primarily on academic criteria and student interests.

The preliminary total of CBOP Fellows included in the evaluation was 137. Out of 137 CBOP Fellows a total of 120 CBOP Fellows were included in the final sample of CBOP Fellow respondents. Out of 160 Non-Fellows included in the preliminary sample a total of 156 Non-Fellows were included in the final sample of Non-Fellow respondents. The list of 1,412 potential Comparison Fellows was narrowed down to a final sample of 649 Comparison Fellows, of whom 49 agreed to participate in the evaluation.

Procedures

Survey administration occurred several times throughout the 1998-99 academic year. Fellows and Non-Fellows received surveys during the fall (pre- and post- ED193) or winter (pre- and post- the second session of the ED193 course) depending on which class they attended, and also during the spring (pre-and post- the service learning experience in high schools). Comparison Fellows received a pre-survey during the winter and post-survey in early spring. Survey administration was conducted in conjunction with Education 193 at UCLA for the Fellows and Non-Fellows. The surveys for the Comparison Fellows were administered by mail, e-mail, and at specified times and locations on UCLA's campus.

During the fall 1998 quarter CSE staff administered the survey to the CBOP Fellows and Non-Fellows during their ED193 course with the assistance of the class professor and class readers. During the winter all respondents were given the option to complete the questionnaire at home and return it to their sessions instructor the following week. Surveys were then picked up from the ED193 instructors office by CSE staff a week following the date they were originally administered; this gave respondents ample time to thoroughly complete and return surveys and alleviate conflicts with course plans.

CSE staff made arrangements with CBOP staff to administer the Pre-Service Learning survey during a mandatory CBOP Fellows meeting during the winter 1998 academic quarter. During the spring 1999 quarter there were no CBOP Fellows meetings scheduled. Consequently, CSE staff contacted Fellows using various strategies. Notifications were sent to CBOP Fellows via mail and e-mail. CSE staff worked with the CBOP office and the administrative offices of various CBOP campus partners to make surveys available to CBOP Fellows at stations across the UCLA campus. Fellows could complete the survey on-site, return the completed survey to the same location, or deliver it directly to CSE. To increase the response

rate, an e-mail-formatted survey was also sent to those Fellows with active e-mail accounts. Surveys were then sent by mail with return envelopes to those Fellows who did not have listed or active e-mail accounts. Fellows had the option then to deliver surveys to the various locations on UCLA's campus or to mail them to CSE. CBOP staff provided CSE with lists of mailing and e-mail addresses.

CSE staff with the assistance of CBOP coordinators administered the pre-outreach survey to Comparison Fellows during the fall 1998 academic quarter and the post-outreach survey to Comparison Fellows during the spring 1999 academic quarter. CSE staff used address lists provided by CBOP staff to notify Comparison Fellows of CSE's evaluation plans. For the pre-survey, Comparison Fellows were invited to campus for a pizza lunch where they would then complete the questionnaire. The post-outreach survey was administered to Comparison Fellows in conjunction with the Fellows' Post-Service Learning Survey (same time and locations; see paragraph above). Due to low response rates, follow-up surveys were also sent to respondents by mail with return envelopes, and an e-mail formatted survey was also sent to those Comparison Fellows with active e-mail addresses. Comparison Fellows were given the option to then return the completed survey by hand or via mail to CSE. Survey responses by e-mail were directed to CSE staff.

Response Rate

Of the 120 Pre-Education 193 Surveys administered to CBOP Fellows, the total number of CBOP Fellow Pre-Education 193 Surveys returned to CSE was 72, for a 60% response rate. Of the 153 surveys administered to Non-Fellows, the total number of Non-Fellow Pre-Education 193 Surveys returned to CSE was 101, for a 66% response rate. Of the 120 Post-Education 193 Surveys administered to CBOP Fellows, the total number of surveys returned to CSE was 116, for a 96% response rate. Of the 153 Post-Education 193 Surveys administered to Non-Fellows, 128 surveys were returned to CSE, for a response rate of 84%. Of the 120 Pre Service Learning Surveys administered to CBOP Fellows, a total of 75 were returned to CSE, for a response rate of 63%. Of the 120 Post Service Learning Surveys administered to CBOP Fellows, a total of 35 were returned, for a response rate of 29%. Twenty-five CBOP Fellows completed both the Pre- and Post Service Learning Surveys, for a response rate of 21%**.** Pre-outreach surveys were sent out to 649 potential Comparison Fellows, of whom 49 agreed to participate, for an initial response rate of 8%. The post-outreach survey was then only sent out to the 49 respondents who

completed the pre-outreach survey. Of those 49 Comparison Fellows, 29 returned the post-outreach survey, for a 60% response rate. Return rates for each of the surveys for the three groups are reported in Tables A.1 and A.2. Table A.2 shows the number of respondents by Fellows category.

Analysis

Analysis of the survey responses was conducted at three levels of comparison. The first level focused on participants in ED193 (Fellows and Non-Fellows) compared to undergraduates who were recruited to join CBOP, but decided not to participate (Comparison Fellows). The second level of analysis compared the Fellows to the Non-Fellows. The third level compared only the Fellows to the Comparison Fellows. These levels of analysis were chosen to investigate the impact of the class on all participants, differences between CBOP participants in service learning and participants in other types of service learning, and the impact of the class on only CBOP Fellows compared to other undergraduates. Analyses investigating the impact of the service learning did not use a comparison group but compared measures of the Fellows at three points in time: pre-ED193, pre-service learning, and post service learning. Data analyses included descriptive statistics, such as frequency distributions, univariate statistics (e.g., mean, median, standard error, range, skewness), and cross-tabulations or breakdowns of means by stratification variables. Program participation information, survey response variables, financial aid information, admissions data, registrar data, and ED193 course information variables were linked to the Undergraduate Student Surveys to enable comparisons based on Fellow type, and student background and performance variables. Non-parametric tests were used to quantify the differences between the groups: Fellows / Non-Fellows, Fellows, Non-Fellows, and Comparison Fellows.

Table B.1

Sample Population for the Undergraduate Surveys

	Fellows	Non-Fellows	Comparison Fellows
Preliminary sample	137	160	1412
Final sample sizes	120	156	649

Table B.2

Response Rate on Undergraduate Surveys

	Fellows	Non-Fellows	Comparison Fellows
Surveys administered	120	153	649
Pre-ED193			
Returns	72	101	—
Response rate	60%	66%	—
Post-ED193			
Returns	116	128	—
Response rate	96%	84%	—
Completed pre- and post-	68	84	
Overall response rate	57%	55%	
Pre-service learning			
Returns	75	—	—
Response rate	63%	—	—
Post-service learning			
Returns	35	—	—
Response rate	29%	—	—
Completed pre- and post-	25		
Overall response rate	21%		
Pre-outreach			
Returns	—	—	48
Response rate	—	—	8%
Post-outreach			
Returns	—	—	29
Response rate	—	—	60%
Completed pre- and post-			29
Overall response rate			4%

APPENDIX C: HIGH SCHOOL STUDENT SURVEY METHODOLOGY

To address the question of what is the impact of the service activities performed by CBOP Fellows on Scholars, a survey was administered to two similar student populations: (a) 9th-grade students participating as Scholars in the CBOP program; and (b) a comparison group of 9th-grade students with comparable records of academic achievement, and extra-curricular activities, but who were not active participants in CBOP. Both the Pre and Post Student Achievement and Learning Surveys were administered to both groups of respondents during the fall 1998 and spring 1999 academic semesters.

Survey Instrument

Both CBOP Scholars and Comparison Scholars were given questionnaires that asked respondents to focus on a specific academic semester. The questionnaires included questions that focused on two key areas: (a) academic attitudes and behaviors; and (b) academic performance and aspirations. In addition, the questionnaire for both CBOP Scholars and Comparison Scholars included a set of items regarding prior community service involvement and work experience. Refer to Table C.1 for a detailed discussion of the selection process and the numbers of Scholars and Comparison Scholars that are randomly selected or in a comparison class.

Table C.1

Sample Population and Response Rates for the High School Survey

	Scholars				Comparison Scholars		
Total sample	Comp. class	Self-selected	Randomly selected	Total scholars	Comp. class	Randomly selected	Total Comp. scholars
Pre-student achievement and learning	91	165	184	440	177	339	516
Returns	63	116	134	313	157	200	357
Response rate	69%	70%	72%	71%	89%	59%	69%
Post-student achievement and learning							
Returns	57	112	120	289	133	163	296
Response rate	61%	68%	65%	66%	75%	48%	57%

The Pre and Post Student Achievement and Learning Surveys for CBOP Scholars and Comparison Scholars were approved by UCLA's Human Subject Protection Committee.

Sample Selection

During the Fiscal 1998 year the Career Based Outreach Program provided services to students in 19 high schools throughout the Greater Los Angeles Area (see Table C.2). Of these 19 schools, six schools were chosen to take part in the 1998-1999 CBOP evaluation. The selection of these sites was purposefully based using characteristics that define the entire population of schools participating in CBOP. The group of evaluation sites were selected so that overall they would represent a mix of the following characteristics: high schools that are predominantly Chicano/Latino or predominantly African American; high schools that participated in CBOP in 1997/98 and 1998/99; high schools that partnered with UCLA in a school-centered collaborative; high schools with traditional and year-round

Table C.2

Nineteen Participating CBOP High School Partners

High schools
Crenshaw Senior High
Dorsey (Susan Miller) Senior High
Freemont (John D.) Senior High
Garfield (James A.) Senior High
Hamilton (Alexander) Senior High
Inglewood
Jefferson (Thomas) Senior High
Jordan (David Starr) Senior High
LACES (Los Angeles Center for Enrichment Studies)
Locke (Alain Leroy) Senior High
Lynwood
Manual Arts Senior High
Morningside
Palisades Charter High
Roosevelt (Theodore) Senior High
St. Bernard's (Private)
Venice Senior High
Washington (George) Preparatory High
Westchester Senior High

calendars; high schools with and without magnet schools; and high schools in LAUSD and other districts. All schools selected were also required to be public schools. The final set of six high schools selected included four School Partners in the Los Angeles Unified School District, two School Partners from Inglewood School District and one school partner from the Lynwood School District.

At these six schools CSE worked collaboratively with the CBOP staff and School Partners to select CBOP Scholar participants for the 1998-1999 academic year. At two evaluation sites, the high schools decided to select Scholars based on their enrollment in an honors course. The Comparison Scholars at these two sites were then identified by their enrollment in three additional honors courses of the same topic. At two other evaluation sites, the method of selection was a dual process of random selection from a pool of students with similar academic requirements and self-selection via an application process designed by CBOP staff. At these sites, approximately 50 students were allowed to self-select, approximately 60 were selected to randomly to participate, and approximately 100 were selected not to participate and be Comparison Scholars. The pool of high school students from which we randomly selected Scholars and Comparison Scholars had (a) earned a 3.0 grade point average by December of their freshman year, (b) prior class placement in specific kinds of classes, and (c) demonstrated participation in civic and extra-curricular activities. At the two remaining two sites, only random selection was used to select Scholars and Comparison Scholars. The pool of students was a combination of students who (a) had earned a 3.0 grade point average by December of their freshman year , (b) had prior class placement in specific kinds of classes, (c) had demonstrated participation in civic and extra-curricular activities, and (d) were participants in an existing College Preparatory program at the school. These arrangements were made between the School Partner and CBOP Staff only.

To facilitate the selection of Scholars and Comparison Scholars, schools were asked to submit lists of 9th-grade students who met the requirements described above that had been established by CBOP staff for participation in CBOP. Scholars and Comparison Scholars were then randomly chosen from lists submitted by CBOP high school liaisons. The intention was to establish two groups of high school students with as much as possible in common except for their participation in the Career Based Outreach Program as a Scholar during the 1998-1999 academic year.

The number of students participating in CBOP, including all groups, those chosen randomly, by self-selection via application, or via the intact class totaled 404. The number of Comparison Scholars totaled 531.

Procedures

Administration of the survey instruments at the six high school evaluation sites occurred early during the fall semester 1998 (prior to Fellows working with the Scholars) and again at the end of the spring semester 1999. The administration of the Post Student Achievement and Learning Survey during the spring semester 1999, however, was prolonged at two of the evaluation sites due to the schools' year-round schedule and, therefore, multiple tracks, in addition to administrative changes at one of the two sites, making scheduling and coordination difficult. We made plans with the schools that were unable to meet the previously scheduled dates to administer the survey two additional times in June and July. In addition, surveys with return envelopes were mailed during the latter part of July and August to all Scholars and or Comparison Scholars who were not able to complete the questionnaire during the initial or follow-up visits.

The CBOP liaison at each high school site was asked to confirm with CSE a convenient date, time and location for CSE to administer the questionnaire to all students. Memos were then sent two to three weeks prior to the agreed upon date to confirm plans. Liaisons were also provided a list of Scholars and Comparison Scholars who were asked to participate in the surveys. To encourage compliance and to provide an incentive for student participation in the Scholar Survey, Scholars were offered a free pizza lunch upon completion of the questionnaire.

Response Rate

The total number of CBOP Scholar Pre Student Achievement and Learning surveys returned to CSE was 305, for a 75% response rate. The total number of Comparison Scholar Pre Student Achievement and Learning Surveys returned was 366, for a 69% response rate. The total number of CBOP Scholar Post Student Achievement and Learning Surveys returned to CSE was 277, for a 63% response rate. The total number of Comparison Scholar Post Student Achievement and Learning Surveys returned to CSE was 309, for a response rate of 58%. Table C.1 shows the number of respondents by Scholar category.

Analysis

Data analyses included descriptive statistics, such as frequency distributions, univariate statistics (e.g., mean, median, standard error, range, skewness), and cross-tabulations or breakdowns of means by stratification variables. Program participation information and survey response variables were linked to the High School Student Surveys to enable comparisons based on Scholar type (e.g., Scholars or Comparison Scholar), school, and selection (random, class cohort, self-selected). Chi-square tests were used to test the statistical difference between Scholars and Comparison Scholars. Additional analyses will be conducted to assess the comparability of the random and class cohort sample designs.

APPENDIX D: THE PALS PRINCIPLES

The Personal Academic Learning System (PALS) is a comprehensive and interrelated network of methods, procedures, strategies, and tactics that are all grounded in a set of principles whose sole purpose is to produce optimal learning. Optimal learning is defined as achieving the maximum result of which an individual is capable at a given time. The elements of this system address the three dimensions of the problems impacting African American students (psychological, behavioral, and methodological) but may be adapted to all learners. The basic elements were derived from the best practices of a variety of programs currently operating at UCLA in several of our graduate and professional schools.

Here is an excerpt from UCLA's Academic Development Plan in Response to the UC Outreach Task Force Report written by Winston C. Doby (1977) explaining the PALS principles.

PALS is based on the following principles:

- There is an independence between our basic values and beliefs, on the one hand, and our attitudes and behaviors, on the other. Our attitudes and behaviors are an outward manifestation of our innermost values and beliefs.

- Our basic values and beliefs can be changed by altering how we behave on a daily basis; likewise, our behaviors can be changed by altering our basic values and beliefs.

- Certain behaviors, if practiced on a consistent basis, will ensure optimal learning.

- The vast majority of what we do is a result of habit; we can develop habits of optimal learning by practicing optimal learning behaviors over and over again.

- Everything happens for a reason; for every cause there is an effect, and all causation is mental. We become what we think about most of the time.

- Mastery or perfect performance comes from painstaking preparation and hard work.

- Self-confidence comes from our ability to persist in the face of adversity and is a fundamental ingredient of optimal learning.

- The peer group exerts a great deal of influence on the daily behavior of adolescents.

- An effective way of demonstrating mastery of a concept is to teach it.

In addition to these underlying principles, a number of basic belief statements, intended to empower the learner, are incorporated into PALS:

- I am my own best teacher and am responsible for my learning.
- Making mistakes is an effective way to learn and improve.
- My academic performance is a result of my learning methods, my attitude, and my effort.
- Ability is a variable, not a constant. The harder I try, the more able I become.
- Active engagement in learning makes the process more interesting and relevant.
- The purpose of school is to assist me in learning how to learn.
- The objective of formulating questions is to facilitate thinking.
- Grades and test scores are merely benchmarks indicating progress at particular point in time.

APPENDIX E: STUDENT-LEVEL AND SCHOOL-LEVEL BENCHMARKS

Student-Level

Number and percent of 9th and 10th graders who have completed Algebra I (or Integrated Math I) with a grade of B or better;

Number and percent of 9th, 10th, and 11th graders who have completed Geometry (or Integrated Math II) with a grade of B or better;

Number and percent of 10th, 11th and 12th graders who have completed Chemistry with a grade of B or better;

Number and percent of 11th and 12th graders who have completed Physics with a grade of B or better;

Number of 10th and 11th graders enrolled in honors-level English, Math, Science, and History;

Number and percent % of 11th and 12th graders enrolled in AP courses;

Number and percent of 11th and 12th graders taking AP exams;

Number and percent of 11th and 12th graders who took and passed AP exams (with a 3, 4, or 5);

Number of students taking the PSAT and SAT exams;

Number of students attending Saturday academy workshops and summer enrichment programs;

Number of students providing academic services to elementary and middle school students;

Number of special academic honors and prizes achieved by graduates;

Number and percent of 12th graders applying to UCLA, other UCs, other four-year universities or colleges, two-year universities or colleges, and community colleges;

Number of these 12th graders accepted and admitted to each of the above; and

Number of these 12th graders graduating from each of the above.

School-Level

Number of honors and Advanced Placement courses offered in the high school curriculum;

Number and percent of 11th and 12th graders enrolled in the A-F requirements;

Number and percent of 12th graders completing the A-F requirements;

Mean scores on the PSAT and SAT exams;

Number and percent of teachers with emergency credentials;

Number and percent of teachers with BA or MA;

Average total number of years teachers have been teaching;

Number and percent of math and science teachers with math and science degrees;

School graduation rate; and

School drop-out rate.

Construction and Calculation of Benchmarks

All of the student-level benchmark data and the student drop-out rate came from the LAUSD SIS (Student Information System) database, which contains student-level information on demographics, course-taking, grades, test scores, and school location codes. Information on the SAT II, UC eligibility, A-F completion, and teacher degrees came a database of compiled school-level variables for all high schools across the state. The data were compiled from CBEDs (California Basic Education Data System, California Department of Education (CDE), College Board data, high school performance reports, and other extant databases collected by University of California Office of the President (UCOP). Moreover, information on AP exams was obtained from the Educational Testing Service's (ETS) California database. All data were from 1997-98. Note that the data compiled by UCOP reports more graduates at the 15 high schools (by a few hundred) than the district report as the total number of seniors enrolled at the high schools. For this reason, the state number of graduates was used in calculations involving state data only.

The calculations of benchmarks reported in Table 12 and 13 are explained in detail in the following paragraphs. First of all, the total number of students enrolled at the 15 LAUSD schools was calculated by adding the number of 9th, 10th, 11th,

and 12th graders enrolled at each of the 15 schools. Similarly, the number of students at the three evaluation sites was calculated by adding the number of students in each grade at each of the individual schools. Numbers are disaggregated for Magnet and Non-Magnet schools. Table E.1 lists the names of the 15 LAUSD CBOP schools with their associated Magnet Schools.

The percent of students who took the SAT at the 15 schools was calculated by dividing the number who took the SAT by the total number of students in the schools. The same procedure was done for the three evaluation schools. Mean SAT scores were calculated to reflect the individual student-level data. The average score reported by each school was multiplied by the number of students taking the test at each school. The sum of this calculation for each was then divided by the total number of students taking the test. The same procedure was used for the three evaluation schools. The same procedure was used to calculate median percentile scores for the SAT 9. For the SAT II test scores, the number of students taking the test from each school was added and then divided by the number of graduates. These data came from the state database.

Numbers for the students passing each of the math/science courses were calculated in the same way as the number of students enrolled. Passing refers to students receiving a grade of B or higher in the course for the specified term.

Eligibility and A-F completion data were estimated by the University of California Office of the President for each of the schools. Data from the individual schools were then combined for the 15 CBOP schools and the three evaluation schools.

The mean number of AP courses offered at the schools was derived from the LAUSD SIS data. The number of courses offered at each school was averaged across the 15 CBOP schools and the three evaluation schools. The other AP information came from ETS. The number of students enrolled in AP courses, number of students taking the exam, and number of students taking and then passing the exam with a three or better were combined for 11th and 12th graders. Numbers for each of the individual schools were combined to obtain these numbers.

The mean drop-out rate was obtained by taking the mean of the rates for the individual schools as reported by the LAUSD SIS data. The number of teachers with a BA and MA were obtained from UCOP estimates. The percents of teachers with a degree at each school were averaged to obtain the numbers that appear in the table.

Table E.1

List of CBOP Schools and Their Magnet Schools

School name	Associated magnet school
Crenshaw Senior High	Crenshaw Teacher Training Magnet
	Crenshaw G / HG / HA Magnet
Dorsey (Susan Miller) Senior High	Dorsey Math / Science Magnet
	Dorsey Law / Government Magnet
Fremont (John C.) Senior High	Fremont Math / Science Magnet
Garfield (James A.) Senior High	Garfield Computer Science Magnet
Hamilton (Alexander) Senior High	Hamilton Music Academy Magnet
	Hamilton Humanities Magnet
Jefferson (Thomas) Senior High	
Jordan (David Starr) Senior High	
Locke (Alain Leroy) Senior High	
Los Angeles Center for Enrichment	
Manual Arts Senior High	Manual Arts College Preparatory Magnet
Palisades Charter High	Palisades Math / Science Magnet
Roosevelt (Theodore) Senior High	Roosevelt Math / Science Magnet
Venice Senior High	Venice Foreign Language Magnet
Washington (George) Preparatory High	Washington Math / Science Magnet
Westchester Senior High	Westchester Math / Science AER Magnet