MEMO

To: Community College of Baltimore County
From: Sung-Woo Cho, Elizabeth Kopko, and Davis Jenkins, CCRC
Date: June 11, 2012
RE: Tracking the Success Rates of Students in CCBC's ALP

Overview

In fall 2007, the Community College of Baltimore County (CCBC) launched a new program model designed to accelerate the rate at which academically unprepared students enter college-level coursework in English. Under the Accelerated Learning Program (ALP), students placed into upper-level developmental writing are "mainstreamed" into English 101 classes, and simultaneously enrolled in a companion ALP course (taught by the same instructor) that meets in the class period immediately following the English 101 class. The aim of the ALP course, which has only eight students, is to help students maximize the likelihood of success in English 101. A 2010 study found that students who participated in ALP were much more likely to pass college-level English courses compared to those students who took the highest level of developmental writing (ENGL052) by itself. [1] That study found no association between ALP enrollment and increased persistence, however.

In February 2012, CCRC received updated student-level and course-level data. Using more recent data from CCBC allowed us to track more cohorts of students for a longer period of time than did the 2010 analysis. The new data also allowed us to determine whether students received an award at CCBC, or whether they transferred to a four-year institution. This new analysis also differs from the 2010 analysis in that we employed a propensity score matching strategy that allowed us to compare ALP students with matched non-ALP students, and track their outcomes over time.

Data

We used unit record data on student characteristics and full transcript information provided by CCBC. Data were collected from students who took ENGL052 for the first time from fall 2007 to fall 2010, including summer terms. Across all 10 cohorts of first-time CCBC

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[1] See Davis Jenkins, Cecilia Speroni, Clive Belfield, Shanna Jaggars, and Nikki Edgecombe, *A model for accelerating academic success of community college remedial English students: Is the Accelerated Learning Program (ALP) effective and affordable?* (CCRC Working Paper No. 21), New York, NY: Columbia University, Teachers College, Community College Research Center, September 2010.

students, students were followed through the end of fall 2011, for at least one full academic year after their ENGL052 semester. We excluded ALP students who took ENGL052 after fall 2010 (since they do not have complete one-year outcomes), students who took ENGL052 for the first time as a dual enrollment course (that is, while they were still enrolled in high school), and students who took ENGL052 in semesters when ALP was not offered. The final sample included a total of 592 students enrolled in ALP and its companion ENGL101 course ("ALP students") and 5,545 enrolled in a traditional section of ENGL052 ("non-ALP students"). Demographic characteristics of each group are shown in Table 1.

Methods

We conducted a descriptive analysis to compare outcomes between ALP and non-ALP students, and a regression analysis to determine the association between ALP participation and student outcomes controlling for observable characteristics. In our regression analysis, we controlled for various student characteristics, including student demographic characteristics, socioeconomic background indicators, enrollment characteristics, and placement test results. Other variables included campus and cohort fixed effects to control for variations across the different CCBC campuses and cohorts of students. The outcomes included, but were not limited to, the following measures:

- Completion of ENGL101 with a grade of "C" or higher
- Completion of ENGL102 with a grade of "C" or higher
- Persistence to the next term and year
- Number of college-level courses attempted and completed after taking ENGL052
- Number of college-level credits attempted and completed after taking ENGL052
- Completion of a certificate or associate degree at CCBC
- Transfer to a four-year college

To compare ALP students with non-ALP students and estimate the relationship between participating in ALP and these outcomes, we measured outcomes using two time frames: (1) following students through the end of fall 2011, and (2) following students through one academic year after taking ENGL052. Regressions were run using ordinary least squares.

Results

Descriptive Results

Table 2 shows the raw or unadjusted comparisons between ALP and non-ALP students. Results suggest that ALP students were more likely to pass ENGL101, although no significant difference in grades between the two groups was revealed. ALP students were also more likely to both attempt and pass ENGL102. Conditional pass rates, or pass rates conditional on attempting these courses, were similar between ALP and non-ALP students in ENGL101, but almost seven percentage points lower for ALP students in ENGL102.

Compared to their non-ALP peers, ALP students were also more likely to persist to the next term and also to the next year after ENGL052. ALP students also attempted and completed a greater number of college-level courses and credits after ENGL052. ALP and non-ALP students were equally likely to earn an associate degree, earn a certificate degree, and transfer to a four-year college. The differences between ALP and non-ALP students in ENGL101 completion, ENGL102 completion, and next year persistence are shown in Figure 1. All differences shown are statistically different at the one percent level.

Regression Results

Table 3 shows the results of each regression model. Our final regression model (model 2) controls for a large number of student-level covariates, including demographic characteristics (gender, age, and race), measures of students' academic background (college placement test scores in reading, English, and math), median household income (derived from the 2010 U.S. Census data based on the student's Census block[2]), several financial aid indicators, and campus and cohort fixed effects. The results of our regression analysis indicate that there were substantial differences between ALP and non-ALP students using outcomes that were tracked through fall 2011, as well as one-year outcomes. ALP students outperformed students enrolled in traditional sections of ENGL052 in the following outcomes: ENGL101 completion rate, ENGL102 completion rate, persistence to the next year after ENGL052, and college-level courses and credits completed after ENGL052. All differences were statistically significant at the one percent level.

Specifically, ALP students were 28.5 percentage points more likely to complete ENGL101 by the end of fall 2011 and 32.5 percentage points more likely to complete ENGL101 within one year after ENGL052. Similarly, ALP students were 16.5 percentage points more likely to complete ENGL102 by the end of fall 2011 and 19.9 percentage points more likely to complete ENGL102 within one year after ENGL052.

As compared to their non-ALP peers, ALP students were also 5.5 percentage points more likely to persist to the year following ENGL052, and, on average, completed 1.2 more college-level credits after ENGL052. This finding differs from the results of the 2010 study, which indicated that there was no relationship between ALP enrollment and persistence at CCBC.

We also compared differences in one-year outcomes between ALP and non-ALP students for older (2007-2008) and newer (2009-2010) cohort groups to determine whether the relationship between ALP participation and these outcomes differed across both sets of cohorts. Our analysis revealed that outcome differences were larger for newer cohorts of ALP students than for older cohorts of ALP students. Specifically, as compared to non-ALP students, ALP students in the oldest cohorts were 30.4 percentage points more likely to complete ENGL101 and 17.8 percentage points more likely to complete ENGL102. This is in contrast to the ALP

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[2] See Peter Crosta, Tim Leinbach, Davis Jenkins, David Prince, and Doug Whittaker, *Using Census data to classify community college students by socioeconomic status and community characteristics* (Research Tools No. 1), New York, NY: Columbia University, Teachers College, Community College Research Center, July 2006.

students in the newer cohorts, who were 34.5 percentage points more likely to complete ENGL101 and 20.8 percentage points more likely to complete ENGL102.

Matched Analysis and Results

Although these findings indicate that there were significant differences in outcomes between the ALP and non-ALP students, the fact that there were almost 10 times as many non-ALP students in our sample may cause some concern. Because of this difference in sample distribution, the ALP and non-ALP students may not have been similar enough to be considered as fair comparison groups. For example, although the ALP students were smaller in number, the group may have consisted of students who were more academically prepared or had a greater motivation to succeed.

To address these concerns (at least in part), we employed a propensity score matching strategy in which the 592 ALP students in our sample were matched to 592 non-ALP students using the observed student characteristics that were used as controls in our original regression analysis. This resulted in a sample of similar students, with the primary difference being ALP participation.

Column (5) of Table 3 shows the results of our matched analysis. The descriptive findings indicate that the matched non-ALP students, on average, fared better than the general pool of non-ALP students. Moreover, as with our descriptive analyses, the differences in outcomes between ALP and the matched non-ALP students were still large and statistically significant at the one percent level. We found that ALP students were still much more likely to complete ENGL101 and ENGL102, persist to the next year, and complete more college courses and credits than their matched non-ALP counterparts, again using outcomes that were tracked through fall 2011, as well as one-year outcomes. These outcome differences for the balanced sample are displayed in Figure 2.

The regression analysis using this balanced matched sample reveals that ALP students were again more likely to achieve these outcomes than their non-ALP counterparts, but that the differences were even greater with the matched sample than with the entire sample of students. For example, ALP students were 31.3 percentage points more likely to complete ENGL101 through fall 2011 using the balanced sample, compared to 28.5 percentage points using the entire sample. This trend carried over to most of the other outcome comparisons as well. ALP students in the balanced sample were more likely to complete ENGL102 by 18.5 percentage points (compared to 16.5 percentage points using the entire sample) and more likely to persist to the next year by 10.5 percentage points (compared to 5.5 percentage points using the entire sample).

Summary of Findings

Our analysis reveals that the ALP students outperformed their non-ALP counterparts in the overall completion of college-level English courses, supporting the results of the 2010 analysis. However, by using a larger number of cohorts and tracking students over a longer

period of time, we also found that ALP students were more likely to persist to the next year than non-ALP students. These differences in outcomes were substantial in size and in most cases were statistically significant at the one percent level, indicating that these differences did not occur by chance. The regression analyses also support the descriptive findings, and analyses that compared earlier and more recent cohorts suggest that the differences between ALP and non-ALP students have actually increased among the newer cohorts.

To help lessen concerns about the imbalance in number between ALP and non-ALP students, we employed a propensity score matching strategy to match ALP students with similar non-ALP students. This resulted in slightly smaller, yet still statistically significant differences in outcomes between the ALP and non-ALP students. The regression analysis revealed that ALP students in the balanced sample were more likely to achieve their outcomes than non-ALP students at a higher likelihood than in the entire sample.

While the analysis of the balanced sample is more robust than that of the entire sample, the results are still correlational and should not be interpreted to mean that participation in ALP *caused* the superior outcomes observed. ALP students could have unobserved characteristics, such as higher levels of motivation, which account for their superior outcomes. However, the fact that in both this and the 2010 study, ALP students are found consistently to perform better than those who take developmental courses before enrolling in college-level English, is promising evidence of the model's effectiveness.

Table 1. Student characteristics by program participation

	ALP	Non-ALP
Student Demographics		
Female	60.1%	55.2%
Age at first enrollment	21.3	21.8
White	39.9%	32.5%
Hispanic	1.9%	1.2%
Black	49.8%	57.0%
Asian/Pacific Islander	3.6%	3.0%
Socioeconomic Background		
Median income in students' Census block (Census 2010)	$59,794	$58,633
Family income	$22,851	$18,097
Financial aid recipient (grant, scholarship, loans, and work-study)	71.0%	67.3%
Pell Grant recipient	59.5%	59.3%
Grant amount	$3,525	$2,825
Total financial aid amount	$5,217	$4,146
Family size	2.2	2.0
Enrollment Characteristics		
Full-time at first term	60.0%	48.8%
Transferred any credits to CCBC	5.1%	4.4%
Took ENGL051 (lower-level dev ed)	8.1%	7.8%
Number of courses (college-level or dev ed) before ENGL052	1.4	1.2
Academic Preparation		
CPT English score	72.5	70.9
CPT reading score	68.7	64.5
CPT math score	44.4	39.4
Total Students	**592**	**5,545**

Table 2. Comparisons between ALP Students and non-ALP students who enrolled in ENGL052

Followed through end of fall 2011	ALP	Non-ALP	Difference	Stat Sig
ENGL101 completion rate	74.7%	38.5%	36.2%	***
ENGL101 grade	2.2	2.2	0.0	
ENGL102 completion rate	37.5%	16.8%	20.7%	***
ENGL102 grade	2.2	2.4	-0.2	*
Persist to next term after ENGL052	81.9%	70.2%	11.7%	***
Persist to next year after ENGL052	64.2%	48.0%	16.2%	***
Number of college courses attempted after ENGL052	7.0	5.5	1.5	***
Number of college courses completed after ENGL052	4.3	3.3	1.0	***
Number of college credits attempted after ENGL052	21.1	16.4	4.7	***
Number of college credits completed after ENGL052	12.9	9.8	3.1	***
Earned associate degree	2.9%	2.4%	0.5%	
Earned certificate degree	0.3%	0.3%	0.0%	
Transferred to a four-year college	9.1%	9.7%	-0.6%	
Followed through one academic year after ENGL052	**ALP**	**Non-ALP**	**Difference**	
ENGL101 completion rate	73.6%	33.0%	40.6%	***
ENGL101 grade	2.2	2.1	0.1	
ENGL102 completion rate	33.5%	9.8%	23.7%	***
ENGL102 grade	2.2	2.4	-0.2	*

Statistically significant at: *** 1% level, ** 5% level, * 10% level

Table 3. Regression estimates of the effect of the Accelerated Learning Program

Followed through end of fall 2011	Model 1: Student Covariates & Campus FE (1)	Model 2: Add Cohort FE (2)	Model 2 for 2007-2008 Cohorts (3)	Model 2 for 2009-2010 Cohorts (4)	Model 2 for Matched Analysis (5)
ENGL101 completion rate	0.284***	0.285***	0.208***	0.325***	0.313***
ENGL101 grade	-0.026	-0.038	-0.238**	0.076	-0.027
ENGL102 completion rate	0.145***	0.165***	0.125***	0.199***	0.185***
ENGL102 grade	-0.150*	-0.132	-0.044	-0.170	-0.097
Persist to next term after ENGL052	0.050***	0.024	-0.007	0.029	0.002
Persist to next year after ENGL052	0.085***	0.055***	0.023	0.079***	0.105***
# of college courses attempted after ENGL052	-0.050	0.717***	1.172**	0.999***	1.120***
# of college courses completed after ENGL052	-0.138	0.365**	0.661	0.609***	0.740***
# of college credits attempted after ENGL052	-0.086	2.329***	3.923**	3.137***	3.589***
# of college credits completed after ENGL052	-0.355	1.190**	2.174	1.922***	2.366***
Earned associate degree	-0.011*	0.001	0.037*	-0.000	-0.002
Earned certificate degree	-0.002	-0.001	0.003	-0.002	-0.009**
Transferred to a four-year college	-0.027**	-0.013	0.028	-0.024*	-0.003
Followed through one academic year after ENGL052					
ENGL101 completion rate	0.338***	0.325***	0.304***	0.345***	0.345***
ENGL101 grade	0.042	0.018	-0.134	0.127	0.024
ENGL102 completion rate	0.204***	0.199***	0.178***	0.208***	0.212***
ENGL102 grade	-0.119	-0.118	-0.049	-0.171	0.089
N	6,137	6,137	2,401	3,285	1,184

FE = fixed effects
Statistically significant at: *** 1% level, ** 5% level, * 10% level

Figure 1. Outcomes of regular sample: Through fall 2011
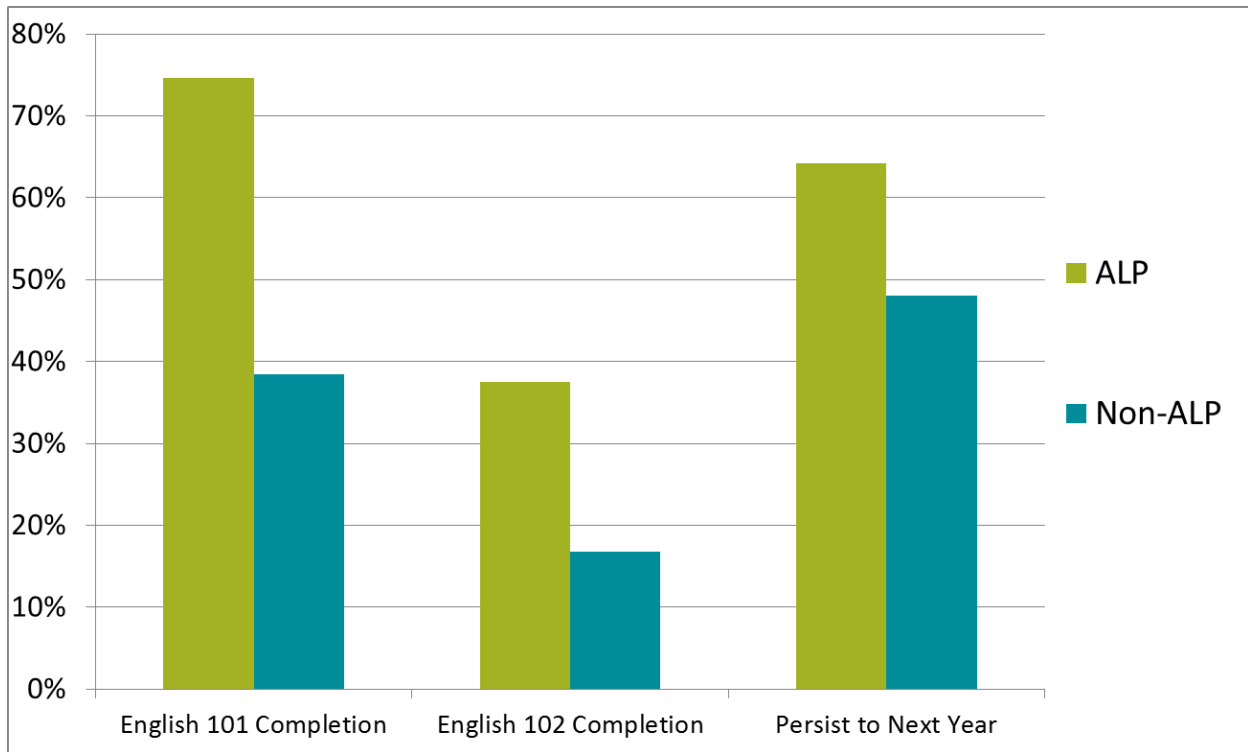
Figure 2. Outcomes of balanced sample: Through fall 2011