



**New Evidence of Success for
Community College Remedial English Students:
Tracking the Outcomes of Students in the
Accelerated Learning Program (ALP)**

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Abstract

This paper presents the findings from a follow-up quantitative analysis of the Community College of Baltimore County's Accelerated Learning Program (ALP). Our results suggest that among students who enroll in the highest level developmental writing course, participation in ALP is associated with substantially better outcomes in terms of English 101 completion and English 102 completion (college-level English courses), which corroborates the results of a similar analysis completed in 2010. These results were consistent, and in some cases, even stronger, when we used propensity score matching. Moreover, 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. Specific subgroup analyses for earlier versus later cohorts, as well as for Black and low-income students, revealed relationships between ALP participation and student outcomes that were similar to those found in the larger sample, although ALP appeared to be more effective for White and high-income students on some outcomes. Finally, we compared college-ready students enrolled in ALP sections of English 101 with their counterparts in wholly college-ready sections, and found that those in ALP sections had equivalent performance within English 101 itself, but slightly lower subsequent college-level course enrollment and completion.

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1. Introduction

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 and complete college-level coursework in English. Under the Accelerated Learning Program (ALP), students who enroll in upper-level developmental writing and who elect to participate in the program are “mainstreamed” into English 101 (ENGL101, an introductory college-level English course) and are simultaneously enrolled in a three-credit, companion ALP course (taught by the same instructor) that meets in the class period immediately following ENGL101. The aim of the companion ALP course, which has only eight students per section, is to help students maximize their likelihood of success in ENGL101. A 2010 study by the Community College Research Center (CCRC) found that students who participated in ALP were much more likely to pass college-level English courses, compared with those students who took the highest level developmental writing course (ENGL052) by itself (Jenkins, Speroni, Belfield, Jaggars, & Edgecombe, 2010). Compared with the conventional approach in which students complete developmental courses before enrolling in college-level courses, the ALP model provides a substantially more cost-effective route for underprepared students to pass the ENGL101 and ENGL102 sequence required for an associate degree (\$2,680 versus \$3,122 per student). The 2010 study found no association between ALP enrollment and increased persistence, however.

In February 2012, CCRC received updated student- and course-level data from CCBC. The 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 extended follow-up period data allowed us to determine whether students received an award at CCBC and whether they transferred to a four-year institution. The expanded sample size also allowed us to conduct several sub-analyses, including: (1) an examination of outcomes among Black and low-income students; (2) a comparison between early and later cohorts, to determine whether the strength of ALP increased as its implementation matured; and (3) an analysis of non-ALP students in “mixed” ENGL101 classrooms, to determine whether these students fared better or worse than their counterparts in homogenous ENGL101 classrooms. In addition to the regression analysis employed in the original study, the

current study also employed a propensity score matching strategy that allowed us to compare ALP students with matched non-ALP students and track their outcomes over time.

Our results suggest that participation in ALP is associated with substantially better outcomes in terms of ENGL101 and ENGL102 completion, which corroborates the results from the 2010 study. Moreover, 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 findings remained consistent between early and later cohorts of ALP students, and were also fairly consistent across race and income groups, although ALP appeared to be more effective for White and high-income students on some outcomes. Much like the findings for the full sample, analysis using propensity score matching suggests that ALP students were 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. Finally, by comparing college-ready students enrolled in ALP sections of English 101 to their counterparts in wholly college-ready sections, we found that those in ALP sections had equivalent performance within English 101 itself, but slightly lower subsequent college-level course enrollment and completion.

2. Data

We used unit record data on student characteristics and full transcript information provided by CCBC to carry out the study. Data were collected on students who were new to CCBC and enrolled in at least one course.¹ Among these students, we narrowed our focus to those who were enrolled in ENGL052, the highest level developmental English course at CCBC, for the first time from fall 2007 to fall 2010, including summer terms. This includes both students who were enrolled in the traditional ENGL052 course and students who were mainstreamed into ENGL101 with the ALP course, which CCBC considers to be special sections of ENGL052.² Across all 10 cohorts of students who enrolled in ENGL052, 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 enrolled in ENGL052 after fall 2010, students who enrolled in ENGL052 for the first time as a dual enrollment course (that is, while they were still enrolled in high school), and students who enrolled in ENGL052 during semesters when ALP was not offered. The final sample included a total of 592 students enrolled in ENGL101 and its companion ALP course (“ALP students”) and 5,545 students enrolled in a traditional section of ENGL052 (“non-ALP students”).

The demographic characteristics of each group (shown in Table 1) suggest that ALP students were more likely to be female and White and less likely to be Black than students in the non-ALP control group. ALP students were also more likely to receive financial aid and had, on average, larger total financial aid awards. ALP students were also more likely to be enrolled full time during their first term at CCBC and to have enrolled in more courses previous to enrolling in ENGL052. ALP students scored higher on all three placement tests in English, reading, and math, compared with non-ALP students. These differences suggest that, on average, ALP students may have been somewhat better prepared academically than students in the non-ALP control group.³

¹ Using students from this dataset, we later select those students who enrolled in ENGL101 for the first time to determine classroom composition effects, in Section 4.5.

² The CCBC data classifies ALP students as being concurrently enrolled in ENGL052 and ENGL101.

³ Students who are referred to the highest level of developmental English, ENGL052, ultimately choose whether to participate in ALP or take the standard ENGL052 course by itself. We would therefore expect ALP students to have a higher level of motivation, as they signal an intention to complete the college English course faster than their counterparts.

Table 1
Descriptive Characteristics of ALP and Non-ALP Students

	ALP	Non-ALP	Difference
Variable	(1)	(2)	(1-2)
<i>Student Demographics</i>			
Female	60.1%	55.2%	5.0%**
Age	21.32	21.84	-0.52*
Black	49.8%	57.0%	-7.1%***
White	53.0%	51.2%	1.9%
Hispanic	1.9%	1.2%	0.6%
Asian American	3.5%	3.0%	0.6%
<i>Socioeconomic Background</i>			
Median household income in student's Census block (2010 Census)	\$62,320	\$60,714	\$1,607
FAFSA family income	\$38,762	\$31,735	\$7,027***
Received any financial aid	70.9%	67.3%	3.7*
Received Pell grant	83.8%	88.2%	-4.4*
Grant amount	\$4,969	\$4,199	\$770***
Loan amount	\$1,977	\$1,647	\$330*
Financial aid amount	\$7,354	\$6,164	\$1,191***
Family size	3.10	3.01	0.10
<i>Enrollment Characteristics</i>			
Full-time in first term	60.0%	48.8%	11.2%***
Transferred any credits to CCBC	5.1%	4.3%	0.7%
ENGL051 attempt	8.1%	7.8%	0.3%
Number of courses taken before ENGL052	3.59	3.50	0.09
<i>Academic Preparation</i>			
English placement score	73.61	72.18	1.43
Reading placement score	71.18	66.57	4.61
Math placement score	46.77	41.29	5.48
Total Students	592	5,545	

Note. A two-tailed test was conducted to determine the extent to which student characteristics were statistically significantly different.

*significant at 10%, **significant at 5%, ***significant at 1%

3. Methods

CCBC's earlier quantitative analysis examined the outcomes of students who participated in ALP during the first three terms it was offered (fall 2007, spring 2008, and fall 2008), tracking them and a comparison group through 2009. The present study examines the outcomes of students in these early cohorts along with additional ALP sections through fall 2010, tracking their progress through the end of fall 2011, at least one full academic year after their ENGL052 semester. The study uses multivariate statistics to examine the effects of participating in ALP on a series of student outcomes, controlling for student demographics and educational backgrounds as well as full-time instructor effects.

3.1 Descriptive and Multivariate Analysis

We conducted a descriptive analysis to compare outcomes of ALP and non-ALP students and a regression analysis to determine the association between ALP participation and student outcomes while 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 to estimate the relationship between participating in ALP and these outcomes, we measured outcomes using two time frames: (1) following all students in the sample through the end of fall 2011 and (2) following students through one academic year after taking ENGL052. Regressions were conducted using ordinary least squares.

3.2 Matched Analysis

The final sample used in our multivariate analysis is comprised of nearly 10 times as many non-ALP students as ALP students. Because of this difference in sample distribution, the ALP and non-ALP students may not be similar enough to be considered fair comparison groups. For example, the much smaller ALP group may consist of students who are more academically prepared or who differ along some other observable characteristic that potentially contributes to academic success.

To address these concerns as much as possible with the data available, 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 main difference being ALP participation. The resulting balanced matched sample was used to compare ALP students with non-ALP students on outcomes that were tracked through fall 2011, as well as on one-year-after-ENGL052 outcomes. Again, we used ordinary least squares regressions, controlling for student covariates as well as cohort and campus fixed effects.

4. Results

4.1 Descriptive Results

Table 2 shows the raw, or unadjusted, comparisons between ALP and non-ALP students. Results suggest that ALP students were much more likely to attempt ENGL101. Among students who attempted ENGL101, those from the ALP and non-ALP version of ENGL052 earned similar grades in the college-level course. Combining these two patterns together, then, the ALP students were much more likely to pass ENGL101. ALP

students were also more likely to both attempt and pass the second college-level course in the English sequence, ENGL102. Conditional pass rates, or pass rates conditional on attempting these courses, were similar between ALP and non-ALP students in ENGL101, but were almost 7 percentage points lower for ALP students in ENGL102. (However, once student characteristics were accounted for in the regression analysis, this effect did not persist; see Section 4.2.)

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 when students were followed through the fall of 2011, as well as when they were followed through one year after taking ENGL052. At the same time, ALP and non-ALP students were equally likely to earn an associate degree, earn a certificate degree, or 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. As indicated, the differences in these outcomes are statistically significant at the 1 percent level.

Table 2
Raw Academic Outcomes of ALP and Non-ALP Students
(Fall 2007–Fall 2010 Cohorts)

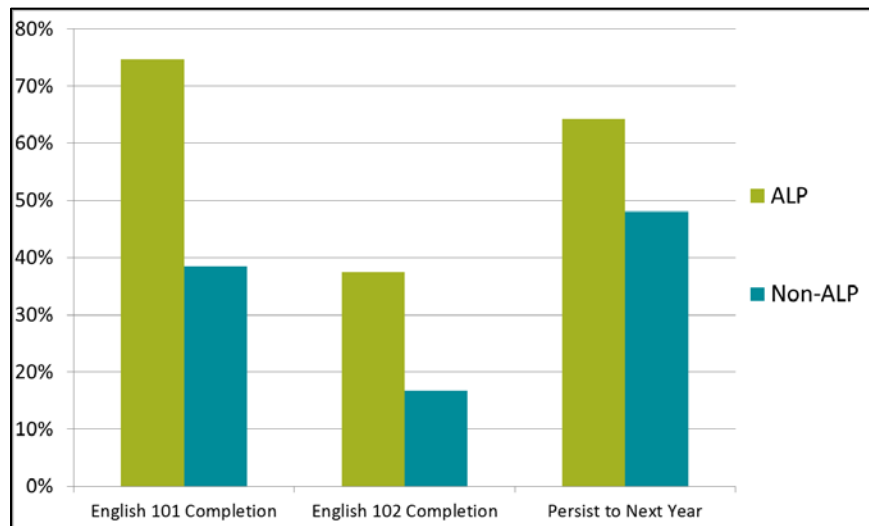
Outcome	ALP (1)	Non-ALP (2)	Difference (1–2) (3)
<i>Followed through end of fall 2011</i>			
ENGL052 completion rate	82.77%	66.96%	15.8%***
ENGL101 attempt rate	100.00%	52.64%	47.4%***
ENGL101 overall completion rate	74.66%	38.50%	36.2%***
ENGL101 conditional pass rate	74.66%	73.14%	1.5%
ENGL101 grade	2.19	2.20	0.02
ENGL102 attempt rate	54.22%	22.13%	32.1%***
ENGL102 overall completion rate	37.50%	16.79%	20.7%***
ENGL102 conditional pass rate	69.16%	75.88%	-6.7%**
ENGL102 grade	2.24	2.38	-0.14*
Persist to next term after ENGL052	81.93%	70.24%	11.7%***
Persist to next year after ENGL052	64.19%	48.03%	16.2%***

	ALP	Non-ALP	Difference
Outcome	(1)	(2)	(1-2)
College courses attempted after ENGL052	7.04	5.51	1.53***
College courses completed after ENGL052	4.33	3.31	1.02***
College credits attempted after ENGL052	21.09	16.38	4.71***
College credits completed after ENGL052	12.91	9.79	3.11***
Earned associate degree	2.87%	2.36%	0.5%
Earned certificate degree	0.34%	0.32%	0.0%
Transferred to a four-year college	9.12%	9.68%	-0.6%
<i>Followed through one year after ENGL052</i>			
ENGL052 completion rate	82.43%	65.48%	17.0%***
ENGL101 attempt rate	100.00%	47.95%	52.1%***
ENGL101 overall completion rate	73.65%	32.98%	40.7%***
ENGL101 conditional pass rate	73.65%	68.79%	4.9%**
ENGL101 grade	2.16	2.12	0.04
ENGL102 attempt rate	49.66%	13.42%	36.2%***
ENGL102 overall completion rate	33.45%	9.81%	23.6%***
ENGL102 conditional pass rate	67.35%	73.12%	-5.8%*
ENGL102 grade	2.22	2.39	-0.17*
College courses attempted after ENGL052	6.97	5.37	1.60***
College courses completed after ENGL052	2.87	1.87	1.00***
College credits attempted after ENGL052	14.32	9.45	4.87***
College credits completed after ENGL052	8.54	5.51	3.03***
Total Students	592	5,545	

Note. A two-tailed test was conducted to determine the extent to which student characteristics were statistically significantly different.

*significant at 10%, **significant at 5%, ***significant at 1%

Figure 1
Selected Raw Outcomes of ALP and Non-ALP Students Through Fall 2011



4.2 Regression Results

Table 3 shows the results of each regression model. Our regression model controls for a large number of student-level covariates, including demographic characteristics (gender, age, and race), measures of student academic background (college placement test scores in reading, English, and math), median household income (derived from 2010 U.S. Census data based on the student’s Census block),⁴ several financial aid indicators, and campus and cohort fixed effects.⁵ The results of our regression analysis indicate that there were substantial differences in outcomes 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.

⁴ For steps on how Census block coordinates can be linked to household income, see Crosta, Leinbach, Jenkins, Prince, and Whittaker (2006).

⁵ Fixed effects are used to avoid biased outcome estimates by controlling for or removing any potential impact of time-invariant characteristics. In this study, for example, we use campus fixed effects to account for the fact that the relationship between ALP participation and student outcomes may be influenced by some attribute of the specific campus in which the student was enrolled, and we use cohort fixed effects to control for potential influences of characteristics specific to the cohort year itself.

Table 3
Regression Estimates of Associations Between
ALP Participation and Academic Outcomes

Outcome	All Cohorts	Earlier (2007– 08) Cohorts	Later (2009– 10) Cohorts	ALP*Later Cohorts
	(1)	(2)	(3)	(4)
<i>Followed through end of fall 2011</i>				
ENGL052 completion rate	0.104***			
ENGL101 attempt rate	0.390***			
ENGL101 overall completion rate	0.285***			
ENGL101 conditional pass rate	0.027			
ENGL101 grade	-0.038			
ENGL102 attempt rate	0.270***			
ENGL102 overall completion rate	0.165***			
ENGL102 conditional pass rate	-0.044			
ENGL102 grade	-0.132			
Persist to next term after ENGL052	0.024			
Persist to next year after ENGL052	0.055***			
College courses attempted after ENGL052	0.717***			
College courses completed after ENGL052	0.365**			
College credits attempted after ENGL052	2.329***			
College credits completed after ENGL052	1.190**			
Earned associate degree	0.001			
Earned certificate degree	-0.001			
Transferred to a four-year college	-0.013			
<i>Followed through one year after ENGL052</i>				
ENGL052 completion rate	0.111***	0.094**	0.119***	
ENGL101 attempt rate	0.426***	0.453***	0.416***	
ENGL101 overall completion rate	0.325***	0.304***	0.345***	
ENGL101 conditional pass rate	0.057***	0.006	0.095***	(+)*
ENGL101 grade	0.018	-0.134	0.127	
ENGL102 attempt rate	0.314***	0.240***	0.350***	(+)**
ENGL102 overall completion rate	0.199***	0.178***	0.208***	
ENGL102 conditional pass rate	-0.048	0.014	-0.063	
ENGL102 grade	-0.118	-0.049	-0.171	
College courses attempted after ENGL052	0.734***	1.241**	0.989***	(-)**
College courses completed after ENGL052	0.388***	0.334	0.489***	

	All Cohorts	Earlier (2007–08) Cohorts	Later (2009–10) Cohorts	ALP*Later Cohorts
Outcome	(1)	(2)	(3)	(4)
College credits attempted after ENGL052	2.349***	1.973***	2.758***	
College credits completed after ENGL052	1.215***	1.062*	1.538***	
N	6,137	2,401	3,285	

*significant at 10%, **significant at 5%, ***significant at 1%

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.

Compared with their non-ALP peers, ALP students were also 5.5 percentage points more likely to persist to the next year following ENGL052, and, on average, they completed 1.2 more college-level credits after ENGL052. When looking at one-year-after-ENGL052 outcomes, we see that ALP students clearly attempted and completed more college-level courses and credits than their non-ALP counterparts. These results differ from those in the 2010 study, which found no relationship between ALP enrollment and persistence or earning of college credits at CCBC.

Cohort differences. In order to determine whether the relationship between ALP participation and student outcomes strengthened across time as the program’s implementation matured, we performed a sub-analysis comparing students in early cohorts with those in more recent cohorts. As shown in columns (2) and (3) of Table 3, we compared differences in one-year outcomes between ALP and non-ALP students in older (2007–08) versus newer (2009–10) cohort groups. The program’s expansion can be seen in the number of students in these cohorts, as there are 53 percent more students in the later cohorts compared with the earlier cohorts. The analysis revealed that outcome differences were larger overall for newer cohorts of ALP students than for older cohorts of ALP students. However, to determine whether being in ALP resulted in significantly different outcomes, we conducted an interaction analysis using only students in these two

cohort groups (column 4). This revealed that although ALP students in the newer cohorts generally were outperforming their non-ALP counterparts at a slightly higher level, these differences between cohorts were statistically significant and positive only for the ENGL101 conditional pass rate and ENGL102 attempt rate. These findings suggest that while ALP participation was associated with slightly larger outcome differences in more recent years of program implementation (perhaps because of increased program effectiveness or efficiency over time), statistically significant differences between the cohorts occurred for only two outcomes.

4.3 Subgroup Analysis

The ALP program was designed in part to assist disadvantaged groups in their efforts to overcome academic underpreparation. Accordingly, the program is concerned with ensuring that ALP is effective not only for advantaged students, but also for students from disadvantaged backgrounds. To explore this issue, we conducted subgroup analyses for Black students (the largest racial or ethnic minority group available in the sample) and low-income students. To determine whether the subgroups differed in terms of the strength of the ALP coefficient, we first interacted ALP participation with the subgroup in question, and ran the same regressions as shown in Table 3 using the entire student sample (N = 6,137). Statistically significant and positive results would indicate that students in the subgroup were closing the outcome gap between themselves and their comparison group by participating in ALP. We also looked at raw descriptive outcomes to determine differences between ALP and non-ALP students in these subgroups and their comparison groups.

The results of the subgroup analyses indicate that participation in ALP had a positive relationship with student outcomes regardless of the student's race or income level. However, for some outcomes, the strength of this positive relationship was slightly stronger for more-advantaged students, as discussed in more detail below.

Race comparisons. Table 4 presents the results of the interaction analyses based on race, with significant interactions (at the 10 percent level or less) indicating that the strength of the ALP coefficient differs between Black and White students. A positive sign indicates that the ALP coefficient was stronger for Black or low-income groups, whereas

a negative sign indicates that the ALP coefficient was stronger for White or high-income groups. Approximately half of the outcomes had non-significant interactions, indicating that the ALP coefficient was similar between the two groups. One outcome (English 101 enrollment, measured both at one-year follow-up and longer term follow-up) showed a positive interaction, suggesting that Black ALP students received a stronger boost than did White ALP students in terms of English 101 enrollment. However, among the remaining outcomes, approximately half showed a negative interaction, suggesting that ALP provided a stronger boost for White students.

To assist in interpreting the interactions, Table 4 contains the raw outcomes for ALP and non-ALP students within each racial group. Even when the interactions were negative, Black ALP students still equaled or exceeded their non-ALP counterparts in terms of most outcomes. For example, the English 102 completion rate (followed to the end of fall 2011) shows one of the strongest negative interactions. In this case, there was a strong positive association between ALP participation and English 102 completion among Black students, with ALP students outperforming non-ALP students by nearly 17 percentage points; however, the positive association was even stronger among White students, with ALP students outperforming non-ALP students by more than 23 percentage points.

Table 4
Raw Academic Outcomes of Black and White Students by ALP Status

Outcome	Black		White		ALP*Black Interaction
	ALP	Non-ALP	ALP	Non-ALP	
	(1)	(2)	(3)	(4)	(5)
<i>Followed through end of fall 2011</i>					
ENGL052 completion rate	77.3%	59.7%	89.8%	76.7%	
ENGL101 attempt rate	100.0%	47.0%	100.0%	59.6%	(+) **
ENGL101 overall completion rate	68.8%	32.3%	84.3%	46.4%	
ENGL101 conditional pass rate	68.8%	68.8%	84.3%	77.8%	
ENGL101 grade	1.95	2.02	2.52	2.43	
ENGL102 attempt rate	49.8%	17.9%	59.7%	28.4%	
ENGL102 overall completion rate	29.5%	12.8%	46.2%	22.8%	(-) ***
ENGL102 conditional pass rate	59.2%	71.8%	77.3%	80.5%	(-) *
ENGL102 grade	1.92	2.20	2.50	2.58	

Outcome	Black		White		ALP*Black Interaction
	ALP	Non-ALP	ALP	Non-ALP	
	(1)	(2)	(3)	(4)	(5)
Persist to next term after ENGL052	78.6%	68.2%	86.4%	72.2%	
Persist to next year after ENGL052	60.0%	43.7%	68.6%	54.2%	
College courses attempted after ENGL052	5.86	4.57	8.17	6.78	(-) **
College courses completed after ENGL052	3.16	2.46	5.46	4.50	(-) **
College credits attempted after ENGL052	17.41	13.49	24.65	20.24	(-) **
College credits completed after ENGL052	9.36	7.22	16.40	13.30	(-) **
Earned associate degree	2.4%	1.2%	3.8%	4.2%	
Earned certificate degree	0.3%	0.1%	0.4%	0.6%	
Transferred to a four-year college	8.5%	9.2%	9.7%	9.5%	
<i>Followed through one year after ENGL052</i>					
ENGL052 completion rate	76.9%	58.3%	89.4%	75.1%	
ENGL101 attempt rate	100.0%	42.4%	100.0%	54.6%	(+) **
ENGL101 overall completion rate	67.5%	27.0%	83.5%	40.8%	
ENGL101 conditional pass rate	67.5%	63.6%	83.5%	74.7%	
ENGL101 grade	1.91	1.91	2.50	2.38	
ENGL102 attempt rate	45.8%	10.3%	54.2%	18.2%	
ENGL102 overall completion rate	25.1%	7.0%	41.9%	14.2%	(-) ***
ENGL102 conditional pass rate	54.8%	67.9%	77.3%	78.4%	(-) **
ENGL102 grade	1.88	2.18	2.53	2.60	
College courses attempted after ENGL052	5.78	4.44	8.11	6.61	(-) **
College courses completed after ENGL052	2.12	1.43	3.65	2.46	(-) ***
College credits attempted after ENGL052	12.12	8.12	16.56	11.09	(-) ***
College credits completed after ENGL052	6.25	4.18	10.94	7.28	(-) ***
N	295	3,158	236	1,804	6,137

*significant at 10%, **significant at 5%, ***significant at 1%

Income comparisons. We divided our original sample of students into income quintiles and focused on those students whose median household income (according to the 2010 U.S. Census) fell in the lowest income quintile, or median household earnings of less than \$38,636.

Table 5 shows the results of the interaction analyses based on income. For these analyses, we compared the lowest-income group with both the middle-income group and the highest income group.⁶ A positive sign indicates that the ALP coefficient was stronger for the lowest income group, whereas a negative sign indicates that the ALP coefficient was stronger for the given higher income group.

When examining the outcomes tracked to the fall of 2011, Table 5 indicates that the ALP coefficients for low-income students were consistently similar to those for middle-income and high-income students. When examining short-term (one-year) outcomes, however, the lowest income students appeared to receive a milder boost from ALP in comparison to their counterparts in the highest income group. Taking the example of one-year English 102 completion, the lowest-income ALP students outperformed their non-ALP counterparts by over 18 percentage points. While this is an impressive difference, the parallel difference among the highest income students was substantially stronger, at approximately 26 percentage points.

Overall, the results of the subgroup analyses indicate that among disadvantaged students, there is a positive association between ALP participation and most student outcomes. However, for some outcomes, this positive association is even stronger among more advantaged students.

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⁶ The middle income group consisted of students whose median household incomes fell within the middle quintile (\$50,321 to \$63,036). The highest income students had median household incomes of \$79,125 or more.

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Table 5
Academic Outcomes of Income Subgroups by ALP Status

Outcome	Lowest Income		Middle Income		ALP*Lowest Income (vs. Middle Income)	Highest Income		ALP*Lowest Income (vs. Highest Income)
	ALP	Non-ALP	ALP	Non-ALP		ALP	Non-ALP	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Followed through end of fall 2011</i>								
ENGL052 completion rate	78.4%	62.4%	91.9%	67.9%		86.2%	70.0%	
ENGL101 attempt rate	100.0%	48.6%	100.0%	54.2%	(+) *	100.0%	55.0%	
ENGL101 overall completion rate	65.8%	32.4%	82.8%	41.5%		75.4%	42.8%	
ENGL101 conditional pass rate	65.8%	66.7%	82.8%	76.5%		75.4%	77.8%	
ENGL101 grade	1.92	2.05	2.32	2.28		2.28	2.35	
ENGL102 attempt rate	45.0%	17.6%	62.6%	24.5%		55.4%	25.4%	
ENGL102 overall completion rate	28.8%	12.5%	40.4%	18.7%		41.5%	20.0%	
ENGL102 conditional pass rate	64.0%	71.3%	64.5%	76.2%		75.0%	78.7%	
ENGL102 grade	1.98	2.25	2.08	2.41		2.43	2.56	
Persist to next term after ENGL052	72.1%	67.3%	85.9%	71.1%		86.9%	70.9%	(-) **
Persist to next year after ENGL052	55.9%	40.9%	71.7%	49.9%		67.7%	52.6%	
College courses attempted after ENGL052	5.23	4.44	7.84	5.73		7.65	6.41	
College courses completed after ENGL052	2.86	2.41	4.59	3.46		5.08	4.08	
College credits attempted after ENGL052	15.66	13.07	23.44	17.00		23.00	19.22	
College credits completed after ENGL052	8.53	7.13	13.80	10.15		14.99	12.08	
Earned associate degree	0.0%	1.4%	3.0%	2.5%		3.1%	3.7%	
Earned certificate degree	0.0%	0.0%	0.0%	0.2%		0.0%	0.3%	
Transferred to a four-year college	7.2%	9.3%	7.1%	9.9%		11.5%	13.3%	
<i>Followed through one year after ENGL052</i>								
ENGL052 completion rate	78.4%	60.7%	91.9%	66.4%		85.4%	68.1%	
ENGL101 attempt rate	100.0%	44.9%	100.0%	49.1%	(+) *	100.0%	50.7%	
ENGL101 overall completion rate	65.8%	27.9%	82.8%	35.2%		74.6%	37.6%	
ENGL101 conditional pass rate	65.8%	62.2%	82.8%	71.7%		74.6%	74.1%	
ENGL101 grade	1.92	1.96	2.32	2.18		2.26	2.29	
ENGL102 attempt rate	40.5%	10.4%	57.6%	15.8%	(-) **	52.3%	14.7%	(-) *

Outcome	Lowest Income		Middle Income		ALP*Lowest Income (vs. Middle Income)	Highest Income		ALP*Lowest Income (vs. Highest Income)
	ALP (1)	Non-ALP (2)	ALP (3)	Non-ALP (4)		ALP (6)	Non-ALP (7)	
ENGL102 overall completion rate	25.2%	7.1%	36.4%	11.9%		36.9%	10.8%	(-) **
ENGL102 conditional pass rate	62.2%	68.7%	63.2%	75.8%		70.6%	73.2%	
ENGL102 grade	2.05	2.33	2.08	2.48		2.29	2.48	
College courses attempted after ENGL052	5.19	4.34	7.77	5.57		7.63	6.24	
College courses completed after ENGL052	1.99	1.44	2.87	1.96		3.48	2.25	(-) ***
College credits attempted after ENGL052	11.44	8.07	15.07	9.74		15.68	10.81	(-) *
College credits completed after ENGL052	5.85	4.22	8.66	5.78		10.30	6.63	(-) ***
N	111	1,108	99	1,130	2,448	130	1,112	2,161

*significant at 10%, **significant at 5%, ***significant at 1%

4.4 Matched Results

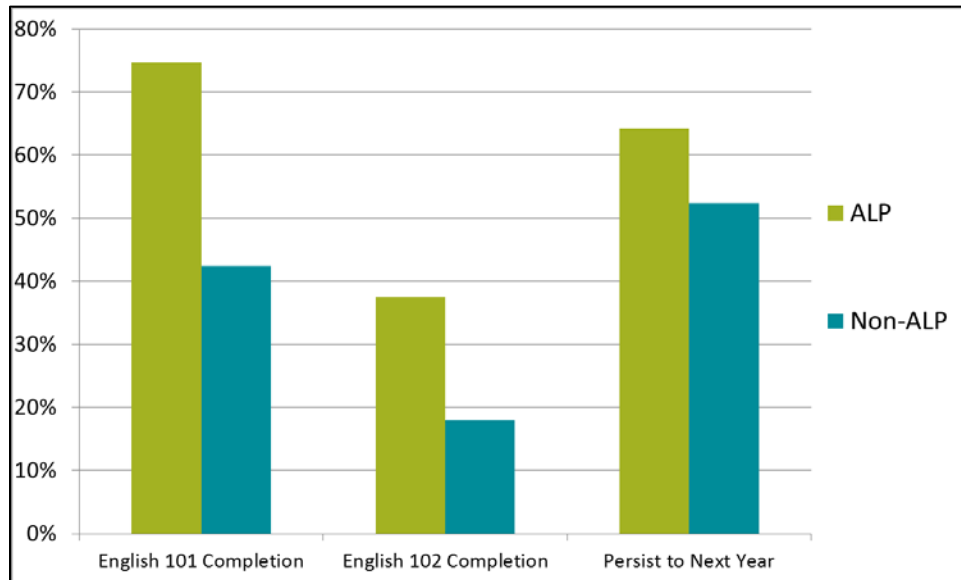
To address the issue of unbalanced and dissimilar comparison groups (as described in Section 3.2), we carried out a series of analyses that compared similar ALP and non-ALP students. Table 6 shows the results of our matched analysis. The descriptive findings indicate that the matched non-ALP students, on average, fared better than the general pool of non-ALP students. Moreover, as with the findings in our original descriptive analysis, the differences in outcomes between ALP and the matched non-ALP students were large and statistically significant at the 1 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 matched sample are displayed in Figure 2.

Table 6
Descriptive Characteristics of Balanced Matched Cohort

Variable	ALP (1)	Non-ALP (2)	Difference (1-2) (3)
<i>Student Demographics</i>			
Female	60.1%	60.1%	0.0%
Age	21.32	21.29	0.03
Black	49.8%	49.5%	0.3%
White	51.2%	48.0%	3.2%
Hispanic	1.9%	1.2%	0.7%
Asian American	3.5%	2.7%	0.8%
<i>Socioeconomic Background</i>			
Median household income in student's Census block (2010 Census)	\$59,794	\$58,294	\$1,500
FAFSA family income	\$22,851	\$22,251	\$600
Received any financial aid	70.9%	71.6%	-0.7%
Received Pell grant	59.5%	59.8%	-0.3%
Grant amount	\$3,525	\$3,563	-\$38
Loan amount	\$1,403	\$1,453	-\$51
Financial aid amount	\$5,217	\$5,301	-\$84
Family size	2.20	2.13	0.08
<i>Enrollment Characteristics</i>			
Full-time in first term	60.0%	63.9%	-3.9%
Transferred any credits to CCBC	5.1%	5.2%	-0.2%
ENGL051 attempt	8.1%	8.8%	-0.7%
Number of courses taken before ENGL052	1.40	1.56	-0.16
<i>Academic Preparation</i>			
English placement score	72.49	73.05	-0.56
Reading placement score	68.66	69.06	-0.40
Math placement score	44.40	43.19	1.21
Total Students	592	592	

Note. None of the differences in column (3) are statistically significant at the 10 percent level.

Figure 2
Selected Raw Outcomes of Balanced Matched Cohort Through Fall 2011



The regression analysis using this balanced matched sample (see Table 7) reveals that ALP students were again more likely to achieve these outcomes than their non-ALP counterparts; the differences were even greater with the matched sample than with the entire sample of students. This can occur when, in the analysis of an entire sample, there is high variation in the control variables accounting for differences in student characteristics, thereby reducing the coefficient of interest (in our case, the coefficient on the *ALP* variable) relative to that computed using a balanced matched sample. For example, ALP students were 31.3 percentage points more likely to complete ENGL101 through fall 2011 using the balanced sample, compared with 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 with 16.5 percentage points using the entire sample, shown in Table 3) and were more likely to persist to the next year by 10.5 percentage points (compared with 5.5 percentage points using the entire sample).

Table 7
Regression Estimates Using Balanced Matched Cohort

	All Cohorts	Earlier (2007– 08) Cohorts	Later (2009– 10) Cohorts
Outcome	(1)	(2)	(3)
<i>Followed through end of fall 2011</i>			
ENGL052 completion rate	0.111***		
ENGL101 attempt rate	0.417***		
ENGL101 overall completion rate	0.313***		
ENGL101 conditional pass rate	0.050*		
ENGL101 grade	-0.027		
ENGL102 attempt rate	0.294***		
ENGL102 overall completion rate	0.185***		
ENGL102 conditional pass rate	0.002		
ENGL102 grade	-0.097		
Persist to next term after ENGL052	0.002		
Persist to next year after ENGL052	0.105***		
College courses attempted after ENGL052	1.120***		
College courses completed after ENGL052	0.740***		
College credits attempted after ENGL052	3.589***		
College credits completed after ENGL052	2.366***		
Earned associate degree	-0.002		
Earned certificate degree	-0.009**		
Transferred to a four-year college	-0.003		
<i>Followed through one year after ENGL052</i>			
ENGL052 completion rate	0.111***	0.161***	0.106***
ENGL101 attempt rate	0.438***	0.466***	0.426***
ENGL101 overall completion rate	0.345***	0.304***	0.373***
ENGL101 conditional pass rate	0.085***	-0.038	0.147***
ENGL101 grade	0.024	-0.198	0.172
ENGL102 attempt rate	0.316***	0.232***	0.349***
ENGL102 overall completion rate	0.212***	0.213***	0.214***
ENGL102 conditional pass rate	0.062	0.131	-0.023
ENGL102 grade	0.089	-0.060	-0.087
College courses attempted after ENGL052	1.097***	1.757**	1.142***
College courses completed after ENGL052	0.518***	0.682**	0.609***
College credits attempted after ENGL052	2.494***	2.214**	2.984***
College credits completed after ENGL052	1.602***	2.062**	1.907***
N	1,184	142	460

*significant at 10%, **significant at 5%, ***significant at 1%

4.5 Classroom Composition Analysis for English 101 Students

Table 8 presents regression results from a sample of 7,679 students who enrolled in ENGL101 between fall 2009 and fall 2010 and were not in ALP (“college-ready students”). This sample included students who arrived at CCBC college-ready in English, as well as students who completed the traditional ENGL052 course beforehand. We limited this sample to students who entered between fall 2009 and fall 2010 due to the absence of required information in the classroom-level data prior to fall 2009. In this analysis, the coefficient of interest is enrollment in ENGL101 taught in a classroom with ALP students present. Attention to this particular subgroup allows us to examine classroom composition effects that may have occurred as a result of college-ready students sharing a classroom and a teacher with ALP students.⁷

Our results suggest that enrollment in an ENGL101 classroom with ALP students was significantly related to differences in some outcomes. For these college-ready students, there was a negative relationship between taking ENGL101 with ALP students and certain outcomes, such as attempting and completing college courses and credits after ENGL101, both through the fall of 2011 and through the first year after ENGL101 enrollment. However, these negative coefficients were small in relation to the positive coefficients observed among ALP students. As an illustration of the relative size of the coefficients, consider a typical ALP section of ENGL101 composed of eight ALP students and 12 college-ready students. The ALP students in that classroom are nearly 20 percentage points more likely to complete English 102 within the next year (in comparison to their non-ALP counterparts in ENGL052), while the college-ready students in that classroom are less than 3 percentage points less likely to complete English 102 within the next year (in comparison to their counterparts in a fully college-ready section of ENGL101).

⁷ For an explanation of these effects in education, see Rhoads (2011).

Table 8
Regression Estimates of the Associations with Outcomes for
Those Enrolling in ENGL101 Classroom with ALP Students,
Using a Sample of All ENGL101 Enrollees
(Fall 2009–Fall 2010 Cohorts)

	Model 1: Controls + Campus FE	Model 2: Add Cohort FE
<i>Followed through end of fall 2011</i>		
ENGL101 overall completion	0.006	0.004
ENGL101 grade	0.017	0.009
ENGL102 attempt	-0.032**	-0.030*
ENGL102 overall completion	-0.006	-0.002
ENGL102 conditional pass	-0.006	-0.002
ENGL102 grade	0.057	0.061
Persist to next term after ENGL101	0.024	0.024
Persist to next year after ENGL101	-0.028*	-0.014
College courses attempted after ENGL101	-0.448***	-0.388***
College courses completed after ENGL101	-0.487***	-0.458***
College credits attempted after ENGL101	-1.381***	-1.202***
College credits completed after ENGL101	-1.462***	-1.373***
Earned associate degree	-0.005	-0.005
Earned certificate degree	0.000	0.000
Transferred to a four-year college	-0.039***	-0.039***
Followed through one year after ENGL101		
ENGL101 overall completion	0.001	-0.001
ENGL101 grade	0.008	-0.001
ENGL102 attempt	-0.036**	-0.035**
ENGL102 overall completion	-0.026*	-0.025*
ENGL102 conditional pass	0.006	0.010
ENGL102 grade	0.072	0.075
College courses attempted after ENGL101	-0.482***	-0.423***
College courses completed after ENGL101	-0.197**	-0.179*
College credits attempted after ENGL101	-0.345	-0.230
College credits completed after ENGL101	-0.595**	-0.543*
N	7,679	7,679

*significant at 10%, **significant at 5%, ***significant at 1%

5. Conclusion

The 2010 quantitative analysis, which examined the outcomes of students who participated in ALP during the first three terms it was offered, tracked ALP participants and a comparison group from fall 2007 to fall 2009, at least one year after their ENGL052 semester. The previous study found that among students who placed into the highest level of developmental writing, participation in ALP was associated with substantially better outcomes in terms of ENGL101 completion and ENGL102 completion, the two primary outcomes that ALP was designed to improve. The previous analysis, however, found no evidence that ALP students' greater likelihood of completing ENGL101 and ENGL102 was correlated with increased rates of college persistence or passing other college-level courses.

Using more recent data from CCBC that allowed us to extend our previous analysis to include students who took ENGL052 for the first time from fall 2007 to fall 2010, we found similarly positive correlations between participation in ALP and the likelihood of ENGL101 and ENGL102 completion. Moreover, using a larger number of cohorts and tracking students over a longer period of time, we also found that ALP students were significantly more likely to persist to the next year, as well as to attempt and complete more college-level courses and credits than non-ALP students. These differences in outcomes were substantial in size, and persisted when we used a matched sample of students. Additional analyses suggested that the positive relationships between ALP participation and student outcomes increased slightly among recent cohorts, although there was no evidence of significant improvements across cohorts. These overall positive relationships were also apparent across student racial groups and income levels, although some relationships were stronger among White and high-income students.

Skeptics of developmental acceleration programs often express three interconnected concerns: (1) that accelerated students will struggle in the college-level classroom, resulting in lower grades and pass rates; (2) that instructors of accelerated classrooms will lower their standards in order to avoid failing large numbers of students; and (3) that the performance of college-ready students will suffer in the presence of underprepared students. The first concern suggests that ALP students would have lower conditional pass rates in ENGL101. However, ALP students performed equally well in

ENGL101 compared to their classmates who completed ENGL052 prior to attempting ENGL101. The success of the ALP students in ENGL101 may be due in large part to the support provided in the ALP companion course. The second concern suggests that ALP students (even while passing ENGL101 itself) would not be properly prepared to succeed in ENGL102, resulting in lower conditional pass rates in that course. However, ALP students also performed equally well in ENGL102 compared to their classmates who completed ENGL052 prior to embarking on the college-level English sequence.

Finally, the third concern suggests that college-ready students in ALP sections of ENGL101 will have lower pass rates in ENGL101—or potentially, weaker long-term outcomes subsequent to ENGL101—compared with students enrolled in wholly college-ready sections of ENGL101. While college-ready students in ALP sections performed equally well within ENGL101 itself, we did observe a slight dampening of their academic performance subsequent to ENGL101. As noted above, this dampening does not seem to be due to a weakening of academic standards within ENGL101. However, at least two other potential factors could be in play. First, ALP instructors may devote more time and attention to the underprepared students in ENGL101. While a relative lack of attention may not affect college-ready students' grades in ENGL101, it could affect their overall academic interest and motivation. For example, Cox (2009) argues that individual attention from an instructor can combat students' fears of failure and help them to persist and succeed long-term. Second, the eight ALP students within each section tend to form a smaller community within the larger ENGL101 course. It is possible that exclusion from this community affects the college-ready students' sense of academic integration. As we contemplate these potential negative impacts, however, it is also important to take into account the scope of the affected populations. Of a total of 592 ALP students in our sample, the program appears to be associated with very large improvements in the vast majority of our outcomes. For the 973 college-ready students who shared the same classroom with ALP students, only some outcomes were slightly dampened. At face value, then, it appears as though the overall gains by the ALP students would overshadow any decreases in expected outcomes for the college-ready ENGL101 students. Thus, in order to address concerns regarding the performance of college-ready students in

ENGL101, it seems reasonable to maintain the current ALP structure, while building in some type of additional support for the college-ready students in the course.

While this analysis demonstrates that there were clear differences between the ALP and non-ALP student outcomes, 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 had unobserved characteristics, such as higher levels of motivation, that contributed to their superior outcomes. Nonetheless, in both this and the 2010 study, ALP students were found to have consistently performed better than similar students who took the highest level developmental course before enrolling in college-level English. These results provide promising evidence of the model's effectiveness.

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