

English Learner Pathways in Community College

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Executive Summary

English Learners (ELs) comprise 10% of students in the U.S. K-12 public school system (NCES, 2019), but little is known about their postsecondary experiences. As a large, historically underserved subgroup, ELs' postsecondary access should be at the forefront of policy discussions. Due to the difficulty in tracking ELs from high school to college, however, research on ELs has tended to focus only on outcomes up to high school graduation (e.g., Callahan & Shifrer, 2016; Shin, 2018); and research on college outcomes often cannot distinguish ELs from other disadvantaged student subgroups (e.g., Kanno & Cromley, 2013). This study fills this gap in research and practice by analyzing the academic trajectories of a large EL sample at a two-year college. We focus on ELs who never gained sufficient English proficiency to exit K-12 language services because compared to other ELs, this subgroup is likely the most underserved by the school system. We ask: (1) What are the patterns of academic progress for math and English by ELs in a two-year college, as measured by course-taking, credits earned, and degree completion or transfer to a four-year college? (2) To what extent do these patterns differ by EL subgroups, such as by home language? In this brief, we present a summary of results.

Data

We obtained data for this study through a research partnership with a K-12 school district and a two-year community college in Northern California, Pacific Community College (PCC).¹ This partnership enabled us to access K-12 administrative records and postsecondary transcripts (e.g., course-taking, credits, grades, degree completion, transfer) in a unique dataset. We observe not only whether ELs finish college but also their journey to completion or dropout. All 305 students in our sample graduated high school without gaining sufficiency in English proficiency to exit language services.

About a third of EL students in our sample enrolled at PCC during either one (33.11%) or two years (36.72%), and a little more than a quarter remained at PCC for only one term (25.57%). Once enrolled at PCC, EL students enrolled in an average of 11.43 courses—although, there was substantial variability: some students enrolled in only 1 course while others enrolled in up to 54 courses.² Finally, EL students in our sample spoke primarily Spanish (42.66%) or Chinese (40.33%). Of the 305 students, 204 took at least one math course and were included in the math pathway analysis; 230 took at least one ESL or English course and were included in the English pathway analysis. Key findings for the math and English pathways of students in the sample are presented below.

Math Pathways

- Of the students who enrolled in a math course during their time at PCC, a third (33.33%) took one math course and almost a quarter (24.51%) took two math courses. On average, and including repeated enrollment in the same course, ELs attempted 11.53 units of math but earned just an average of 7.04 units of math.
- Almost two thirds of students in our EL sample (65.69%) took a remedial math course at some point during their time at PCC—a sizeable portion of EL students took one (29.41%) or two (21.08%) of these courses.
- Of the students who began in the lowest-level remedial math course (e.g., Pre-Algebra with Basic Math), almost a fifth (19.30%) made it to an AA degree applicable course (e.g., Elementary Algebra) but fewer (15.77%) made it all the way to a college-level, transfer math course (e.g., Math for Liberal Arts or Pre-Calculus Algebra, etc.). Although it is not the goal of all students to

¹ Pseudonym is employed to protect the anonymity of the participating organization.

² In terms of total courses enrolled, 11.15% of students enrolled in only one course, 8.20% enrolled in two courses, 10.82% enrolled in three courses, 6.23% enrolled in four courses, and 63.60% enrolled in five or more courses.

enroll in a college-level course, only about half (50.98%) of the students in our sample eventually enrolled in a college-level math course.

- Almost all Spanish speakers enrolled in remedial math (93.42%), whereas only 43.48% of Chinese speakers and 63.89% of other non-English speakers did. In contrast, only 18.42% of Spanish speakers enrolled in college-level math, whereas 79.35% of Chinese speakers and 47.22% of other non-English speakers enrolled in these courses.

English Pathways

- Overall, the majority of EL students in our sample *did not ever* enroll in an ESL class (58.70%). EL students in our sample attempted an average of 16.68 units of English or ESL coursework but only earned an average of 10.97 units.
- Many EL students in our sample first enrolled in either the Pre-Cursor to University Reading & Composition (12.17%) or Introduction to Basic Reading/Writing (12.17%). Students often took only one or two ESL courses before reaching college-level English, although some students in the sample took more than four (and up to 15) ESL or remedial English classes before reaching this milestone. Ultimately, a little less than half of ELs in our sample ever enrolled in a college-level English course (43.91%).
- 44.44% of Spanish speakers enrolled in ESL compared to 45.00% of Chinese speakers, and 62.22% of Spanish speakers enrolled in remedial English compared to 71.00% of Chinese speakers. However, a higher proportion of Chinese speakers (58.00%) and other non-English speakers (55.00%) enrolled in college-level English than Spanish speakers (23.33%).

Completion or Four-Year Transfer

- EL students who graduated from the K-12 district and enrolled in PCC between 2013-14 and 2016-17 had higher rates of transferring to a four-year institution (21.97%) than completion of degrees or certificates (2.95%). However, there are major differences by language group—Chinese-speaking students transferred (34.15%) and completed degrees or certificates (7.32%) at a higher rate than Spanish-speaking students (11.54% transferred; 0.00% obtained a degree or certificate).

Conclusion

With the advent of AB 705, colleges across the state are working towards shortening developmental pathways for all students, including ELs. Many challenges lie ahead—although it appears as if many ELs in our sample selected to enroll in remedial rather than ESL coursework, students did not fare well in terms of course completion or transferring to a four-year college. As such, colleges will need to continue working towards ensuring that ELs receive the appropriate academic support and are properly placed in the appropriate courses, neither too advanced nor too basic.

English Learner Pathways in Community College

English Learners (ELs) comprise 10% of students in the U.S. K-12 public school system (NCES, 2019), but little is known about their postsecondary experiences. The Every Student Succeeds Act (ESSA) highlights EL achievement, making K-12 schools responsible for preparing *all* students for college and career. Meanwhile, at the postsecondary level, colleges receiving federal student aid are held accountable for seeing that all students graduate, but many are not required to monitor the progress of students who were ELs in K-12. As a large, historically underserved subgroup, ELs' postsecondary access should be at the forefront of policy discussions. Due to the difficulty in tracking ELs from high school to college, however, research on ELs has tended to focus only on outcomes up to high school graduation (e.g., Callahan & Shifrer, 2016; Shin, 2018); and research on college outcomes often cannot distinguish ELs from other disadvantaged student subgroups (e.g., Kanno & Cromley, 2013). Without the ability to identify students who were eligible for K-12 language services, research cannot inform programs and policies to support their postsecondary pursuits.

Based on K-12 findings, we would expect considerable disparities in postsecondary outcomes, both between ELs and non-ELs and among subgroups within the EL population. Anecdotal evidence from administrators suggests that EL graduates are not well-supported by postsecondary institutions. But the lack of systematic data poses a challenge to identifying these inequities and targeting services aimed at supporting ELs. In college, ELs who are still developing English proficiency are often placed into non-credit English as a Second Language (ESL) or remedial classes. As a result, they struggle to make progress toward degree completion. Recent research addresses the quality of ESL and remedial instruction, but the samples in these studies inevitably confound several groups of adult learners, including international students, immigrants and refugees, and native English users receiving remediation (e.g., Bailey & Santos, 2009; Harklau et al., 2011). EL graduates from the K-12 education system are largely lost in the samples.

This study fills this gap in research and practice by analyzing the academic trajectories of a large EL sample at a two-year college. We focus on ELs who never gained sufficient English proficiency to exit K-12 language services because compared to other ELs, this subgroup is likely the most underserved by the school system and, without appropriate support, the most

vulnerable to leaving college without a degree (Rodriguez et al., 2016). We present novel evidence on EL postsecondary trajectories, with an aim to inform policy and practice in K-12 and higher education and catalyze much-needed future research. Using unique student-level data that combine K-12 administrative records with college transcripts, we analyze college course-taking and completion patterns for a well-identified EL sample (N=305). Given the difficulty in obtaining this type of dataset, few studies have disaggregated college outcomes by EL subgroups. Our study contributes to this need by presenting insights about EL postsecondary trajectories separately for students according to their home language.

Our research questions were developed jointly with our research partners in the K-12 school district and two-year community college to ensure alignment with their mission and goals towards promoting college access among underserved student populations. We ask: (1) What are the patterns of academic progress for math and English by ELs in a two-year college, as measured by course-taking, credits earned, and degree completion or transfer to a four-year college? (2) To what extent do these patterns differ by EL subgroups, such as by home language?³

Literature Review

Although there is limited national data on EL postsecondary outcomes, available research suggests that ELs face various dimensions of disadvantage in their K-12 academic career and that they have lower college attainment rates than their English-speaking peers (Kanno, 2018; Kanno & Cromley, 2013, 2015; Núñez & Sparks, 2012). Of those who attend a postsecondary institution, ELs are more likely to enroll in two-year colleges (Kanno & Cromley, 2013), which tend to have lower completion rates. Community colleges, however, can be an important point of access for EL students. Two-year colleges offer open admissions, lower costs, and part-time enrollment opportunities that accommodate work or family responsibilities—features that may be particularly attractive to EL or other immigrant students (Teranishi et al., 2011). However, we know relatively little about the academic trajectories of EL students once they enter institutions of higher education (Bergey et al., 2018; Kanno, 2018).

Emerging research has suggested that a key roadblock to postsecondary attainment is related to the lengthy developmental pathways that many EL students must complete before

³ We also present results for each high school graduation cohort separately in the appendix.

obtaining a degree or satisfying transfer requirements at two-year colleges (Raufman et al., 2019). Some students can languish in community college for years without ever obtaining requisite college credit (Cuellar Mejia et al., 2018). For example, interview and case study data from various community college systems across the country show that language minority students can embark on a prolonged series of ESL or remedial coursework before enrolling in a college-level English course (Llosa & Bunch, 2011; Suh, 2016). In California, a legislation known as AB 705 was enacted in 2017 to address such issues by improving remedial or developmental pathway offerings for underserved student populations, including ELs (Cuellar Mejia et al., 2018). The new bill mandates that colleges work towards improving the probability that students reach college-level coursework within one year in both English and math. Additionally, AB 705 requires that high school records (e.g., transcripts) rather than assessments be used as the primary source of information for course placement (Irwin, 2017).

In revising academic pathways to shorten time to completion, community colleges face various obstacles. Colleges must first place students in the appropriate academic pathways (Rodriguez et al., 2016). Since students graduate from high school at various levels of academic preparedness, many community colleges administer a set of placement tests at the time of matriculation, such as the commonly used Compass or Accuplacer assessments as well as other locally developed diagnostic tools (Hodara et al., 2012).⁴ Procedures for placement, however, vary significantly across colleges and over time. In the past decade, researchers have documented the use of placement tests to set cutoff scores that directly sort students into different academic trajectories (Llosa & Bunch, 2011). More recently, in response to growing criticism of such policies (Scott-Clayton, 2012; Scott-Clayton & Stacey, 2015), some colleges have relied on transcripts or grade point averages (GPA) as well as counselor or instructor feedback to make these decisions. In California, despite the transition mandated by AB 705, there continues to be wide variability in practices (Cuellar Mejia et al., 2018; Rodriguez et al., 2017).

Procedures for placing EL students into the appropriate courses are even more complicated than placing native or fluent English users. With regard to English placements, EL students often have the option of taking an ESL or English placement test (Bunch et al., 2011)—either a locally developed assessment (e.g., a reading and writing exam prepared by college

⁴ In 2015, Compass began to be phased out by its assessment provider, ACT.

instructors) or an adapted, ESL version of an existing English assessments from a vendor (Llosa & Bunch, 2011). However, many colleges do not offer language accommodations for other commonly tested subjects, such as math. Therefore, an EL student's placement results may be a better indicator of English proficiency rather than content knowledge. A heavy reliance on the outcomes of such testing has the potential to place ELs on the incorrect pathways and delay time to completion (Hodara, 2015). Unsurprisingly, in college settings where ELs make decisions for themselves without the assistance of a counselor, students may enroll in a pathway poorly suited to their academic needs—inadvertently accelerating or delaying their access to college-level coursework. Taking a college-level course too soon, before the student is ready, can result in course incompleteness or failure; on the other hand, delaying enrollment in college-level coursework can prolong time to degree completion and incur additional financial costs.

Enterprising colleges are devising new pathway models in response to new legislation and growing criticism of the status quo, such as generating new acceleration courses or offering compressed developmental courses to shorten completion times (Cuellar Mejia et al., 2018; Rodriguez et al., 2017). However, equity gaps persist, and additional research is necessary to understand the course-taking patterns of EL students once they enroll in college. This is especially important in settings where changes to placement and pathways are yet to be made or where students make enrollment choices with limited assistance from counselors or college instructors.

Data

We obtained data for this study through a research partnership with a K-12 school district and a two-year community college in Northern California, Pacific Community College (PCC).⁵ This partnership enabled us to access K-12 administrative records and postsecondary transcripts (e.g., course-taking, credits, grades, degree completion, transfer) in a unique dataset. We observe not only whether ELs finish college but also their journey to completion or dropout. Students in this sample came from a large, diverse K-12 school district. About 28% of the students in the district are ELs, half of whom are Spanish speakers, another quarter Chinese speakers. The two-year college enrolls approximately 27,000 students every year—about 35% are Asian and 30% are Hispanic/Latinx. The sampled students (N=305) are ELs who graduated from high schools in

⁵ Pseudonym is employed to protect the anonymity of the participating organization.

the K-12 district between the 2013-14 and 2016-17 academic years and subsequently attended the two-year college. All 305 students in our sample graduated high school without gaining sufficiency in English proficiency to exit language services.

Sample Overview

About a third of EL students in our sample enrolled at PCC during either one (33.11%) or two years (36.72%), and a little more than a quarter remained at the community college for only one term (25.57%). Once enrolled at PCC, EL students enrolled in an average of 11.43 courses—although, there was substantial variability: some students enrolled in only 1 course while others enrolled in up to 54 courses.⁶ Finally, EL students in our sample spoke primarily Spanish (42.66%) or Chinese (40.33%).

Of the 305 students in our sample, 204 took at least one math course and are included in the math pathway analysis sample; 230 took at least one ESL or English course and are included in the English pathway analysis sample.

Math Pathways

At PCC, much like at other community colleges across the state, procedures for determining initial math placement have varied over the years. In the past, incoming EL students have had the option of taking a locally developed math placement test to determine the appropriate course sequence in their first year. More recently, students have used their high school transcript information or GPA in conjunction with an advising appointment to select the appropriate math sequences. However, these procedures vary by the individual needs of the student, and PCC also has systems in place for students to contest or petition different placements.

Adding to the complexity of these procedures, math pathway options abound at PCC. Depending on placement outcomes, EL students can begin in a series of remedial math course sequences, such as Pre-Algebra and Elementary or Intermediate Algebra, or enroll directly in more advanced coursework, such as Trigonometry or Calculus. These courses also have different credit-bearing potential. Some of the remedial courses are non-degree applicable, while others

⁶ In terms of total courses enrolled, 11.15% of students enrolled in only one course, 8.20% enrolled in two courses, 10.82% enrolled in three courses, 6.23% enrolled in four courses, and 63.60% enrolled in five or more courses.

are associate degree applicable, and more advanced courses offer transfer-level credit (see Table 1). Furthermore, each course can lead to different pathways depending on the goals of the student—for example, there are options for students interested in pursuing a liberal arts degree or a STEM career path. To facilitate understanding of the varied math pathways offered at PCC, please see Table 1 and Figure 1 below.

[Insert Table 1]

[Insert Figure 1]

Course-Taking. Of the students who enrolled in a math course during their time at PCC, a third (33.33%) took at least one math course and almost a quarter (24.51%) took two math courses.⁷ The most popular math classes among our EL sample were beginner or intermediate remedial math courses (e.g., Pre-Algebra (14.48%); Elementary Algebra (13.33%); and Intermediate Algebra (13.90%)). In fact, more than a quarter (27.94%) of students in our EL sample took the lower-level remedial course (Pre-Algebra with Basic Math) as their first math course. Almost two thirds of students in our EL sample (65.69%) took a remedial math course at some point during their time at PCC (see Table 2)— a sizeable portion of EL students took one (29.41%) or two (21.08%) of these courses.

[Insert Table 2]

To learn about the students who began in any of the three remedial math courses (Pre-Algebra with Basic Math, Elementary Algebra, and Intermediate Algebra), we explored the last math class these students took during their time at PCC. We found that of the students who began in the lowest-level remedial math course (e.g., Pre-Algebra with Basic Math), almost a fifth (19.30%) made it to an AA degree applicable course (e.g., Elementary Algebra) but fewer (15.77%) made it all the way to a college-level, transfer math course (e.g., Math for Liberal Arts or Pre-Calculus Algebra, etc.) (see Table 3). Similarly, of the students who began with the second remedial course (e.g., Elementary Algebra), 26.09% made it to a college-level, transfer math course (e.g., Math for Analysis for Business or Trigonometry, etc.) (see Table 3). However, a greater percentage of students who began with the last remedial course in the sequence (e.g., Intermediate Algebra) made it to a college-level, transfer math course (e.g., Pre-Calculus Algebra) (44.83%) (see Table 3). Although it isn't the goal of all students to enroll in a college-

⁷ For brevity, we do not include tables or figures for all results. Findings for which we include a table are labeled appropriately. Additional tables and figures are available upon request.

level course, only about half (50.98%) of the students in our EL sample eventually enrolled in a college-level math course.

[Insert Table 3]

Lastly, to explore course-taking patterns by EL subgroup, we investigated math course enrollment patterns by home language and found differences. Almost all Spanish speakers enrolled in remedial math (93.42%), whereas only 43.48% of Chinese speakers and 63.89% of other non-English speakers did. In contrast, only 18.42% of Spanish speakers enrolled in college-level math, whereas 79.35% of Chinese speakers and 47.22% of other non-English speakers enrolled in these courses.

Credits Earned. On average, and including repeated enrollment in the same course, ELs attempted 11.53 units of math but earned just an average of 7.04 units of math (see Table 4). In other words, students only earned about 61% of the credits they attempted. ELs in our sample attempted a wide range of units—almost a third of students attempted five or fewer math units (31.86%), while 15.68% attempted twenty or more math units. These credit attempts occurred mostly for the three highly popular remedial courses (e.g., Pre-Algebra with Basic Math, Elementary Algebra, and Intermediate Algebra).

[Insert Table 4]

When we examined the *type* of math units attempted and earned more closely, we found that ELs attempted 6.01 units and ended up earning only 3.12 units of remedial math (earning 52% of the remedial credits attempted) (see Table 4). These patterns were similar for college-level math: Students attempted 5.53 units and ended up earning only 3.93 units (earning 71% of college credits attempted) (see Table 4). However, most EL students who attempted a college-level math course passed the course (78.85%).

English Pathways

College course pathways for English are slightly different than math/STEM pathways in a few important ways. At PCC, students may choose to take either the English or the ESL placement test when they enroll. As a result, test scores that do not meet college-level benchmarks may place students into either ESL or remedial English courses. Since course placement is not strictly binding, students can discuss course enrollment with counselors and are

often presented with options to enroll in either ESL or remedial English. Neither ESL nor remedial English provides college credit at PCC.

Compared to starting in remedial English, starting in ESL can place students on a lengthier path toward college English—see Figure 2 and Table 5 for more details about the ESL versus English pathways at PCC. Accordingly, EL students may choose to enroll in a remedial English course instead of an ESL course to avoid the longer sequence or due to stigma associated with ESL courses. However, the shorter path starting with remedial English may not be an optimal choice. Depending on their English proficiency levels, remedial English coursework may not meet the academic or linguistic needs of some EL students (Hodara, 2015).

[Insert Figure 2]

[Insert Table 5]

Course-Taking. During their time at PCC, 75.41% of EL students took at least one English or ESL course. Overall, the majority of EL students in our sample did not *ever* enroll in an ESL class (58.70%) (see Table 6)—only 14.35% of EL students took one ESL course. In contrast, more than two-thirds of the ELs in our sample took a *remedial* English course (67.39%), and a little over a quarter of students (26.96%) enrolled in one English remediation class (see Table 6). Of the two most popular English classes among our EL sample, one was college-level (University Reading & Composition (14.99%)) and the other was remedial (the Pre-Cursor to University Reading & Composition (7.67%)).

[Insert Table 6]

EL students in our sample first enrolled in either the Pre-Cursor to University Reading & Composition (12.17%) or Introduction to Basic Reading/Writing (12.17%). Due to the diversity of pathways in English/ESL, which are far greater than those in math, we conducted a different type of analysis to understand how many steps it took to reach college-level English (e.g., University Reading & Composition)—see Table 7. We found that EL students generally had to take only one or two ESL courses before reaching college-level English (e.g., University Reading & Composition), although some students in the sample took more than four (and up to 15) ESL or remedial English classes before reaching this milestone (Table 7). Similarly, many EL students generally took only one (17.82%) or two (24.75%) English *remedial* courses before enrolling in college-level English (see Table 7)—however, a higher percentage of students took three (19.80%) or four (16.83%) English remedial classes before achieving this milestone (Table

7). Ultimately, a little less than half of ELs in our sample ever enrolled in a college-level English course (43.91%).

[Insert Table 7]

To investigate course-taking patterns by EL subgroup, we examined English/ESL course enrollment by home language. Here we found that the contrasts were less pronounced by subgroup than in the math pathways—44.44% of Spanish speakers enrolled in ESL compared to 45.00% of Chinese speakers, and 62.22% of Spanish speakers enrolled in remedial English compared to 71.00% of Chinese speakers. However, higher percentages of Chinese speakers (58.00%) and other non-English speakers (55.00%) ended up enrolling in college-level English than Spanish speakers (23.33%). It is unclear why Spanish speakers discontinued their trajectory into college-level English. We speculate that students who discontinued before reading college-level English may have been discouraged by their grades or experiences in remedial English courses, or they may have decided not to continue their studies altogether despite passing their remedial courses, which could be due to family demands or other outside considerations.

Credits Earned. EL students in our sample attempted an average of 16.68 units of English or ESL coursework but only earned an average of 10.97 units (see Table 8). Similar to the math pathways, students only earned about 66% of the English or ESL credits they attempted. Students earned even fewer credits in remedial English (attempted 6.98 units and earned 4.68 credits; earning 67% of attempted remedial credits), ESL (attempted 6.81 units and earned 4.39 units; earning 64% of attempted ESL credits), or college-level English (attempted 2.76 and earned 1.83 units; earning 66% of attempted college credits) (see Table 8). Of the EL students who took at least one ESL, remedial English, or English course, 33.48% completed one or more ESL courses, 50.87% completed at least one remedial English course, and 32.61% completed at least one college-level English course (Table 9).

[Insert Table 8]

[Insert Table 9]

Completion or Four-Year Transfer

EL students who graduated from the K-12 district and enrolled in PCC between 2013-14 and 2016-17 had higher rates of transferring to a four-year institution (21.97%) than completion of degrees or certificates (2.95%) (see Table 10). However, there are major differences by

language group—Chinese-speaking students transferred (34.15%) and completed degrees or certificates (7.32%) at a higher rate than Spanish-speaking students (11.54% transferred; 0.00% obtained a degree or certificate) (see Table 10). In fact, all the students who obtained either a degree or certificate were Chinese speakers (n=9). Of these nine students who obtained either a degree or certificate, eight obtained a degree and one obtained a certificate.

[Insert Table 10]

The majority of students who transferred went to a public university, such as San Francisco State University (64.18%) or UC Davis (7.46%) (see Table 11).

[Insert Table 11]

Discussion

Our findings suggest that EL students in our sample have a similar experience to other disadvantaged students in community colleges. With regard to the math pathways, almost two-thirds of ELs (65.96%) took a remedial math course at some point during their time at PCC. Secondly, only about half (50.98%) of students ever enrolled in a college-level math course. Third, ELs only earned about 61% of the credit units they attempted in math. Fourth, we observed that almost all Spanish-speaking ELs enrolled in remedial math (93.42%) whereas only 43.48% of Chinese-speakers and 63.89% of other non-English speakers did. Meanwhile, with regard to English pathways, ELs in our sample overwhelmingly decided to enroll in *remedial* English rather than ESL coursework; and a little less than half of ELs ever enrolled in a college-level course (43.91%). Lastly, about one-fifth (21.97%) of ELs transferred to a four-year college, with some minor disparities based on home language: 11.54% of Spanish-speaking students transferred, compared to 34.15% of Chinese speakers and 19.23% of speakers of another non-English language. We discuss these findings in further detail below.

Math Pathways

Our results on EL math pathways are aligned with findings from other studies. Using data from the California Community College Chancellor's Office Management Information System (MIS), researchers have shown that *most* students in California (80%), regardless of EL status, enroll in at least one developmental (e.g., remedial or basic skills) course in math or English at some point in college (Cuellar Mejia et al., 2016). Among students who enrolled in one remedial

math course, only 27% completed a *college*-level math course (Cuellar Mejia et al., 2016). The majority of ELs in our sample enrolled in a remedial math course (65.96%), and only about half of ELs in our sample (50.98%) ever reached a college-level math course. In the absence of other statewide baseline data, ELs at PCC appear to perform similarly in math when compared to other students across community colleges in California.

More concerning are the disparities by home language subgroups—almost all Spanish-speaking ELs enrolled in remedial math (93.42%). This is problematic given that existing studies suggest that initial placement in lower-level math courses can increase the time to completing a higher-level math course by about a year on average (Melguizo et al., 2016). Although we did not have access to other demographic information about the ELs in our sample, prior research has demonstrated that ELs arrive to the U.S. with varied literacy levels, economic statuses, English proficiency levels, and prior overall education levels (Bergey et al., 2018; Hodara, 2015). As such, the inequities we observe by home language may be related to the attributes of students' education in their home country. Alternatively, Spanish-speaking students may self-select or be advised into remedial coursework at higher rates compared to ELs with other home languages, but additional research is needed to further investigate these patterns by language subgroups.

The low credit ratio among ELs (e.g., students earned only 61% of credits attempted in math) is also concerning. Although community colleges offer more affordable options for students (Rodriguez et al., 2019), a low amount of credit accumulation can negate these benefits if ELs have to enroll in college for a longer period of time. Additionally, unsuccessful course attempts lead to other kinds of opportunity costs (e.g., in wages, job security) or high attrition rates (Cuellar Mejia et al., 2016)—the longer the pathway, the higher the risk of dropping out.

English Pathways

A little less than half of ELs in our sample (43.91%) ever enrolled in a college-level English course; 32.61% of the sample passed a college-level English course. Research using statewide data showed that of students who enrolled in a remedial English course, 44% eventually passed or completed a college-level English class (Cuellar Mejia et al., 2016). In this regard, ELs in our sample are somewhat different from other disadvantaged students in the state. Although more in-depth research is merited, our data suggest that ELs in our sample potentially

struggled more with English than with the math pathways at PCC. Interestingly, ELs in our sample were also more inclined to enroll in remedial English courses rather than ESL—perhaps a pattern that contributed to the low completion rates of college-level English coursework discussed above.

We are unsure of why ELs would prefer to enroll in remedial English rather than ESL, but discussions with PCC administrators suggest that students may avoid ESL due to stigma associated with being in those courses. Alternatively, ELs could also have aimed to shorten their time to completion by choosing remedial English over ESL, although the remedial English pathways were not necessarily shorter than those offered under ESL during certain time periods of observation (see Figure 2). Indeed, existing research suggests that misplacement is common for ELs entering English pathways, especially for students who were born in the U.S. to immigrant families or arrived to the country during their elementary or secondary years (Hodara, 2015). The lower a student is placed on a pathway, such as in beginning ESL, the lower their chances of ever reaching college-level coursework (Bailey et al., 2010).

Completion or Four-Year Transfer

ELs in our sample transferred to a four-year college at a rate of 21.97%—a lower rate than estimates for degree- or transfer-students from racially marginalized backgrounds across the state. About 42% of Hispanic/Latinx and 37% of African Americans in California transfer or obtain an AA degree within *six years* (Rodriguez et al., 2019). We also observe disparities by home language in terms of transfer rates—only 11.54% of Spanish-speaking students transferred. Again, we do not have additional data to explore why we observe such inequalities. Given that course trajectories differ based on home language (e.g., more Spanish-speaking students enrolled in remedial math), future studies could further investigate whether the courses taken affect the probability of completion for ELs. Existing research among other marginalized students would lead us to hypothesize that remedial pathways can conclude or delay the path towards college attainment (Hodara, 2015).

Conclusion

With the advent of AB 705, colleges across the state are working towards shortening developmental pathways for all students, including ELs. Although new studies are examining the

changes that are taking place (Cuellar Mejia et al., 2018; Rodriguez et al., 2017), few researchers have examined the effect of this new legislation on ELs and ESL pathways. Future work could investigate how revised or condensed developmental or ESL opportunities affect EL academic trajectories. Many challenges lie ahead—although it appears as if many ELs in our sample selected to enroll in remedial rather than ESL coursework, students did not fare well in terms of course completion rates or reaching college-level English. As such, colleges will need to continue working towards ensuring that ELs receive the appropriate academic support and are placed in the appropriate courses, neither too advanced nor too basic.

Dissemination Plan

To disseminate our research findings, we prepared a series of preliminary reports for our partner organization, PCC. We presented our findings to the ESL department chair as well as other notable administrators at the college in meetings convened by PCC. During these data meetings, administrators had the opportunity to ask questions about areas of interest and to probe further on the results of the study. With their feedback, we were able to explore topics of immediate relevance. Additionally, we plan to present at the 2023 AERA Annual Meeting as well as other future events convened by our research partners. Finally, we plan to publish our results in a peer reviewed journal, such as *Research in Higher Education*, *Community College Review*, or *Community College Journal of Research and Practice*.

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Tables and Figures

Table 1. Math Course Types

Course	Remedial?	AA Degree-Applicable?	Transferrable?
Pre-Algebra with Basic Math	Yes	No	No
Elementary Algebra	Yes	Yes	No
Intermediate Algebra	Yes	Yes	No
Pre-Calculus Algebra	No	Yes	Yes
Trigonometry	No	Yes	Yes*
Calculus I	No	Yes	Yes
Calculus II	No	Yes	Yes
Discrete Mathematics	No	Yes	Yes

* Only transferable to the California State Universities (CSUs); all others are transferable to CSUs and University of California (UC). *Note:* The full range of math courses are detailed in Figure 1.

Table 2. Tabulation of Total Remedial Math Courses

Total Remedial Math Course Count (Including Repeats)	Freq.	Percent	Cum.
0	70	34.31	34.31
1	60	29.41	63.73
2	43	21.08	84.80
3	20	9.80	94.61
4	6	2.94	97.55
5	4	1.96	99.51
8	1	0.49	100.00
<i>Total</i>	204	100.00	

Table 3. Tabulation of Last Math Course

Last Math Course	For students who began with Pre-Algebra with Basic Math			For students who began with Elementary Algebra			For students who began with Intermediate Algebra		
	Freq.	Percent	Cum.	Freq.	Percent	Cum.	Freq.	Percent	Cum.
Not AA Applicable or Transferable									
Pre-Algebra with Basic Math	27	47.37	47.37						
Pre-Algebra	1	1.75	49.12						
AA Applicable									
Elementary Algebra	11	19.30	68.42	12	52.17	52.17	1	3.45	3.45
Prep. for Liberal Arts Math	1	1.75	70.18	1	4.35	56.52			
Prep. for Statistics	2	3.51	73.68						
Elementary & Intermediate Algebra	2	3.51	77.19						
Geometry				1	4.35	60.87			
Intermediate Algebra	4	7.02	84.21	3	13.04	73.91	15	51.72	55.17
AA Applicable and Transferable									
Math for Liberal Arts	1	1.75	85.96						
Math Analysis for Business	1	1.75	87.72	1	4.35	78.26	1	3.45	58.62
Probability & Statistics	3	5.26	92.98	3	13.04	91.30	2	6.90	65.52
Probability & Statistics Support	1	1.75	94.74						
Pre-Calculus Algebra	3	5.26	100.00	1	4.35	95.65	4	13.79	79.31
Trigonometry				1	4.35	100.00	3	10.34	89.65
Calculus I							1	3.45	93.10
Calculus II							1	3.45	96.55
Discrete Mathematics							1	3.45	100.00
<i>Total</i>	57	100.00		23	100.00		29	100.00	

Table 4. Descriptive Statistics of Total Math Units Attempted and Earned

	Obs	Mean	Std.Dev.	Min	Max
Total Math Units					
Attempted, Inc. Repeats	204	11.534	7.297	2	43
Earned	204	7.039	7.284	0	33
Total Remedial Math Units					
Attempted, Inc. Repeats	204	6.01	6.218	0	37
Earned	204	3.108	4.762	0	27
Total College Math Units					
Attempted, Inc. Repeats	204	5.525	7.558	0	28
Earned	204	3.931	6.487	0	24

Table 5. English Course Types

Course	Remedial?	AA Degree-Applicable?	Transferrable?
Pre-Cursor to University Reading & Composition	Yes	No	No
Introduction to Basic Reading & Writing	Yes	No	No
University Reading & Composition	No	Yes	Yes

Note: The full range of English and ESL courses are detailed in Figure 2.

Table 6. Tabulation of Type of English Course by Home Language

	Ever Took ESL?		Ever Took English Remediation?		Ever Took College English?	
	No	Yes	No	Yes	No	Yes
Spanish (n, %) n = 90	50 55.56	40 44.44	34 37.78	56 62.22	69 76.67	21 23.33
Chinese (n, %) n = 100	55 55.00	45 45.00	29 29.00	71 71.00	42 42.00	58 58.00
Other Non-English (n, %) n = 40	30 75.00	10 25.00	12 30.00	28 70.00	18 45.00	22 55.00
<i>Total</i> (n, %)	135 58.70	95 41.30	75 32.61	155 67.39	129 56.09	101 43.91

Note: Row percentages are presented in this table (e.g., Of Spanish-speaking ELs, 55.56% did not ever take an ESL course).

Table 7. Tabulation of Number of Courses to Reach College-Level English

Total Courses Completed	Number of ESL Courses			Number of English Remedial Courses		
	Freq.	Percent	Cum.	Freq.	Percent	Cum.
0	79	78.22	78.22	18	17.82	17.82
1	6	5.94	84.16	25	24.75	42.57
2	6	5.94	90.10	20	19.80	62.38
3	2	1.98	92.08	17	16.83	79.21
4	1	0.99	93.07	15	14.85	94.06
5				3	2.97	97.03
6				2	1.98	99.01
7	3	2.97	96.04			
8	1	0.99	97.03			
9				1	0.99	100.00
10	1	0.99	98.02			
13	1	0.99	99.01			
15	1	0.99	100.00			
<i>Total</i>	101	100.00		101	100.00	

Note: For students who eventually enrolled in University Reading & Composition, this is a count of the number of preceding courses in which a student enrolled before eventually reaching this college-level, transfer course.

Table 8. Descriptive Statistics of Total English Units Attempted and Earned

Variable	Obs	Mean	Std.Dev.	Min	Max
Total ESL/English Units					
Attempted, Inc. Repeats	230	16.678	12.531	3	68
Earned	230	10.974	10.977	0	59
Total ESL Units					
Attempted, Inc. Repeats	230	6.813	12.191	0	61
Earned	230	4.387	8.688	0	44
Total Remedial English Units					
Attempted, Inc. Repeats	230	6.978	7.111	0	48
Earned	230	4.683	6.093	0	42
Total College English Units					
Attempted, Inc. Repeats	230	2.761	3.612	0	20
Earned	230	1.830	2.885	0	17

Table 9. Tabulation of Total English Courses Completed

Total Courses Completed	ESL			Remedial English			College English		
	Freq.	Percent	Cum.	Freq.	Percent	Cum.	Freq.	Percent	Cum.
0	153	66.52	66.52	113	49.13	49.13	155	67.39	67.39
1	34	14.78	81.30	59	25.65	74.78	35	15.22	82.61
2	11	4.78	86.09	29	12.61	87.39	40	17.39	100.00
3	11	4.78	90.87	16	6.96	94.35			
4	7	3.04	93.91	12	5.22	99.57			
5	5	2.17	96.09	1	0.43	100.00			
6	5	2.17	98.26						
7	2	0.87	99.13						
10	10	2	0.87						
<i>Total</i>	230	100.00		230	100.00		230	100.00	

Note: This table includes the number of courses completed with letter grades A, B, C, D, or Pass.

Table 10. Tabulation of Receiving Degree, Certificate, or Transfer Status by Home Language

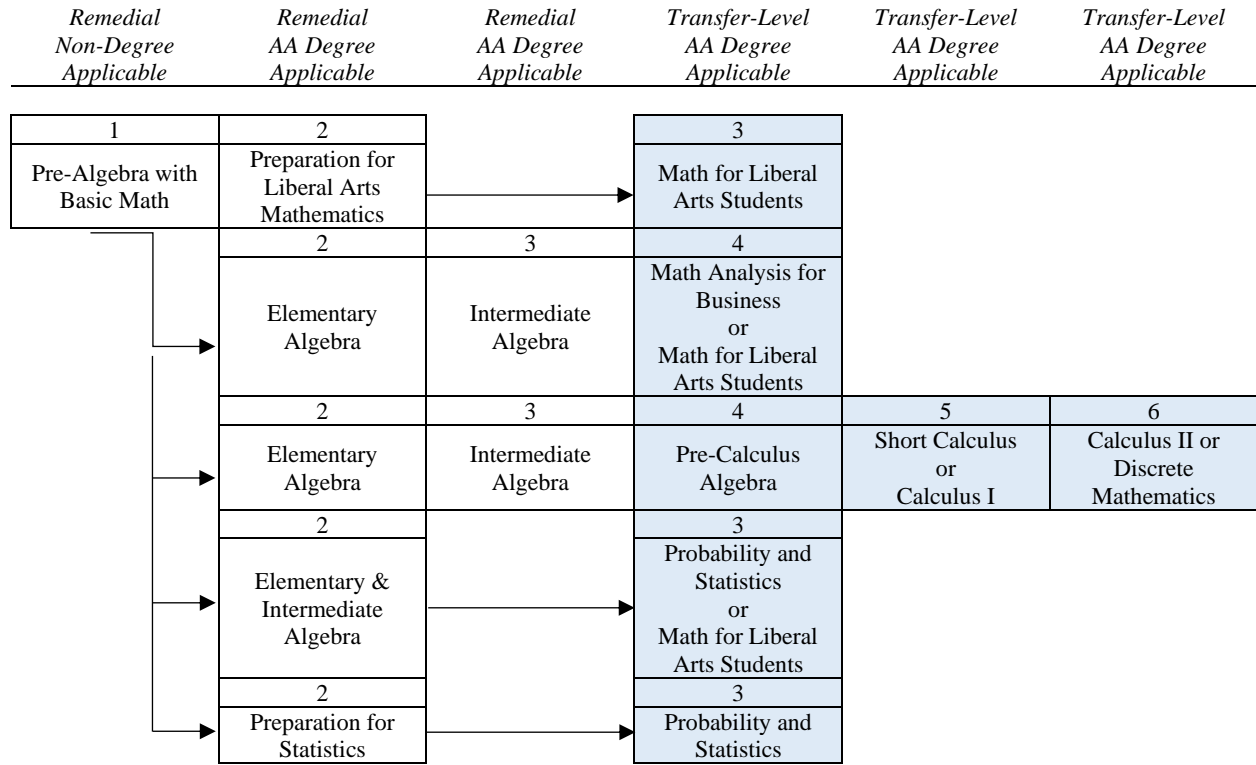
	Ever Received Degree or Certificate?		Ever Transferred?	
	No	Yes	No	Yes
Total				
All	296	9	238	67
(<i>n, %</i>)	97.05	2.95	78.03	21.97
Home Language				
Spanish	130	0	115	15
(<i>n, %</i>)	100.00	0.00	88.46	11.54
Chinese	114	9	81	42
(<i>n, %</i>)	92.68	7.32	65.85	34.15
Other Non-English	52	0	42	10
(<i>n, %</i>)	100.00	0.00	80.77	19.23

Note: This sample includes all 305 students for whom we have any two-year college enrollment data. Depending on high school graduation date and actual first term of two-year enrollment, students could have been at the two-year college for between 0 and 5 years.

Table 11. Tabulation of Transfers by College or University Type

Transferring College or University	Freq.	Percent	Cum.
Private (For Profit)			
Academy of Art University	2	2.99	2.99
Public (CSU)			
CSU East Bay	3	4.48	7.46
CSU Fresno	1	1.49	8.96
San Francisco State	43	64.18	73.13
San Jose State	4	5.97	79.10
Public (UC)			
UC Berkeley	3	4.48	83.58
UC Davis	5	7.46	91.04
UC Irvine	1	1.49	92.54
UC San Diego	2	2.99	95.52
UC Santa Cruz	2	2.99	98.51
Private (Non-Profit)			
University of Tulsa	1	1.49	100.00
<i>Total</i>	67	100.00	

Figure 1. Math Pathways at PCC



Note: We include some of the most popular math pathways at PCC in this figure, but PCC offers a variety of other math pathways that we exclude for brevity. An EL beginning in “Pre-Algebra with Basic Math” would have a variety of options for their math pathways—in the first row, we observe one of the shorter sequences: after the first course, the student would enroll in “Preparation for Liberal Arts Mathematics” and then in “Math for Liberal Arts Students.”

