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Corequisite Course Models in California Community Colleges: Implementation Variation and Challenges

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As community colleges and systems move away from developmental education and encourage students to enroll in introductory, college-level coursework to complete their math and English requirements, it is critical to provide students with additional academic supports to help them succeed. One such model is the corequisite course, a model that offers a separate support lab to provide academic remediation. Drawing on mixed-methods data collected in a sample of community colleges as part of a larger study on the implementation and impact of AB 705 in California, this paper explores trends in the implementation of the corequisite model in terms of: 1) the prevalence of institutions offering course sections with corequisite support, 2) the variation in the implementation of the model, and 3) the challenges of implementation. We found that community colleges offered the corequisite model in only a small portion of introductory course sections. The level of corequisite model implementation may be due, in part, to the variation in the model and challenges of implementation as outlined in the paper.

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Introduction

Fewer than one third of students who are assessed as not meeting college readiness standards and placed into traditional developmental education (DE) complete their DE sequences and move on to college-level coursework (Bailey et al., 2010). Research suggests that allowing these students to enroll directly into introductory college-level courses—either with concurrent DE or in lieu of DE—is an effective alternative approach to increasing completion (Cho et al., 2012; Jenkins et al., 2010; Park-Gaghan et al., 2020). Experimental and quasi-experimental evidence suggests that many students placed into DE may be able to pass college-level gateway courses where they can immediately earn college credit (Attewell et al., 2006; Logue et al., 2016; Scott-Clayton et al., 2014; Scott-Clayton & Rodriguez, 2015).

As more community colleges and systems move away from DE and encourage students to enroll in introductory college-level coursework to complete their math and English requirements, it is critical to provide students with additional academic supports to help them succeed. One such model is the **corequisite course**, a model that offers introductory, transfer-level sections in math or English linked with a separate support lab to provide academic remediation. Typically, students register separately for the main course and the support lab. In some cases, students may receive course credits or units for both the lecture and support lab.

Research has shown that corequisites can produce higher completion rates than prerequisite remediation (Boatman, 2012; Cho et al., 2012; Cuellar Meija et al., 2020; Jenkins et al., 2010; Logue et al., 2016; Logue et al., 2019; Ran & Lin, 2022). However, analyses in California present a less uniform picture of outcomes among students enrolled in corequisite courses. While corequisite courses produced higher completion rates in some cases, including among Latino and Black students, there has been considerable variation in outcomes among students enrolling in community college corequisite courses statewide. Indeed, while some colleges have seen improved outcomes among students enrolled in corequisite courses, others have experienced higher completion rates among students in course sections without cocurricular support and significantly lower completion rates among students enrolled in corequisite courses (Cuellar Mejia et al., 2023).

This paper draws on mixed-methods data collected as part of a larger study on the implementation and impact of AB 705, a law requiring California community colleges to revise their placement processes to maximize the likelihood of students completing introductory, transfer-level math and English coursework within one year. In response to AB 705, most California community colleges have not only revised placement approaches, but have also reduced their DE offerings and enrolled many incoming students into introductory, transfer-level coursework in math and English with various cocurricular supports, including corequisites. This paper highlights trends in the implementation of the corequisite model in California community colleges in terms of: 1) the

prevalence of institutions offering course sections with corequisite support, 2) the variation in the implementation of the model, and 3) the challenges of implementation.

California Context

The California community college system has been working to reform DE for over 30 years. However, AB 705 and AB 1705 have brought new momentum by clarifying and strengthening previous regulations. In 1986, Title 5 of the California Code of Regulations first required the use of multiple measures in college placement. The mandate failed to specify which measures should be used, resulting in wide variation in practices across colleges and the continued reliance on standardized tests as the primary determinant of placement (Rodriquez et al., 2016). Title 5 prohibited community colleges from requiring prerequisite DE courses unless students were "highly unlikely to succeed" in a college-level course; however, in practice, colleges still placed large percentages of students into prerequisite DE, leveraging the mandate's ambiguity. Within six years of enrollment in a California community college, only 44% of DE math students and 60% of DE English students had completed their developmental sequences, enabling them to enroll in college-level courses. Only 16% of students who began in DE completed a degree or certificate and only 24% transferred, compared to 19% and 65%, respectively, of their college-ready peers (Cuellar Mejia et al., 2016).

In 2017, California passed AB 705 to address continued challenges with existing DE placement practices. The law was also considered an equity reform as the state's Black and Latinx populations had been disproportionately placed into DE sequences. The law took effect in January 2018, with the implementation of curricular reforms required by fall 2019. Implementation of AB 705 includes placement reform and the provision of cocurricular support models, both of which are supported by a growing body of research (see Jaggars & Bickerstaff, 2018 for a summary). Specifically, the policy requires all community colleges to use one or more of three measures (high school coursework, high school grades, and/or high school grade point average) to determine course placements that will maximize the probability that a student will complete introductory transfer-level coursework in math and English within one year. To guide colleges in updating their placement policies in accordance with AB 705, the California Community Colleges Chancellor's Office (CCCCO) provided colleges with a series of memos. These documents included an implementation timeline and a suggested set of default placement rules that include specific high school GPA thresholds for math and English, as well as guidance on whether additional support is recommended (e.g., a student with a high school GPA ≥ 2.6 should be placed into transfer-level English composition without additional concurrent support). The CCCCO expected colleges to shift from DE courses and instead offer transfer-level courses with cocurricular supports.

Due to lagging reforms in response to AB 705, the legislature passed AB 1705 in September 2022. AB 1705, which took effect in July 2023, was designed to close remaining loopholes and to further codify the intention of AB 705. This paper focuses on the implementation of AB 705, as AB 1705 had not yet taken effect during our fieldwork in fall 2022.

Methodology and Sampling

Although AB 705 is a state mandate, the policy offered considerable flexibility to institutions on how they transitioned to offering greater numbers of introductory, transfer-level courses. As a result, a traditional fidelity of implementation analysis was not feasible in this context. In order to sample institutions with wide variation in implementation, we developed a scale based on four indicators:

- the proportion of introductory courses offered at transfer-level;
- the prevalence of cocurricular supports;
- placement measures utilized in math and English; and
- placement guidance provided to students.

The research team collected data on the first two indicators by requesting that community colleges across California complete Google spreadsheets documenting their reforms made during the 2021-22 and 2022-23 academic years. Specifically, the research team asked respondents to indicate whether each introductory math and English course section they offered was transfer-level or below, along with any cocurricular supports they provided to support student success. Of the 114 eligible[1] community colleges in California, 54 institutions provided data for both academic years, with 48 institutions providing data on math courses and 45 institutions providing data on English courses. These data were analyzed in STATA to identify trends in the shift from DE to introductory, transfer-level courses and the use of cocurricular supports.

The research team also used these data, in combination with the other two indicators, to create a composite score across indicators and rank institutions by a scale of implementation.[2] We then divided the list into quintiles and sampled five institutions each from the 1st, 3rd, and 5th quintiles, with consideration for the geographic regions of the state, the size and urbanicity of the institutions, and student demographics. In this manner, we identified 15 institutions that ranged from low to high implementation. We ultimately secured participation from 13 institutions for our qualitative data collection: 4 low implementers, 5 middle implementers, and 4 high implementers.

In-depth case study fieldwork began in fall 2022 and continued through winter 2023. At each case study institution, our research team conducted individual interviews with at least four faculty each from the math and English departments, as well as academic and student services administrators and counseling staff. We also conducted focus groups with students at each case study institution. The interviews and focus groups explored perspectives on the implementation of AB 705 regarding the changes to placement processes, cocurricular reforms, and pedagogical shifts in introductory, transfer level math and English courses. In all, the research team collected qualitative data from over 400 administrators, faculty, staff, and students.[3] The data was recorded and transcribed for

[1] Two California community colleges were not included in the study: Calbright College is an entirely online college and Madera Community College is the newest community college in the state, officially recognized in 2020 after AB 705 was passed.
[2] The research team conducted document review and a review of college websites to obtain the other two scale of implementation indicators.
[3] 2022-23 fieldwork included 43 student focus groups and interviews with 48 faculty, 29 departmental administrators, 27 student services administrators, and 18 academic administrators.

coding and analysis. Team members debriefed and developed exit memos while still in the field to share early perceptions and capture potential findings in real time.

The qualitative data collected was coded using Dedoose, a qualitative software analysis platform. The research team then produced analytic memos for each of the codes and developed a unique college profile for each case study institution from the analyses. Each profile was based on a standard template to ensure that the data captured was consistent across sites. These profiles were shared with the primary point of contact at each case study institution for member checking to ensure the accuracy of our findings; revisions were made based on member feedback and final profile versions were sent to the institutions. The final profiles informed our analyses of themes across sites. The findings from these cross-site analyses, paired with findings from spreadsheet data at the course section level, are discussed in the findings section.

Findings

The research team analyzed implementation of the corequisite model in California community colleges in terms of: 1) the prevalence of institutions offering course sections with corequisite support, 2) the variation in the implementation of the model, and 3) the challenges of implementation. Each of these are explored in the following sections.

Limited Use of the Corequisite Model in California Community Colleges

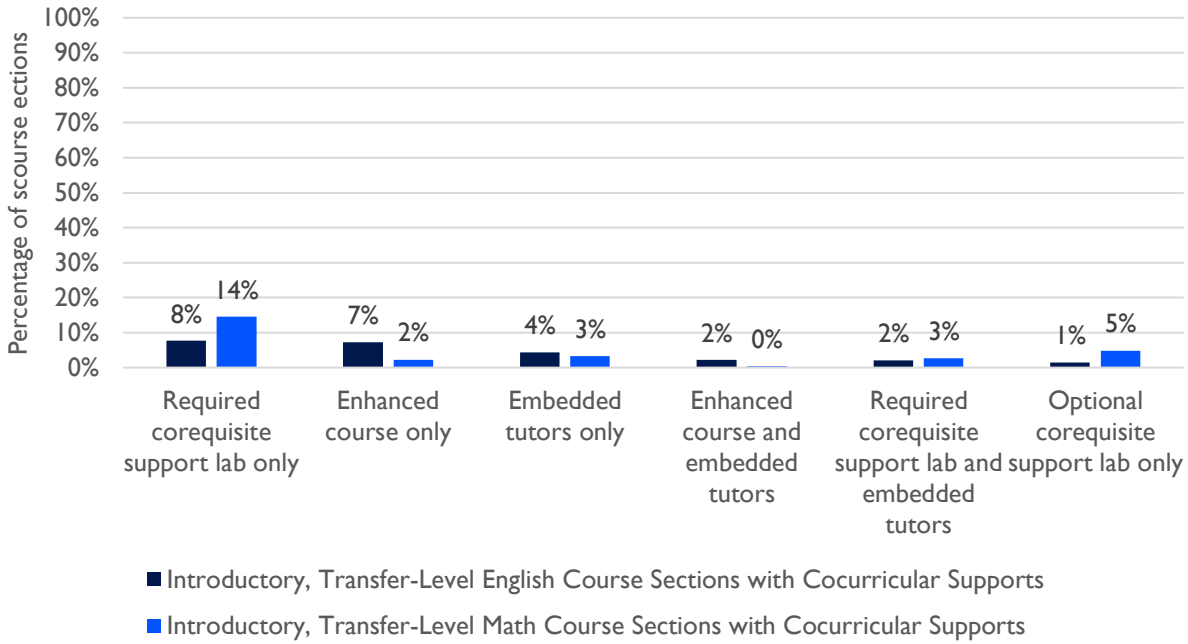
Community colleges have been encouraged to offer cocurricular supports to help students succeed in introductory, transfer-level coursework in math and English. Among the participating community colleges that provided spreadsheet data, the three most frequently reported cocurricular supports are listed and defined in Table 1 below.

Table 1. Cocurricular supports and descriptions

Cocurricular Support	Descriptions
Corequisite Course	Course section has a primary lecture and separate paired academic support lab, which can either be required or optional
Enhanced Course	Course section is primary lecture with additional credit(s) to provide extra instructional support
Embedded tutors	Course section has tutors assigned to the section who provide support to students inside and outside the classroom

Figure 1 below shows the percentage of introductory, transfer-level course sections that offered one or more of the three most frequently implemented cocurricular supports at participating community colleges during the 2022-23 academic year (AY).

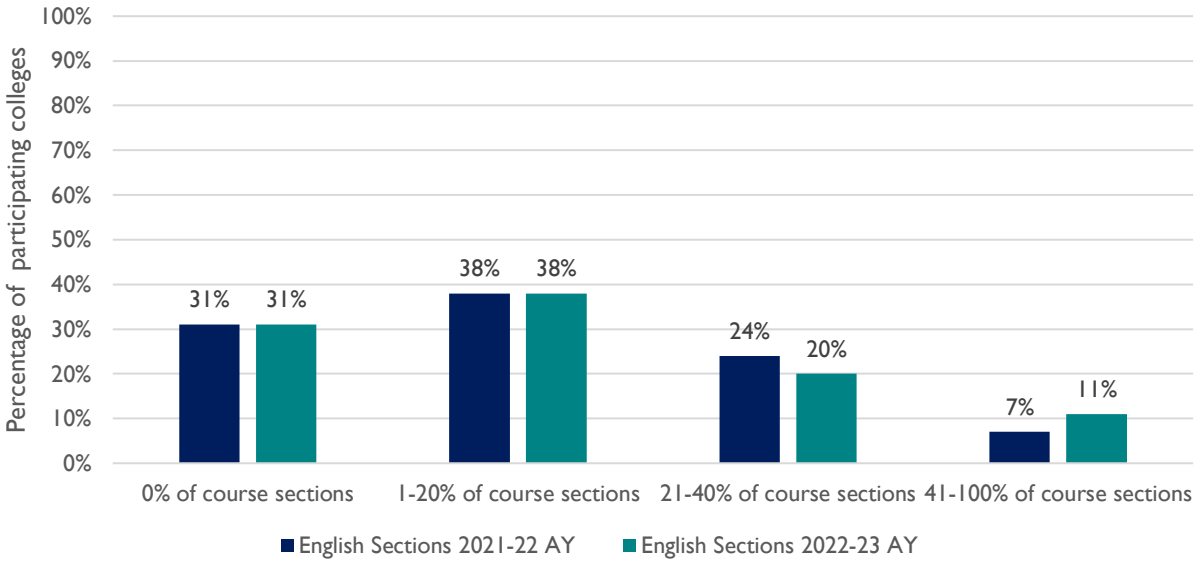
Figure 1. Most frequently used cocurricular supports in participating community colleges in 2022-23 (n=60 for English, 64 for math)



As shown in Figure 1, the corequisite model—with the support lab either required or optional and/or in combination with embedded tutoring—is the most common cocurricular support model. Among the community colleges that completed spreadsheets for the 2022-23 academic year, the model was offered with a required support lab in 8 percent of English and 14 percent of math introductory, transfer-level course sections. In contrast, an optional support lab was reportedly offered in just 1 percent of English and 5 percent of math introductory, transfer-level course sections. An additional 2 percent of English and 3 percent of math introductory, transfer-level course sections provided the corequisite model in conjunction with embedded tutoring.

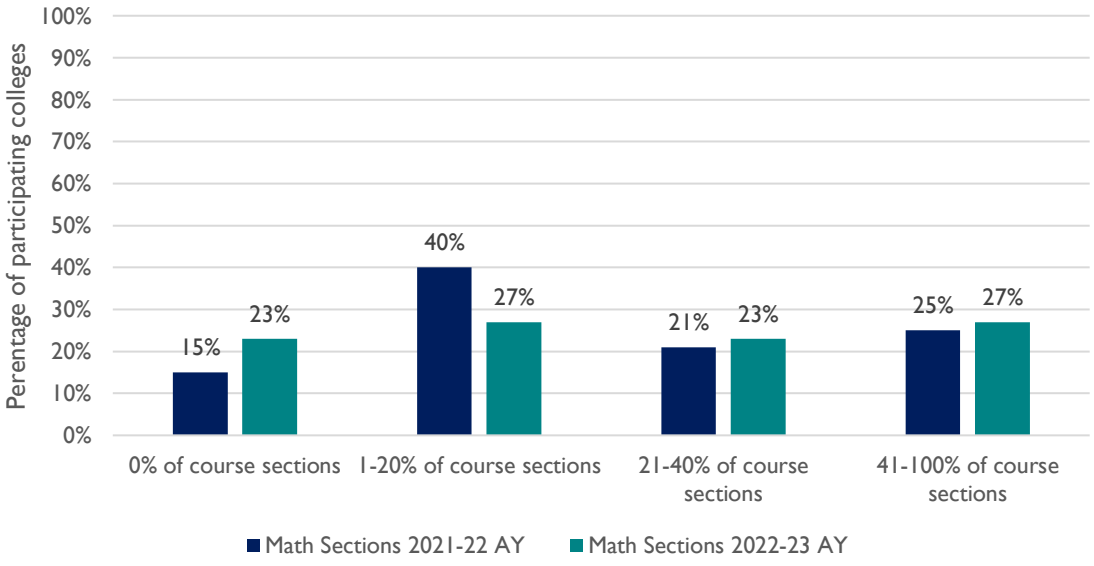
Figures 2 and 3 below explore the proportion of introductory, transfer-level English and math course sections that offered corequisites in participating community colleges during the 2021-22 and 2022-23 academic years.

Figure 2. Proportion of introductory, transfer-level English course sections that offered corequisites in 2021-22 and 2022-23 (n=45 community colleges)



As shown in Figure 2, over two-thirds (69%) of participating community colleges offered the corequisite model in no more than 20% of their introductory, transfer-level English sections and nearly a third (31%) did not offer the model in any introductory, transfer-level English sections across both years. Only 11% of participating community colleges were offering the corequisite model in more than 41% of their introductory, transfer-level English sections by the 2022-23 academic year.

Figure 3. Proportion of introductory, transfer-level math course sections that offered corequisites in 2021-22 and 2022-23 (n=48 community colleges)

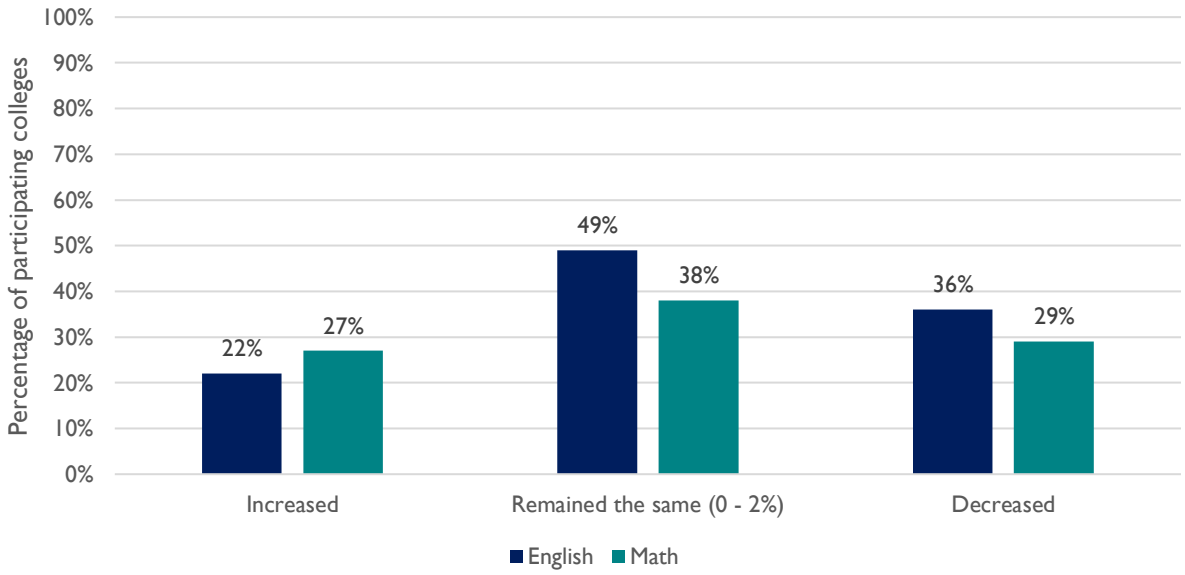


As shown in Figure 3, most participating community colleges (55%) offered the corequisite model in no more than 20% of their introductory, transfer-level math sections in 2021-22 academic year; that percentage decreased to 50% for the 2022-23 academic year. Only a quarter of participating

community colleges were offering the corequisite model in more than 41% of their introductory, transfer-level math sections by the 2021-22 academic year, increasing to 27% for the 2022-23 academic year.

Figure 4 displays the shifts in the percentage of English and math introductory, transfer-level course sections that offered the corequisite model from the 2021-22 academic year to the 2022-23 academic year.

Figure 4. Shifts in the percentage of English and math introductory, transfer-level course sections that offered corequisites in 2021-22 and 2022-23 (n=45 community colleges in English, 48 community colleges in math)



As shown in Figure 4, the percentage of English and math introductory, transfer-level course sections that offered corequisites remained the same (within a 0-2% change) from 2021-22 to 2022-23 at most participating community colleges. However, the percentage of introductory, transfer-level English and math course sections offering the corequisite model decreased in 36% and 29% of participating community colleges, respectively. In both English and math, more colleges experienced decreases than increases in the percentage of course sections offering the corequisite model.

The relatively low percentage of introductory, transfer-level course sections offering the corequisite model aligns with the findings from the Public Policy Institute of California (PPIC). In their 2023 report, PPIC researchers also found that a smaller-than-expected percentage of students were participating in corequisite courses, with only 18% of first-time English students enrolled in corequisite English courses in fall 2022. This level of enrollment represented a 24% decrease from fall 2019 (Cuellar Mejia et al., 2023). While the COVID-19 pandemic may account for these findings to some degree, several characteristics of the corequisite model and challenges experienced in implementation also may have contributed to the decline in corequisite enrollment and variation in outcomes.

Variation and Challenges in the Implementation of the Corequisite Model

There is limited data on the implementation of the corequisite model and how it can be most effectively utilized. Implementing corequisite courses can vary widely in several areas, such as the timing of academic supports, the characteristics of faculty assigned to the courses, the instructional modalities utilized (e.g., online vs. in-person, with or without embedded tutoring), the math pathways available through the courses (e.g., quantitative reasoning, statistics, or algebra-based), and the class composition and size (Ryu et al., 2022). Building on this framework, study participants at sample community colleges identified the following issues with corequisite courses:

- **There can be considerable variation across corequisite courses.** We found a number of different ways that corequisite courses were taught across colleges and sometimes across sections within a department. For instance:
    - **The same instructor did not always teach the introductory, transfer-level course and related support lab.** As was also found by Ryu and colleagues (2022), one of the structural elements that varied in our sample colleges was whether the same instructor taught both the main and support courses. When the instructors are different, they must work to align their course content and assignments; otherwise, misaligned courses can result in confusion for students and faculty.
    - **The timing of the academic support varied.** In the corequisite model, additional academic support is provided in a support lab adjacent to the main course, but there was still variation in the support lab schedule in some cases: they could be scheduled immediately before or after the main course or on a different day from the main course.
    - **The support lab was sometimes used to provide additional content instead of support on course material covered in the main course.** The primary purpose of the support lab is to provide additional support to ensure success in the main course. However, students and faculty at several colleges expressed concern that the support labs were used to deliver new content rather than providing academic support on the content from the main course. This was especially true in math courses, where some faculty used the support lab to teach additional content (e.g., algebra content in a support lab for a statistics class).
    - **Support labs were provided in-person and online.** As mentioned by Ryu and colleagues (2022), there was also variation in whether support labs were available online or in-person. Some faculty asserted that corequisite courses were only effective in-person.
    - **Corequisite courses sometimes included embedded tutors and/or learning communities.** Embedded tutors are typically community college students who have successfully completed an introductory math or English course and then are recruited to provide support to students in that course. While some faculty have embraced these tutors as a resource and found value in the model, others have been reluctant to collaborate with

them in the classroom. Similarly, in some cases course sections were reserved for students in a learning community, such as the Puente program[4].

- **Student enrollment in corequisite courses is typically recommended but not required.** In 2019, PPIC found that over half of colleges implemented placement policies that made enrollment in corequisite courses recommended or optional instead of required (Cuellar et al., 2020). This aligns with the findings from our 13 case study institutions: most did not require students whose placement results fell below a particular threshold to enroll in sections of introductory, transfer-level courses utilizing the corequisite model. Faculty also reported that students who needed the support most were often not enrolling in the corequisite sections for a number of reasons, including confusion among students about the support lab options, limited time in student schedules to enroll in a supported section due to the additional unit load, and limited section availability due to faculty capacity to teach a supported section. Despite the law allowing colleges to require enrollment, interview respondents reported that many college personnel were reluctant to make corequisite course enrollment mandatory for some students, reflecting a lack of clarity around AB 705.

- **Registration processes for corequisite support labs can be confusing for students.** Unlike the enhanced course model in which the lecture and support portions happen in the same class period, the corequisite model typically requires enrollment in two individual courses. These two courses are linked in the registration software so that when students enroll in the main course, they are prompted to enroll in the support lab as well. Faculty respondents described the registration process with the corequisite model as cumbersome and acknowledged that it can be confusing to students. Numerous faculty and administrators also reported difficulties encountered in programming the two paired courses into their registration systems. Three of the case study institutions shifted from the corequisite to the enhanced model to overcome such registration challenges.

- **There can be a large unit load with the corequisite model.** Along with the number of units for the transfer-level course, a support lab attaches additional units to the overall unit load. PPIC found that corequisite courses most commonly had a total of six units (Cuellar et al., 2020). In contrast, the enhanced model offers an option for support with fewer units. While the additional unit(s) represent opportunities for increased academic support, they also have time and cost implications for students and can thus be less accessible to students with limited time and financial resources. The additional credits associated with the support portion are also not transferable. Further, faculty shared that students who see English or math as difficult may be less interested in spending additional time in these classes. Due to these dynamics, some colleges tried to reduce unit load by: 1) shifting from the corequisite to the enhanced model; 2) offering the support lab as a non-credit course; or 3) providing the corequisite support lab as optional to reduce the burden on students.

[4] Learning communities provide academic and non-academic support to a cohort of students based on similar backgrounds or interests. This often includes enrollment in the same introductory course sections, as well as mentoring and other services, thereby creating a supportive community and environment for students. The Puente program provides one example of this model, focusing primarily on supporting Latinx students.

- **The level of faculty professional development and support did not always reflect the challenge of implementing the corequisite model.** Community college faculty often have limited pedagogical training and the implementation of corequisite courses offers considerable instructional challenges. In response, colleges provided varying levels of professional development to support faculty in meeting the needs of students through these reforms. While some colleges or academic departments required faculty teaching corequisites to participate in professional development and/or communities of practice, others did not. Professional development at individual institutions was most often left to faculty peers who had limited experience and expertise in some cases. Teaching corequisites also requires additional preparation such as coordination with an embedded tutor, and there was variation in whether institutions provided stipends to faculty teaching corequisite courses to compensate them for the additional workload involved.

- **Grades for main corequisite course and paired support lab may be different.** Since the transfer-level course and the support labs are separate, it is possible for students to pass one and not the other. If a student passed the support course but not the main course, it may mean that they cannot retake the support course even if they need additional support to retake the main course. In response, some colleges decided to make the support lab ungraded or pass/fail, determining the overall grade for the course based on the main course alone.

Discussion and Conclusion

While the corequisite model has shown promise, descriptive evidence on student outcomes demonstrates varied results and there are still questions regarding best practice. The variation and challenges in implementation outlined above may help to explain in part why the utilization of this model has been more limited than might be expected in California. While some colleges have embraced the strategy of shifting to the enhanced course model to provide student support in the classroom, potential challenges in separating the transferrable and non-transferrable units or credits from a single course have been identified as an issue.

For colleges that are utilizing the corequisite model, it is critical to learn from the lessons outlined above to improve implementation and potentially student outcomes in the course. For example, academic departments should assign the same faculty member to teach both the main course and the support lab to avoid confusion and maximize the effectiveness of the support provided in the lab. Academic departments should similarly consider ensuring that the support lab is used only to provide just-in-time remediation[5] to students on the material covered in the primary course rather than including additional content.

Colleges also need to provide faculty with the professional development and ongoing support to successfully implement corequisite courses. Community college faculty are not always familiar with the instructional strategies to help students succeed. Whether provided by the college or an outside

[5] Reviewing specific skills as they are needed in the course to help students learn the content.

expert, faculty need to be supported with release time[6] and encouraged to expand their pedagogical skills to meet the needs of all their students.

College policy related to placement and curriculum also needs to create the conditions for success in corequisite model implementation. Currently, most California community colleges only recommend but do not require students to enroll in corequisite courses; in fact, students most in need of academic support often do not enroll in these courses. To address the equity issues that the additional student time, tuition, and units or credits create, colleges might consider requiring student participation in the support lab while limiting the number of units or credits connected to the lab and/or providing the lab without additional tuition costs.

These shifts in college policy and practice cannot be adopted and implemented successfully without support from beyond the institutional level. Community colleges need funding and capacity building resources from agencies and intermediaries from the state and/or systems levels. California provides a recent example of this type of support: along with the passage of both AB 705 and AB 1705, the California state legislature devoted $64 million in 2022 to establish the California Community College Equitable Placement, Support, and Completion funding allocation to support colleges to in developing corequisite support models and providing professional development and technical assistance, among other activities (Lowe, 2023). Such funding may provide institutions with the resources they need to support implementation more fully and improve outcomes for students.

[6] Time away from normal faculty duties to pursue other college-related activities, such as professional development.

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