Embedded Tutoring in California Community Colleges: Perspectives from the Field on a Promising Practice

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Drawing on qualitative data collected in a sample of colleges as part of a larger study on the implementation and impact of AB 705 in California, this paper explores the rollout of corequisite reforms, focusing on the use of embedded tutors in introductory math and English courses as a strategy to meet to the needs of students. This paper highlights promising practices identified through extant research and fieldwork at study institutions, provides additional evidence on the value of the reform, discusses challenges, and makes recommendations for the field.

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Introduction

Fewer than one third of students 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 an effective alternative approach for increasing introductory, college-level course completion among these students is to allow them to enroll in an introductory college-level courses – either with concurrent DE or in lieu of DE altogether (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 ensure that they are successful. One such model is embedded tutoring, a program in which a tutor works in the classroom under an instructor's guidance to help students understand course concepts and enhance student engagement, either physically or virtually (Calma & Eggins, 2012). Drawing on supplemental instruction that has been in place for several decades, embedded tutoring shifts tutoring from workshops that provide additional instruction outside of class to academic support in real time during class. While the literature on embedded tutoring lacks consensus on the definition of the model and is more limited than what has been published on supplemental instruction, the research to date shows encouraging results regarding student outcomes (Channing and Okada., 2020; Tucker et al., 2020).

This paper draws on qualitative data collected as part of a larger study on the implementation and impact of AB 705, a law requiring colleges to revise their placement in order to maximize the likelihood of students completing transfer-level math and English within one year. In response to AB 705, most California community colleges have not only revised placement approaches, but have reduced their DE offerings and enrolled most incoming students into transfer-level coursework in math and English with various cocurricular supports, including corequisites.[1] Research for Action conducted qualitative fieldwork in the fall of 2022 and winter of 2023 at a sample of 13 community colleges across California. Through interviews and focus groups with over 150 administrators, faculty, and students, the research team explored the rollout of corequisite reforms, including the use of embedded tutors in introductory

[1] Corequisites for the purposes of this discussion are introductory, transfer-level course sections that include a separate support lab that provides students with just-in-time remediation to help them successfully complete the course.

math and English courses as a strategy to respond to the needs of students in the wake of AB 705. This paper highlights promising practices identified through extant research and Research for Action's fieldwork at study institutions, provides additional evidence on the value of the reform, discusses challenges, and makes recommendations for the field.

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, however, 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 Hispanic/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 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, including an implementation timeline and suggested set of default placement rules that include specific high school GPA thresholds for math and English, as well as whether additional corequisite support is recommended (e.g., a student with a high school GPA $\geq$ 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.

In September 2022, due to lagging reforms in response to AB 705, the legislature passed AB 1705, designed to close loopholes in AB 705. AB 1705 took effect in July 2023 and further codifies the intention of AB 705. This paper focuses on the implementation of AB 705, because 1705 had not yet taken effect during our fieldwork.

Embedded Tutoring: Academic Support during Class Time

The embedded tutoring model is often described as a hybrid between more traditional tutoring and supplemental instruction (Coghill, 2013; Racchini, 2020). As outlined in Table 1 below, for the purposes of this discussion we define traditional tutoring as a tutor, whether student or staff, providing academic support one-on-one to students in the tutoring center. Supplemental instruction is defined as a model in which a student tutor attends the class they are supporting only to keep abreast of the lessons in preparation for the instructional workshops they provide for student groups outside of class. Both the traditional tutoring and supplemental instructional models require voluntary participation on the part of students. However, this can present a barrier, as students are often hesitant to utilize tutoring services for several reasons, including the stigma attached to asking for help and the many other obligations that require their time (Tucker et al., 2020).

Table 1. Comparison between tutoring models

Tutoring Model	Description
Traditional Tutoring	Voluntary academic support provided one-on-one in the tutoring center
Supplemental Instruction	Voluntary group instruction offered by the tutor outside of class
Embedded Tutoring	Academic support provided in collaboration with the instructor during class time and group and/or individual tutoring offered outside of class

The embedded tutoring definition listed in Table 1 is based on the California study sites, in which embedded tutors were typically community college students who had successfully completed an introductory math or English course and were then recruited by the faculty member teaching that course or by the campus tutoring center to provide support to students in that course. Student support included offering just-in-time remediation during class time, and in most cases providing additional help by holding office hours in the tutoring center and/or group tutoring. The unique features of the embedded tutoring model include the intermediary role that tutors play between students and faculty, with tutors offering feedback to students based on their knowledge of the class and the instructor, and the inclusion of the embedded tutor as an instructional aide during class sessions (Pagnac et al., 2014). Indeed, an embedded tutor collaborates closely with the instructor for the duration of a course to provide classroom support in the academic content area and timely, individualized assistance to students both inside and outside of class.

Research on the effectiveness of embedded tutoring is more limited in scope than the extensive research done on supplemental instruction. Further, the sparse existing literature lacks a consistent definition of how the embedded tutoring model is designed. In some studies, what is described as an embedded tutoring model has characteristics more closely resembling supplemental instruction. For example, Coghill (2013) described an embedded tutoring program at East Carolina University in which peer tutors attended the class they were supporting, provided an evening workshop similar to supplemental instruction, and also provided office hours for one-one-one tutoring appointments similar to either an embedded or traditional tutor (2013). Hendriksen and colleagues (2005) studied "learning center-based tutoring" at a community college and found that students receiving the tutoring outperformed their non-tutored peers, but the model again closely resembled supplemental instruction and did not include academic support in class. Vick and colleagues (2015) also evaluated an embedded tutoring model used in developmental education courses that included both workshops outside of class based on observations of instruction during class and academic support offered in the tutoring center, but did not include "just-in-time" remediation during class.

However, there are studies of embedded tutoring in introductory courses which align with the approach seen in California community colleges and show improved student outcomes. Channing and Okada (2020) described an embedded tutoring model in which the tutor attends some or all class sessions and participates in the class itself as well as offering tutoring outside of class and found that retention rates were higher in sections of introductory math and English courses when embedded tutors were utilized. Tucker et al. (2020) found that students in introductory courses with high failure rates such as biology, math, English, and psychology had increased retention rates and reduced failure rates with the implementation of embedded tutoring. Similarly, Pagnac et al. (2014) studied an embedded tutoring model for first year writing-intensive courses at a liberal arts college to assist students with research and writing skills and found that students received feedback on drafts in a timely manner and felt confident in their ability to find assistance from the instructor, embedded tutor, and embedded librarian.

Peer tutoring models such as supplemental instruction and embedded tutoring have become popular for colleges and universities because of evidence of improved student outcomes and because the model is economical and efficient (Folger, Carter, & Chase, 2004). For example, Racchini (2020) found that at her institution, offering supplemental instruction for a course had an average cost of $950.00 while utilizing an embedded tutor had an average cost of just $660.00. However, as will be discussed in further detail later in this paper, it is critical that colleges provide compensation to tutors that makes the positions desirable to students.

The research on embedded tutoring also suggests that students benefit from both the academic and social supports offered in the model. Many studies "have highlighted the importance of balancing two key factors: academic challenge and supportive interactions with staff and other students" (Zamberlan & Wilson, 2015, p. 7). Channing and Okada (2020) explain that with the embedded tutoring model, learning often occurs in a social context. Maggio and colleagues (2005) also note that embedded tutoring facilitates student familiarity with the tutor and helps students establish a relationship with the tutor. Indeed, the embedded tutoring model offers students both the opportunity to build their academic skills and develop positive relationships with more experienced and successful students. Unlike supplemental instruction, which also provides opportunities for social interactions between students and tutors, embedded tutors also interact with *all* students in the class, not just those who voluntarily attend workshops offered outside of class.

In looking to the literature on best practices for embedded tutoring, the lack of consensus on the characteristics of the model has led to limited evidence of best practices in this area. Due to the early nature of embedded tutoring programs, individual college directives on their models have been provided as examples of best practice resource guides. However, in writing about tutoring and mentoring more broadly, Goodlad (2001) offered "seven golden rules" which can provide a useful framework for understanding the implementation of the embedded tutoring model. These rules are as follows: define your aims, define roles, train tutors, structure the content, support tutors and mentors, keep logistics simple, and evaluate.

Methodology and Sampling

Although AB 705 is a state mandate, the policy offered some flexibility to institutions on how they moved toward offering greater numbers of transfer-level courses. In order to sample institutions that varied in implementation, we developed a Scale of Implementation 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. Using this Scale of Implementation, we created a composite score across these indicators and ranked institutions, dividing the list into quintiles and sampling 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 in winter 2023, including interviews with administrators and faculty, and focus groups with students. At each institution, our research team conducted one-on-one interviews with at least four faculty each from the math and English departments, as well as academic and student services administrators and counseling faculty. The qualitative data collected was coded using Dedoose and a cross-site analysis was conducted to determine themes across the study colleges. The findings from these analyses, as well as the literature explored are discussed below.

Strengths of Embedded Tutoring in California Community Colleges

Across study colleges included in fieldwork, embedded tutoring was the most common type of cocurricular support model, both before and after the passage of AB 705. Seven of the 13 community colleges reported using embedded tutors prior to AB 705, which increased to 12 after the policy was implemented. Echoing the existing literature on embedded tutoring, faculty and students in California described the model as a valuable resource. At nine of the 12 study colleges implementing the model after AB 705, faculty and students praised embedded tutoring. Some faculty called the model “a game changer” and students described their tutors as “extremely helpful.” One California case study community college reported that “data shows our students who attend tutoring do better… the vast majority pass their classes.” There are six main strengths associated with embedded tutors, based on the perspectives of community college faculty, administrators, and students in California, as well as the existing literature.

The model does not require students to spend additional time and funds on coursework. When building on his original model on student retention in 2012, Tinto advocated for offering instructional support *in the classroom* due to the work and personal responsibilities students had outside of the classroom that limits the amount of time a learner can spend on campus. Indeed, students are often unable to spend a significant amount of time on campus, so an embedded tutoring program can help to address this issue while allowing students to access academic support resources.

Across multiple case study sites, respondents reported that with the corequisite model, the additional time and credits required and the additional tuition cost were a deterrent for students to sign up for introductory courses with a support lab. For example, one faculty member explained that the model “required time in class for the students… a lot of time.” In contrast, the use of embedded tutors as a part of the course itself provides additional support during scheduled class time, without requiring students to spend additional time and money for the support.

Embedded tutors are seen as more approachable than faculty. In the fieldwork in California, students and faculty reported that students are more comfortable speaking with tutors than faculty because they are “more of a peer who can help them.” For example, one faculty member explained that because “tutors are [the students’] peers, it makes them approachable… comfortable.” A student similarly mentioned that “some people might be afraid to go talk to the instructor… with the tutor that's like another student and you don't have to be afraid to talk to that person.” Similar findings can be found in the literature. For example, Alba (2016) found that a tutor's presence in the classroom can often be seen as less intimidating to students than working with the faculty member instructing the class, particularly for English language learners. The students in Alba’s study shared that the tutors were a valuable resource because they were fellow students. Gentile (2014) further argued that course-embedded tutoring programs offer tutors a chance to enhance teaching practices because of the inherent connection that can occur between students and tutors during class time.

Embedded tutors are familiar with the course content and faculty expectations. In California, embedded tutors were often students who had taken a class before with the same instructors and were therefore familiar with how the class is structured and the content covered. Students shared that working with an embedded tutor was more helpful than working with other members of the tutoring center staff because “you don’t have to explain… [and] waste your breath and time [because the tutor] already knows” what is taking place in the course and what is expected by the instructor. Alba (2016) also found that embedded tutors understood the professor’s expectations on assignments because they had taken the course themselves previously, which added another valuable aspect to their work.

Embedded tutors help provide individualized instruction to students. Providing students with “just-in-time” remediation that helps to address skills that students have not yet developed or were never exposed to takes considerable personal attention from instructors. Leveraging an embedded tutor to help provide assistance to students as they work through assignments, whether in or outside the classroom, can provide critical additional capacity to faculty responsible for the course. Students in our case study institutions reported that it was helpful to have another resource person in the room “because a teacher can’t help everybody in the class, so… [with the embedded tutor] everybody’s getting the help that they need.” Faculty also reported that tutors can help them to provide more individualized attention to a greater number of students. In their research on key factors that contribute to student success, the Research and Planning Group (RP Group) for California Community Colleges similarly found that the embedded tutoring model provides opportunities for individualized, just-in-time assistance to meet immediate learning needs (Booth et al., 2013).

Embedded tutors interact with all students in the class, not just those who seek out tutoring. The faculty interviewed in case study sites commonly reported that embedding the tutors in the classroom reduces the stigma associated with seeking help. For example, one instructor explained that "the tutoring center [does not feel] so distant [to the students when you]… have a tutor in the classroom" with whom students have already built rapport. As a result, embedded tutoring can extend the benefits of social interaction and support to all students. The literature similarly emphasizes that one of the strengths of the embedded tutoring model is that in shifting from outside to include the classroom, it addresses the common issue that students often hesitate to reach out for tutoring support.

Embedded tutors help students not only learn course content but also develop study skills. In the California case study sites, many faculty recognized the need to provide students in their introductory math and English classes with study skills in addition to the course content. Part of instructional support, according to one English instructor, is "not just teaching students… but showing them what being in college is like." Similarly, a math instructor shared the importance of teaching "study skills, how to be a college student, time management… not just math." The RP Group found that the embedded tutoring model assists students to master course content and provides study skills and other strategies for learning (Booth et al, 2013). Channing and Okada (2020) similarly found that embedded tutors not only help students to learn course material but serve as models for how to learn effectively and collaboratively.

Challenges involved in an Embedded Tutoring Program

Despite the promising evidence on the ways in which embedded tutoring support improves student outcomes and the perspectives from the literature and the California fieldwork on the value of embedded tutors, the model comes with a number of challenges that need to be addressed, including the following:

- **Recruitment and Retention:** Tutoring requires considerable time and training from students involved in offering the model, but tutors are not always offered competitive wages compared to off-campus work opportunities which can be seen as more desirable. Strong community college students also seldom remain at institutions for long, often transferring to four-year institutions to continue their education and leaving the tutoring pool in a constant state of flux. Further, the number of embedded tutors declined during the height of COVID-19 as colleges struggled to simply continue providing classes online. Colleges are now trying to rebuild their embedded tutoring programs as more students come back to campus and courses are offered in-person. These dynamics have made the recruitment and retention of embedded tutors an issue for community colleges in California and elsewhere and require colleges to engage with potential student tutors on an ongoing basis, as well as find sustainable funding to provide competitive wages.

- **Course Content and Tutoring Mastery:** Some faculty expressed concerns about tutors' mastery of the material. Faculty emphasized the importance of tutors having content expertise (i.e., being an English major, not just a strong student), which is not always feasible with a limited tutoring pool. Other faculty and administrators shared the importance of embedded tutors being confident and "intrusive" when working with students, circulating and offering help, which reportedly not all student tutors were comfortable doing.

- **Extra Time and Work for Instructors:** Faculty at several case study colleges spoke about the additional time and work required to plan and coordinate with the tutor and develop a strong working relationship. In some cases this extra time was not compensated, which was reported as a disincentive for faculty to collaborate with an embedded tutor. Indeed, studies have highlighted the need for a high level of communication and trust between the faculty member teaching a course and the tutor assigned to it (Ganter, 2022). Another disincentive is having to learn how to effectively utilize the tutor in the classroom; Pagnac et al (2014) highlighted the fact that faculty are often not accustomed to collaborating with a tutor during class. In response, some case study colleges developed trainings to support tutor integration, an additional demand on faculty time.

Developing and Supporting an Embedded Tutoring Program

As mentioned previously, the field has yet to come to consensus on the components of embedded tutoring programs. Based on the guidelines for tutoring outlined by Goodlad's framework, the extant literature on embedded tutoring, and the lessons learned from the fieldwork in California, it is critical to understand and develop a number of processes and supports for embedded tutors and the faculty who collaborate with them in order for the program to be successful in the long term. The following recommendations are proposed for both state policymakers and institutional practitioners to consider as they determine how to best support and implement embedded tutoring programs on community college campuses.

- **Define the purpose of embedded tutoring and the roles and responsibilities of tutors and faculty:** Goodlad emphasized the need to define the purpose, roles, and responsibilities of tutors and the faculty collaborating with them. While Goodlad's framework was designed for all tutoring programs, it applies to embedded tutors as well. College academic departments and tutoring centers should make clear what the expectations are for embedded tutors in and outside the classroom, how the tutors and faculty will work together, and how faculty will coordinate and collaborate with their tutors. Pagnac and colleagues (2014, page 41), for example, explained that scheduling meetings with faculty and tutors before the start of the semester can "motivate contact and ensure that expectations—on both sides—are clear."

- **Recruit and retain embedded tutors:** As outlined above, the recruitment and retention of embedded tutors is a challenge that has only been exacerbated by the COVID-19 pandemic. Colleges need to develop strategies and incentives to encourage faculty to recruit tutors and provide ongoing support for the students who work in their courses as embedded tutors. They further need to allocate funding for tutor compensation to make the positions desirable.

- **Require embedded tutor training and ongoing support:** Not surprisingly, the literature is clear that untrained tutors are much less effective than tutors who have received training. Providing relevant training for faculty involved with embedded tutors benefits both faculty teaching the course and students enrolled in the course (Channing & Okada, 2019; Tucker et al., 2020). Often provided by the college tutoring center, training and ongoing support for the embedded tutors themselves is also critical to the success of the program and the work of individual tutors with their students.

- **Provide professional development for faculty on collaborating with embedded tutors:** Effectively collaborating with an embedded tutor in ways that ensure they will provide valuable support to students creates challenges for even experienced faculty members. Faculty at case study sites reported the need for professional development and ongoing peer support on how to best leverage embedded tutors in their courses. Further, strong faculty and tutor relationships are critical to the successful continuity of the program.

- **Secure sustainable funding and resources for embedded tutoring programs:** As outlined previously, part of recruiting and retaining embedded tutors involves offering competitive salaries. In addition, providing financial compensation for the faculty collaborating with embedded tutors can help to incentivize participation and acknowledge the additional time and effort involved in collaborating with an embedded tutor. Resources supporting faculty and embedded tutoring training are also critical for the model to be successful. State policymakers need to provide these resources to community colleges through sustainable funding streams rather than time-limited grant opportunities, and institutions need to allocate these resources to faculty, tutoring centers, and embedded tutors.

- **Evaluate the model and continuously improve implementation to increase positive student outcomes:** As with all efforts in the education sector, continuous improvement is critical. As noted by Goodlad (2001), "it hardly seems necessary to stress the importance of evaluation." Nonetheless, it must be noted that colleges and academic departments implementing an embedded tutoring model must look at student outcomes in the courses utilizing the strategy to determine whether and to what extent student outcomes improve, particularly among traditionally underserved populations, most often Black and Hispanic/Latinx students, as well as English language learners and students with disabilities. Colleges should also gather qualitative data from students, faculty, staff, and embedded tutors to determine how the model can be implemented more effectively.

Conclusions

While additional research is needed to build the evidence base for the impact of embedded tutoring, the existing early literature and perspectives from the field and particularly from community colleges in California show the model to have value for students who are or may have previously been placed in developmental education courses. The specific benefits of the model include efficiency in the use of student time and college tuition, the approachability of embedded tutors as compared with faculty, the familiarity of embedded tutors with course content and faculty expectations, the added capacity that embedded tutors provide in meeting the needs of individual students, interaction between tutors and students in the classroom, and improved course content knowledge and study skills among students working with an embedded tutor. While the model has challenges around tutor recruitment and retention, content and tutoring mastery and increased faculty workload, these challenges can be addressed. Institutions and policymakers can support the model through clear expectations for the program, support for recruitment and retention, professional development for faculty and training for tutors, sustainable resource provision, and continuous improvement.

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