

Dual-Enrollment Dosage Design: Conceptualization and Measurement of Student Profiles and School Structures

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Across the country, more students are earning college credit before they graduate high school through programs known as dual enrollment. By 2018, 82% of all American public high schools offered at least one dual-enrollment course. But as access grows, an important question remains: *What does student participation in dual enrollment programs actually look like, and does taking more courses lead to better results?*

Prior research suggests that dual enrollment can improve students' chances of enrolling in college, persisting, and completing a degree, especially for students who might otherwise face barriers to postsecondary education. Yet much of this research treats dual enrollment as a single experience: students either participate or they do not. In reality, participation looks very different across students. Some students take just one course, while others participate in intensive models, such as Early College High Schools, that allow them to complete a large number of college credits before graduating.

Research on the amount of dual enrollment coursework students complete (often called “dosage”) is particularly important for several reasons:

1. Students may face credit transfer problems, meaning that the college credits they earn in high school may not transfer to their college or count toward their chosen major, and so students who take large numbers of dual-enrollment courses may not receive a benefit equal to their effort.
2. Many school reform models and policies are built around assumptions about how many college credits students should earn in high school, yet there is little evidence about what level of participation provides the greatest benefits.
3. The impact of dual enrollment may depend on factors such as the subjects students take, where and how courses are delivered, and whether courses form coherent pathways, rather than just the total number of credits earned.

This study offers new insights into how program design and access influence who participates and how schools can structure dual enrollment opportunities that maximize benefits for students.

DUAL ENROLLMENT DEFINITIONS AND SCHOOL STRUCTURES

Dual enrollment (DE) is defined broadly as a set of policies and school models that allow high school students to take college-level courses and earn college credit while still in high school. Different terms, such as dual enrollment, dual credit, and concurrent enrollment, are often used interchangeably across states and programs. Unlike Advanced Placement (AP) or International Baccalaureate (IB), where students must pass an exam to receive credit, students in dual enrollment earn college credit immediately after successfully completing the course and receive a college transcript.

Dual enrollment can be delivered through different school structures and program models. In some cases, students simply take individual college courses while enrolled in a traditional high school. In other cases, schools are designed specifically around dual enrollment, such as Early College High Schools (ECHS) or P-TECH schools, where students complete many college credits, or even an associate degree, before graduating from high school. These programs typically involve coordinated course sequencing, strong advising, and structured partnerships with postsecondary institutions.

STUDY AND METHODS

The researchers use statewide data from Texas that link K–12 education records, college enrollment data, and workforce data, allowing them to track students' high school coursework, demographics, and postsecondary outcomes. The dataset includes roughly 3.5 million students who graduated from Texas public high schools between 2014 and 2023, about 21% of whom took at least one dual enrollment course.

To answer their research questions, the authors use a multi-step analytic approach. First, they conduct descriptive analyses to examine overall dual enrollment participation rates, the number of credits students earn, and the types of courses students take. Second, they categorize schools based on the type of college-and-career-ready school model they offer (such as Early College High Schools or P-TECH) and the share of students who participate in dual enrollment. Finally, they use latent profile analysis (LPA) to identify groups of individuals who share similar patterns across several measured variables, such as the number of dual-enrollment credits earned and the subjects of courses taken. Instead of assuming everyone in a dataset behaves similarly, LPA looks for clusters of people whose observed behaviors form distinct profiles. They then examine how these student participation profiles relate to student characteristics and school structures.

Together, these methods allow the researchers to analyze dual enrollment at both the school level (program structures) and the student level (course-taking patterns), helping them understand how different program designs shape the amount and type of dual-enrollment participation students experience.

KEY FINDINGS

- 1 Dual enrollment engagement ranges widely, from a few credits to the full 60 needed for an associate's degree.**
 - Nearly two-thirds of all DE students fall into the category of "DE Dabblers." These students typically earn only 9 to 11 college credits (roughly 3–4 courses) in core academic subjects, which may offer less long-term benefit than more intentional, high-dosage paths.
 - A smaller group of students accumulates much larger numbers of credits (up to the 60 credits needed for an associate's degree), often through structured programs such as Early College High Schools.

- 2 While school models like ECHS and P-TECH are drivers of high-dosage participation, they do not guarantee it. Even within the same types of schools, student participation varies widely.**
 - Approximately 85% of ECHSs are classified as "High DE" schools (where participation is above the state median), compared to only 45% of traditional high schools.
 - However, even in schools built around dual enrollment, such as ECHS, students' course-taking patterns differ widely, with some students completing large numbers of credits while others complete relatively few. Conversely, some students in traditional high schools still accumulate significant amounts of dual-enrollment coursework.
 - Differences in participation within the same school can be driven by "within-school mechanisms" such as eligibility requirements, recruiting biases, and advising practices. Educators may gatekeep access based on perceptions of a student's "maturity" or "responsibility," leading to disparate participation even when the school structure supports high dosage.

- 3 While Texas students take DE courses in more than 100 subjects, just 12 subjects account for over 90% of all DE credits earned. The most popular DE courses are in core academic subjects such as English, Government, History, and Math.**
 - By contrast, DE-CTE credits, of any subject, comprise less than 10% of DE courses attempted.
 - Because most students' participation is limited to these few core subjects, their college experience in high school is often a shallow academic "sampling" rather than a deep exploration of a potential major.

- 4 Historically underserved groups, such as students of color, low-income students, and lower-achieving students participate in DE at lower rates. This is consistent with national trends; however, the authors extend this to find that student demographics also relate to their dosage profiles.**
 - Students from marginalized backgrounds are more likely to participate at lower dosages or be concentrated in non-academic tracks, even within schools designed to promote college readiness.

- The research points to "within-school mechanisms" as primary drivers of these inequities, such as gatekeeping due to implicit bias from the educators who recommend or admit students for DE.

5 Students in DE pathways frequently take multiple advanced courses simultaneously.

- DE participation is often complementary rather than substitutive with other advanced learning opportunities such as Advanced Placement, International Baccalaureate, or CTE coursework.

POLICY AND PRACTICE IMPLICATIONS

1 Expanding dual enrollment opportunities alone is likely insufficient. Improving within-school mechanisms (how schools identify, recruit, and support individual students) is just as critical to ensuring broader and more equitable access to DE courses

- The study finds substantial variation in participation even within similar school structures. This suggests that implementation decisions, such as how courses are scheduled, how students are advised, whether prerequisites are flexible, and how schools communicate opportunities to students and families can all influence whether students take advantage of these programs.

2 To close equity gaps, practitioners must address the "within-school" factors that limit participation, such as racially biased eligibility parameters and implicit bias in recruitment.

- Schools should move away from informal recommendation-based systems, which are prone to implicit bias. Instead, schools could implement proactive, universal screening or opt-out models to ensure all eligible students are identified.
- Practitioners could provide specific advising and support structures for students of color, low-income students, and male students, who currently participate in DE at significantly lower rates.

3 Improving the tracking of credit accumulation, subject areas, and participation pathways could help policymakers better understand which program designs produce the strongest outcomes and where additional support may be needed.

- Much of the policy conversation focuses on increasing the number of students who "participate," or take at least one dual enrollment course. However, the study shows that students participate in DE in very different ways, ranging from taking a single course to completing dozens of credits. These different participation patterns, or dosage levels, likely have different implications for students' college readiness and postsecondary outcomes.

FULL WORKING PAPER

This report is based on the EdWorkingPaper “*Dual-Enrollment Dosage Design: Conceptualization and Measurement of Student Profiles and School Structures*,” published in March 2026. The full research paper can be found here: <https://edworkingpapers.com/ai26-1421>.

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