IMPROVING IPEDS DATA COLLECTION ON HIGH SCHOOL STUDENTS ENROLLED IN COLLEGE COURSES

Authors

Jason L. Taylor
Assistant Professor
Department of Educational Leadership and Policy
University of Utah
jason.taylor@utah.edu

Brian P. An
Associate Professor
Department of Educational Policy and Leadership Studies
University of Iowa
brian-an@uiowa.edu

September 2017

This project has been funded, either wholly or in part, with federal funds from the U.S. Department of Education under Coffey Consulting, LLC's Contract No. ED-IES-12-D-0016. The contents of this publication do not necessarily reflect the views or policies of the U.S. Department of Education, nor does mention of trade names, commercial products, or organizations imply endorsement of same by the U.S. Government.

National Postsecondary Education Cooperative

The National Postsecondary Education Cooperative (NPEC) was established by the National Center for Education Statistics (NCES) in 1995 as a voluntary organization that encompasses all sectors of the postsecondary education community including federal agencies, postsecondary institutions, associations, and other organizations with a major interest in postsecondary education data collection. In 2007, NCES assigned NPEC the responsibility for developing a research and development agenda for the Integrated Postsecondary Education Data System (IPEDS). IPEDS is the core postsecondary education data collection program for NCES. NPEC also occasionally produces products of value to postsecondary data providers, users, and institutional representatives.

NPEC publications do not undergo the formal review required for standard NCES products. The information and opinions published in them are the products of NPEC and do not necessarily represent the policy or views of the U.S. Department of Education or NCES.

[September 2017]

The NCES Home Page address is http://nces.ed.gov
The NCES Publications and Products address is http://nces.ed.gov/pubsearch
The NPEC Home Page address is http://nces.ed.gov/ipeds/InsidePages/JoinIn?pageid=41

This publication is only available online. To download, view, and print the report as a PDF file, go to the NCES Publications and Products address shown above.

Suggested Citation

Taylor, J.L. & An, B.P., *Improving IPEDS Data Collection on High School Students Enrolled in College Courses* (NPEC 2017). U.S. Department of Education. Washington, DC: National Postsecondary Education Cooperative. Retrieved [date] from http://nces.ed.gov/pubsearch.

NPEC Members

Content Contact

Gigi Jones
(202) 245-6444
Gigi.Jones@ed.gov

Acknowledgements

The authors would like to acknowledge several individuals who supported this project and paper. First, this paper would not have been possible without the individuals at institutions and the state systems that generously donated their time to provide us with information and data to write this paper. Because we protected institutional anonymity, we cannot list their names, but we are grateful for their cooperation and for supporting the improvement of IPEDS data collection. Second, we thank the NPEC Members for identifying this important topic and for reviewing and providing feedback on draft versions of this paper. Third, we thank Gigi Jones at NCES for providing thoughtful guidance on the development of the paper and critical feedback on earlier versions of the paper. Finally, we are grateful to Abby Miller at Coffey Consulting for providing logistical and administrative support for this project and for providing valuable feedback on earlier versions of the paper.

Contents

Executive Summary

Purpose, Research Questions, and Methods

High school students enrolling in college courses (dual enrollment) is a growing phenomenon, but the Integrated Postsecondary Education Data System (IPEDS) has not evolved to adequately reflect this new reality. Existing IPEDS surveys do not accurately measure dual enrolled students nor the potential influence of first-time-in-college (FTIC) students who dual enrolled in high school. The purpose of this paper is to explore the growing phenomenon of dual enrollment and to identify how IPEDS can improve its enrollment data collection and reporting for this unique subset of students, including identifying what additional data should be collected related to dual enrollment students and courses. Three research questions guided this paper:

1. How does IPEDS instruct institutions to report dual enrollment students, how clear are IPEDS instructions on dual enrollment, and how do institutions report these students? Are there differences in the ways in which institutions report dual enrollment to IPEDS, and if so, what accounts for these differences?
2. Are dual enrollees influencing fall enrollment and 12-month enrollment numbers, and if so, how and to what extent? How and to what extent do students who participated in dual enrollment influence the first-time cohort numbers and first-time cohort graduation rates?
3. How should IPEDS modify the fall enrollment and 12-month enrollment surveys to collect better information on dual enrollment students? What additional information should IPEDS collect on dual enrollment students, dual enrollment courses, and dual enrollment outcomes?

To answer these research questions, we reviewed and analyzed relevant IPEDS surveys and instructions, interviewed IPEDS keyholders and dual enrollment coordinators at a purposive sample of eight institutions, and requested aggregate data from the sample of eight institutions and two state systems.

Results

In response to the first research question, our review of IPEDS surveys and instructions found that IPEDS dual enrollment definitions and terms, instructions for reporting current high school students taking college courses, and instructions for first-time-in-college (FTIC) students who earned college credits in high school are unclear. In our interviews with institutional representatives, we found their interpretations of IPEDS instructions were accurate and consistent with IPEDS intentions. However, we found there was variation in institutional practices for reporting current high school students taking college courses and FTIC students who earned college credits in high school, and variation in institutional capacity to measure and correctly identify these students.

In response to the second research question, aggregate data collected from institutions showed that the percent of students in the fall enrollment and 12-month unduplicated enrollments who were high school students taking college courses ranged from <1% to 26% and from <1% to 23%, respectively. This percentage varied between fall and 12-month enrollment estimates and both tended to increase slightly over the past five years. The results also showed that the percent

of the first-time cohort and the first-time, full-time adjusted cohort who enrolled in college credit in high school ranged from 6% to 44% and from <1% to 46%, respectively. Finally, the results to the second research question generally found that first-time students who enrolled in college courses in high school had higher graduation rates across all institutions and states in the sample. With the exception of one state, first-time students who enrolled in college courses in high school had a 150% graduation rate that was 3% to 46% higher than first-time students who did not enroll in college courses in high school.

Recommendations

In response to the third research question, we offer a set of recommendations based on our overall analysis of literature, survey and documentation review, interview data, and aggregate data reported by the sample of institutions and state. We offer the following five recommendations:

Recommendation 1: Modify existing IPEDS definitions for dual credit, dual enrollment, and Advanced Placement, as well as relevant survey instructions.

- This recommendation provides new definitional and instructional language that addresses the unclear existing IPEDS definitions and instructions. It would clarify how institutions define high school students taking college courses.

Recommendation 2: Report current dual enrolled students separately in the IPEDS fall enrollment survey.

- Currently, dual enrollment students are reported as first-time (non-degree seeking) students. Introducing a new reporting category in the fall enrollment survey for high school students taking college courses would improve data collection and allow for data analysis that informs policy and practice.

Recommendation 3: Report current dual enrolled students separately in the IPEDS 12-month enrollment survey.

- This recommendation is similar to Recommendation 2 and recommends a new reporting category for high school students taking college courses.

Recommendation 4: Report a subcohort of first-time students who earned college credits in high school on the fall enrollment survey, and track their outcomes on the graduation rates survey and outcome measures survey; but invest time to develop institutional reporting capacity, clear instructions, and consistent reporting.

- This recommendation argues for the creation of a new subcohort of first-time students who earned college credits in high school and tracking the outcomes of these students separately in the graduation rates survey and outcome measures survey.

Recommendation 5. Dual enrolled students impact other IPEDS surveys and metrics, and further research and analysis should be conducted to understand how and to what extent.

- This recommendation describes how dual enrollment influences other IPEDS surveys (i.e., human resources, finance, completions) and suggests that research and analysis consider how dual enrollment influences these surveys and how IPEDS should address it.

Introduction

High school students enrolling in college courses via dual enrollment (see definition discussion below) is a growing phenomenon, creating a blurred line between the secondary and postsecondary educational sectors. The Integrated Postsecondary Education Data System (IPEDS) has not evolved to adequately reflect this new reality, because existing IPEDS surveys do not adequately measure dual enrolled students nor the potential influence of college credits earned via high school dual enrollment courses on first-time student outcomes. The purpose of this paper is to explore the growing phenomenon of dual enrollment, determine how IPEDS can clarify its existing enrollment collection and reporting for this unique subset of students, and identify additional data that should be collected related to dual enrollment students and courses. We begin the paper with relevant background information including a brief review of recent literature on dual enrollment terms and definitions, the prevalence of dual enrollment, dual enrollment funding, and the benefits of dual enrollment. We then present our research methods and findings, which are organized by the three research questions, followed by recommendations.

Background

Definitions and Terms

Broadly, dual enrollment refers to a program through which students enroll in college courses while still in high school (IPEDS, 2017). Unlike other programs where students may earn college credit through a standardized examination (e.g., Advanced Placement [AP]), students typically earn college credit through dual enrollment upon successful completion of the course. The terms dual enrollment, dual credit, and concurrent enrollment are frequently used interchangeably in the literature (Borden, Taylor, Park, & Seiler, 2013; Collins, Blanco, & Root, 2013; Tobolowsky & Allen, 2016), although some states and policies prefer to use the term dual credit when the course offers simultaneously both high school and college credit (Allen, 2010). Borden et al. (2013) find 22 states use the term dual enrollment, 18 states use dual credit, and 15 states use concurrent enrollment. However, states, policymakers, and administrators may use terms such as dual enrollment, dual credit, and concurrent enrollment in different and nuanced ways, which may lead to confusion when discussing dual enrollment.

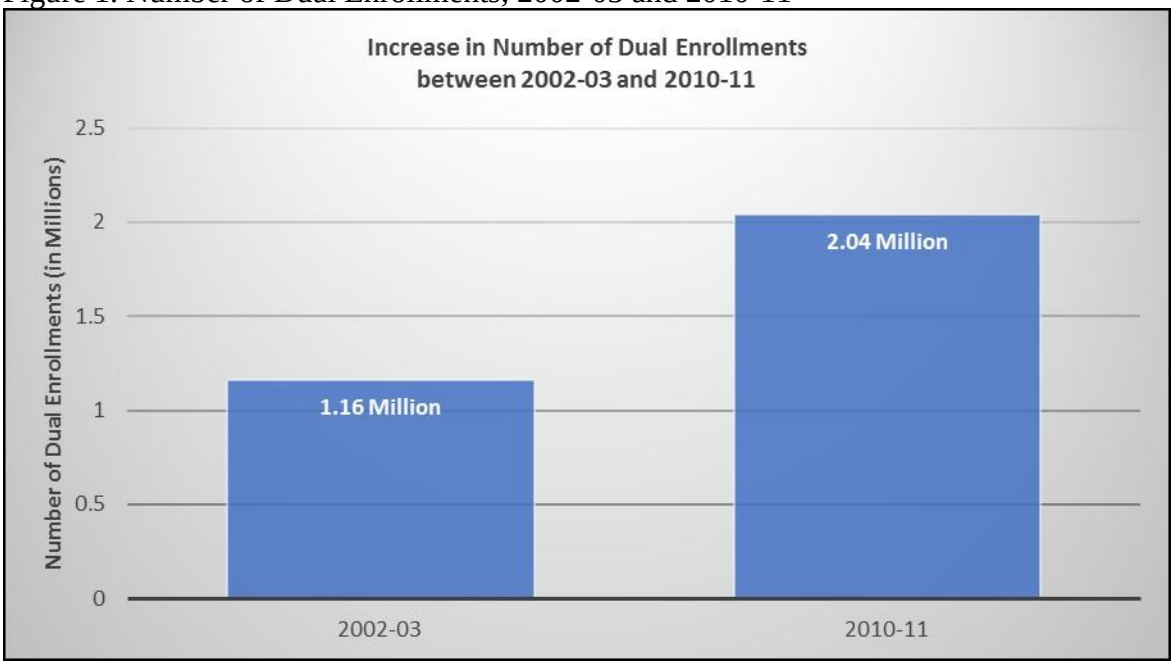
For instance, the National Alliance of Concurrent Enrollment Partnerships considers dual enrollment courses can occur at the college campus, at the student's high school, or through distance/online education (Lowe, 2010). A recent report by the National Center for Education Statistics (Thomas, Marken, Gray, & Lewis, 2013) used similar categories for which instruction occurs in dual credit courses. However, in Minnesota, the term Postsecondary Enrollment Option is used when high school students take courses taught by college professors on a college campus, and the term Concurrent Enrollment is used when high school students take college courses on their high school campus (Austin-King, Lee, Little, & Nathan, 2012). Moreover, IPEDS (2017) defines dual credit as a "program through which high school students are enrolled in Advanced Placement (AP) courses, taught at their high school, that fulfill high school graduation requirements and may earn the student college credits." Given the multiple definitions and uses of these terms and to avoid confusion, we use the term dual enrollment throughout our paper,

which encompasses all forms of college credit for which high school students may enroll, independent of whether it is called dual enrollment, dual credit, and concurrent enrollment. However, our use of the term does not include Advanced Placement or other exam-based credits such as International Baccalaureate.

Dual Enrollment on the Rise

Participation in dual enrollment has increased greatly since the 1990s. In Texas, for example, the number of dual enrolled students increased by 137%, from 38,082 in 2004 to 90,364 in 2010 (Struhl & Vargas, 2012). Dual enrollment in Florida increased by almost 44% from 2006 to 2010 (Collins et al., 2013). At the national level, survey data from NCES show that there were over 2 million enrollments in dual enrollment courses at public high schools in 2010–11 (Thomas et al., 2013), which is an increase of 75% from 2002–03 (Waits, Setzer, & Lewis, 2005) (see Figure 1). NCES data also show that approximately 82% of all public high schools offered dual enrollment in 2010–11 (Thomas et al., 2013).

Figure 1. Number of Dual Enrollments, 2002-03 and 2010-11



Source: Waits, Setzer, & Lewis, 2005; Thomas et al., 2013.

Most of the national growth in dual enrollment reflects an increase in college courses taught on the high school campus or through distance education, partly due to the relatively lower costs for instruction, program administration, and transportation of students (Blackboard Institute, 2010). In 2002–03, 73.6% of dual enrollment courses were taught on the high school campus while 3.9% of these courses were taught through distance education (Waits et al., 2005). By 2010–11, the percentage of all dual enrollment courses that were taught on the high school campus increased to 76.7% while the percentage of these courses that were taught through distance education increased to 5.6% (Thomas et al., 2013). This means that the share of dual enrollment courses that were taught on college campuses decreased by 21.5% from 2002–03 to 2010–11.

Despite the growth in dual enrollment participation, even among those from historically underrepresented groups in higher education (Struhl & Vargas, 2012), White students and those from middle class backgrounds remain overrepresented in these programs. Among schools with less than 6% of its student population that are nonwhite, 91% of these schools offer dual enrollment courses. By contrast, only 75% of schools with a nonwhite student population that is 50% or more offer dual enrollment courses (Thomas et al., 2013). These results reiterate the vast K–12 literature that shows the uneven distribution of resources and opportunities in schools across the country.

Dual enrollment also increasingly represents a large share of colleges' overall institutional enrollment. For example, Smith (2016) found that dual enrollment students represented 25% of the total institutional enrollment at 17 of Texas' 50 community colleges in 2015–16. National data further show that higher proportions of high schools in towns (90%) and rural communities (86%) have dual enrollment courses than high schools in cities (72%) and suburban areas (78%) (Thomas et al., 2013).

State and Local Funding

Funding arrangements for dual enrollment vary across states, depending on state and local funding policies. The price students pay for earning college credit through dual enrollment tends to be cheaper than the price of earning college credit once students graduate from high school and matriculate to college. However, this does not mean that price for students is free nor does it mean that the funding for these programs are the same across states or even within states. A recent state-level analysis of who is primarily responsible for paying dual enrollment tuition by the Education Commission of the States (ECS, 2017) finds that the student or parent is responsible for tuition costs in nine states. For 14 states (and the District of Columbia), responsibility of dual enrollment tuition is made locally, such as an agreement between the high school or district and the participating postsecondary institution. In 11 states, tuition is the primary responsibility of various state and/or local entities, which depends on the program in which the student enrolls (Zinth, 2015). In four states, the school's local district is responsible for tuition while another four states place primary tuition responsibility at the state level. Finally, dual enrollment tuition is the responsibility of some combination of parent/student and district/state for four states (ECS, 2017). There are also four states in which the ECS analysis did not find a state policy on tuition responsibilities.

Sometimes courses are free or heavily discounted to students. In Utah, postsecondary institutions may charge up to $30 per credit hour for dual enrollment courses taught by postsecondary faculty and up to $10 per credit hour for courses taught by high school instructors (Zinth, 2015). In other instances, especially when dual enrollment tuition decisions are determined locally, the tuition costs for students may vary considerably, from students having to pay little to no tuition to students needing to cover all tuition costs (Zinth, 2015). In their study of students in Texas, Tobolowsky and Allen (2016) estimate that course fees ranged from $85 to $600. Similarly, Taylor, Fisher, and Bragg (2014) find that tuition costs for a 3-credit hour dual enrollment course among Illinois community colleges ranged from $0 to $410, and additional course fees ranged from $0 to $91.

The Benefits of Dual Enrollment Programs for Students

Dual enrollment programs have several potential benefits to students. Dual enrollment provides high school students with a challenging academic curriculum during their last years of high school, reducing the phenomenon known as "senioritis" where seniors would take less demanding courses because they have already applied and been accepted to college (Hoffman, Vargas, & Santos, 2008; Texas P-16 Council, 2007). Studies show a positive relationship between dual enrollment and various aspects of college success. Former dual enrolled students tend to have higher college GPAs than nonparticipants, even after controlling for a host of confounding factors (Allen & Dadgar, 2012; An, 2013b; Karp, Calcagno, Hughes, Jeong, & Bailey, 2007). Moreover, students who participated in dual enrollment are more likely to attain a postsecondary degree than those who did not participate in dual enrollment (An, 2013a; Struhl & Vargas, 2012). An (2013a) estimates that dual enrollment participation increases the probability of attaining any postsecondary degree by 8 percentage points and a bachelor's degree by 7 percentage points, and these results are robust to relatively large confounders that positively affect both selection to dual enrollment and degree attainment. In addition, research shows the benefits of dual enrollment extend beyond high-achieving students, students from high socioeconomic status (SES), and White students; low-SES students and students traditionally underrepresented in higher education also benefit from dual enrollment participation (An, 2013a, 2013b; Karp et al., 2007; Taylor, 2015).

Part of the explanation for the positive benefits of dual enrollment on college success is that dual enrollment tends to improve a student's level of college readiness. Dual enrolled students are less likely to take a remedial course when they enter college than nonparticipants (An, 2013b; Kim & Bragg, 2008). Research further shows that former dual enrolled students display higher levels of noncognitive forms of college readiness after they matriculate to college than nonparticipants. Using Conley's (2012) four dimensions of college and career readiness, An and Taylor (2015) find former dual enrolled students are more likely to be college ready on three of the four dimensions than non-accelerators—key cognitive strategies, key content knowledge, and key learning skills and techniques—at the end of the first year of college. However, Lile, Ottusch, Jones, and Richards (In Press) show that dual enrollment enhanced key transition skills and knowledge—the fourth dimension of Conley's (2012) college readiness—for lower-income students in their study.

Another important process through which dual enrollment might influence academic success in college is academic momentum, the rate of speed at which students proceed through college. Wang, Chan, Phelps, and Washbon (2015) show that dual enrollment promotes uninterrupted transition from high school to college. Moreover, they find dual enrolled students tend to have higher college GPAs and attempt more credits during the first year of college (including summer enrollment) than those who did not participate in dual enrollment; this, in turn, influenced student retention and completion.

Research Questions and Method

Three primary research questions guided our paper's goals and data collection procedures.

1. How does IPEDS instruct institutions to report dual enrollment students, how clear are IPEDS instructions on dual enrollment, and how do institutions report these students?

Are there differences in the ways in which institutions report dual enrollment to IPEDS, and if so, what accounts for these differences?

2. Are dual enrollees influencing fall enrollment and 12-month enrollment numbers, and if so, how and to what extent? How and to what extent do students who participated in dual enrollment influence the first-time cohort numbers and first-time cohort graduation rates?

3. How should IPEDS modify the fall enrollment and 12-month enrollment surveys to collect better information on dual enrollment students? What additional information should IPEDS collect on dual enrollment students, dual enrollment courses, and dual enrollment outcomes?

To answer the research questions, we used three different data collection methods:

1. First, we reviewed and analyzed the IPEDS 2016–17 fall enrollment and 12-month enrollment survey forms, and related resources and terminology on the IPEDS website. The surveys and online resources provide institutions with instructions on what to report and how to report data to IPEDS. We analyzed these instructions to understand how they guided institutions to report high school students enrolled in college courses and how to report first time in college (FTIC)[1] students who earned college credits in high school.

2. Second, we conducted interviews with IPEDS keyholders and dual enrollment coordinators (referred to as "institutional representatives") from a purposive sampling of institutions that represented multiple institution types (see information about the institutional sample below). Interviews were approximately one hour in length and were conducted via telephone (see Appendix A for the interview protocol).

3. Third, we asked institutional representatives to complete aggregate data templates using their institution's historical data to document (a) the number and percent of dual enrolled students in the fall and 12-month enrollment counts, (b) the number and percent of students in the first-time cohort who enrolled in college credits in high school, and (c) the first-time cohort graduation rate for students who did and did not enroll in college credits in high school. In addition, we asked two state systems to complete the same data templates to understand this same information at the state/system level (we did not interview state system officials).

Table 1 displays the list of institutions and states that participated in this study and their characteristics. Our sampling strategy was purposive and we sought to recruit a diverse group of institutions. To protect institutional identity, we did not identify each institution by name, but we received permission from most institutions or states to provide the state identifier in Table 1. The sample included representation from public 2-year and 4-year colleges as well as a private for-profit college. We were unsuccessful in recruiting a private, not-for-profit college, despite several attempts. As Table 1 shows, we also recruited two state systems to participate and provide data (one technical college system and a community college system).

[1] Note: first-time-in-college (FTIC) and first-time cohort are used interchangeably throughout this paper.

Table 1. *Sample Institutions/States and Characteristics*

Institution or State	State or Geographic Region	Sector	Carnegie Classification	Fall 2015 Total Enrollment Range
Institution A	Iowa	Public	Associate's College: Mixed Transfer/Vocational & Technical-High Nontraditional	10,000 – 20,000
Institution B	Florida	Public	Baccalaureate/Associate's Colleges: Associate's Dominant	Greater than 40,000
Institution C	California	Public	Associate's Colleges: High Transfer-High Traditional	10,000 – 20,000
Institution D	Utah	Public	Master's Colleges & Universities: Small Programs	30,000 – 40,000
Institution E	Washington	Public	Doctoral Universities: High Research Activity	Greater than 40,000
Institution F	West	Public	Doctoral Universities: High Research Activity	30,000 – 40,000
Institution G	Iowa	Public	Doctoral Universities: High Research Activity	30,000 – 40,000
Institution H	Midwest	Private, for-profit	Master's Colleges & Universities: Larger Programs	20,000 – 30,000
State A	Georgia	Public	N/A: Technical College System	90,000 – 100,000
State B	Florida	Public	N/A: State community college system	400,000 – 500,000

Note: The state name is provided for institutions/states that gave us permission to do so; otherwise, the geographic region is provided.

Findings

RESEARCH QUESTION #1:

How does IPEDS instruct institutions to report dual enrollment students, how clear are IPEDS instructions on dual enrollment, and how do institutions report these students? Are there differences in the ways in which institutions report dual enrollment to IPEDS, and if so, what accounts for these differences?

This question was answered by our analysis of IPEDS instructions in the fall and 12-month enrollment surveys and related resources online, as well as our interviews with institutional representatives. We present **six** primary findings to this question:

1a. IPEDS dual enrollment definitions and terms are inconsistent and unclear;
1b. IPEDS instructions for current high school students taking college courses are unclear;
1c. IPEDS instructions for FTIC students who earned college credits in high school are unclear;
1d. Institutional representatives' interpretations of IPEDS instructions are largely consistent with IPEDS instructions;
1e. Reporting practices and reporting capacity for current high school students taking college courses vary; and
1f. Reporting practices and reporting methods for FTIC students who earned college credits in high school vary.

Finding 1a: IPEDS Definitions and Terms are Inconsistent and Unclear
High school students may engage with several types of college courses and credits, and the current IPEDS definitions are inconsistent with existing practice, and some definitions are not clear. That said, it is important to note that institutions and states do not necessarily use common terms and definitions, and there is no universal agreement on these terms as previously noted (Borden et al., 2013; Tobolowsky et al., 2016).

The IPEDS Glossary defines three such models:

> **Dual Enrollment**: "A program through which high school students may enroll in college courses while still in high school. Students are not required to apply for admission to the college in order to participate."
>
> **Dual Credit**: "A program through which high school students are enrolled in Advanced Placement (AP) courses, taught at their high school, that fulfill high school graduation requirements and may earn the student college credits."
>
> **Advanced Placement (AP) Courses**: "College-level courses taught in high school. Students may take an examination at the completion of the course; acceptable scores allow students to earn college credit toward a degree, certificate, or other formal award."

We make several observations about these three definitions:

- The dual enrollment definition is relatively straightforward, but it could be easily interpreted as inclusive of all types of college course-taking in high school, including Advanced Placement ® and International Baccalaureate ®. It is unclear if exam-based credits, such as Advanced Placement ® and International Baccalaureate ®, are included in this definition.

- The dual credit definition is not consistent with existing practice and policy. Indeed, many states and institutions do not use the term dual credit in the way IPEDS defines it (Borden, Taylor, Park, & Seiler, 2013). In an analysis of state policy, Borden et al. (2013) find that dual credit often refers to a student who receives or is eligible to receive both high school and college credit for the course.

- The inclusion of "Advanced Placement" in the dual credit definition is confusing because Advanced Placement ® is often considered a distinct program from dual credit or dual enrollment.

- It is unclear if the Advanced Placement definition or the Advanced Placement reference in the dual credit definition refer to: (a) general advanced courses; or (b) Advanced Placement ® that is facilitated by the College Board. Given that the definition refers to exams and acceptable scores, the intent may be Advanced Placement ®, but this is unclear.

- It is unclear if the dual enrollment or dual credit definition includes articulated credit or credit in escrow models, whereby students participate in aligned secondary and postsecondary courses that allow students to apply for and earn college credit at the corresponding college at a future date (Kim, Barnett, & Bragg, 2003).

Finding 1b: Instructions for Current High School Students Taking College Courses are Unclear

According to the IPEDS fall enrollment survey and the 12-month enrollment survey, institutions are instructed to include in their enrollment numbers, "high school students taking regular college courses" for credit. Presumably, dual enrollment students should be captured based on this instruction. Although relatively straightforward, we make the following observations about this instruction:

- The term "regular college courses" is not clear. The word "regular" is not defined nor is it clear what an "irregular" college course would be.

- This instruction does not necessarily exclude Advanced Placement ® courses or International Baccalaureate ® courses, especially considering that the IPEDS definition of Advanced Placement indicates these are "college-level courses taught in high school." However, it is *not* common for Advanced Placement ® and International Baccalaureate ® courses to be delivered by a college; so, it is reasonable to assume that high school students enrolled in Advanced Placement ® or International Baccalaureate ® courses are not intended to be part of this instruction.

The fall enrollment survey also instructs institutions to designate dual enrolled students as non-degree/certificate-seeking students. For example, the instructions indicate that, "High school students enrolled in creditable courses prior to high school are considered non-degree/certificate-seeking students." The IPEDS Fall Enrollment Frequently Asked Questions (FAQ) provides additional information about how institutions should handle high school students taking college courses. The FAQ says:

> **Q: "Where do I report a high school student who is enrolled for credit at my institution (a dual enrolled student)?"**
>
> A: "This student would be reported as non-degree/certificate-seeking. Prior to receipt of a high school diploma or recognized equivalent (see glossary definition), a student is non-degree/certificate-seeking. After receipt of the high school diploma or recognized equivalent, they can be classified as degree/certificate-seeking, if appropriate."

We make the following observations about this FAQ:

- Although the FAQ clarifies that dual enrolled students should be counted as non-degree/certificate-seeking, this definition does not address the increasing number of high school students who participate in Early and Middle College High Schools (EMCHS). Bragg, Kim, and Barnett (2006) note that EMCHS blend organizational structure of high schools and colleges, often target underrepresented and underserved students, and the

intent of many EMCHS is that the student will complete an associate's degree by high school graduation.

- This FAQ provides a slightly different definition of dual enrollment or dual enrolled students that the definition provided in the IPEDS Glossary. The question stem clarifies that the high school student is not simply "taking regular college courses" or part of a program where "college level courses [are] taught in high school" (the Advanced Placement definition), but is "enrolled for credit" at a postsecondary institution. In other words, this FAQ clarifies that dual enrolled students are enrolled for college credit at/through a postsecondary institution, and not just earning college credit through an exam or in another manner at /through a postsecondary institution. This is an important definitional distinction that does not appear in other areas.

- However, this FAQ does not clarify whether the student is enrolled for any type of credit or enrolled for credit at the "college-level." Some colleges offer credit for dual enrollment courses that are remedial/developmental. For example, the Colorado Department of Higher Education (2017) reports that 7.5% of all dual enrollment students were enrolled in remedial/developmental courses offered by colleges during the 2015—16 academic year.

Finding 1c: Instructions for FTIC Students who Earned College Credits in High School are Unclear

According to the IPEDS fall enrollment survey, matriculated college students who earned college credits in high school should be identified as first-time students. The IPEDS Glossary defines a first-time student (undergraduate) as,

> "A student who has no prior postsecondary experience (except as noted below) attending any institution for the first time at the undergraduate level. This includes students enrolled in academic or occupational programs. It also includes students enrolled in the fall term who attended college for the first time in the prior summer term, and students who entered with advanced standing (college credits earned before graduation from high school)."

We make the following observations about this definition:

- Although the cohort definition is intended only to include students who have "no prior postsecondary experience," the definition specifies the inclusion of high school students who earned any college credits prior to high school graduation. Students who earn college credit in high school do have prior postsecondary experience, but this experience occurred prior to high school graduation.

- This definition introduces the term "advanced standing," which, based on the parenthetical definition of advanced standing, "(college credits earned before graduation from high school)," presumably includes dual enrollment, Advanced Placement ®, International Baccalaureate ®, and any other type of college credit. However, the definition does not use the term "dual enrolled."

The IPEDS Fall Enrollment Frequently Asked Questions (FAQ) provides additional information about how institutions handle FTIC students who enrolled in college courses. The FAQ says:

> Q: "**How do I report a student who earned college credit while in high school (a dual enrolled student) and has now graduated high school and enrolled in my institution in the Fall?**
>
> A: If the college credit was earned prior to the student graduating high school, then this student would be considered a first-time student in the Fall. The definition of "first-time" allows for students to still be classified as first-time if the college credit they have previously earned was prior to their high school graduation. (Applies only to academic reporters.)

We make the following observations about this definition:

- This FAQ response aligns with the IPEDS glossary on how to treat dual enrolled students.

- This FAQ response does not distinguish among the different ways students can earn college credit in high school. Furthermore, the question stem assumes that college credits earned in high school are through dual enrollment and not through other mechanisms such as Advanced Placement ® or International Baccalaureate ®.

- The FAQ only addresses students who *earned* college credit while in high school, not students who were *enrolled* in college-credit seeking course in high school but might not have earned college credit.

Finding 1d: Institutional Representatives' Interpretation of IPEDS Instructions are Largely Consistent with IPEDS Instructions

A key objective of the first research question was to ask institutional representatives how IPEDS instructs them to report on high school students taking college courses in order to understand how they interpreted IPEDS instructions. We found the following:

- ***Current dual enrolled students should be reported as non-degree/certificate seeking students.*** Institutional representatives correctly interpret IPEDS instructions that "high school students taking regular college courses" should be included and reported in enrollment estimates in both the fall and 12-month enrollment surveys, and they should be reported as non-certificate/degree seeking; this is consistent with IPEDS instructions.

- ***FTIC students who earned college credits in high school should be included in the first-time cohort***. Institutional representatives also correctly interpreted IPEDS instructions that FTIC students who earned college credits in high school should be included and reported as part of the first-time cohort, regardless of where the student earned credits and regardless of how many college credits students earned when they enter as first-time freshmen.

Finding 1e: Reporting Practices and Reporting Capacity for Current High School Students Taking College Courses Vary

The final component of the first research question was to understand reporting practices for current dual enrolled students and FTIC students who earned college credit in high school. Generally, the way in which institutions report current dual enrolled students aligns with IPEDS instructions. However, as we indicate in this section, constraints on institutional data collection mechanisms and the timing of IPEDS surveys lead to differences in institutional reports of current dual enrolled students.

- ***The way institutions can identify current dual enrolled students varies***. Our interviews with institutional representatives suggest that institutional capacity to identify high school students taking college courses varies, which influences how they report students to IPEDS. Seven of the eight institutions designate a special code for high school students currently taking college courses through their institution, and these students are easily identifiable to institutional representatives. However, as we note below, the ways in which institutions identify dual enrolled students and their capacity to do so varies.

- ***Some institutions do not capture all current dual enrolled students in their data and tracking systems.*** Most of the institutional representatives we interviewed (IPEDS keyholders and dual enrollment coordinators) are typically not involved in the data collection process, and they sometimes rely on data input from other sources (e.g., Registrar's office and admissions application). Because of this, some institutional representatives reported that they were not confident they captured all dual enrolled students in their existing tracking system, including enrollments that are reported to IPEDS.

    - When we probed institutional representatives on whether they feel confident that their institution data collection mechanism captures all possible high school students taking college courses, some did not know because they were not familiar with data collection processes. In fact, as a result of our request to one 4-year institution, it was discovered that several thousand dual enrollment students were not being reported in the IPEDS fall enrollment survey. The reason they were not reported was because many high schools do not complete class registration or report enrollment to the institution by the census day for reporting fall enrollments. In their fall 2015 IPEDS report, this institution found that only 1% of their fall undergraduate enrollment was dual enrolled students, but when the IPEDS keyholder conferred with the dual enrollment coordinator to complete the template for this study, they found that thousands of students were dual enrolled the fall that went unreported to IPEDS. Consequently, the percent of dual enrolled students should have been 11% of undergraduates rather than 1%.

    - However, other institutional representatives were confident that their existing data collection system accurately captures all dual enrolled students. For example, one institutional representative at a 2-year institution indicated that there should not be a case where dual enrolled students are not reported, because state law requires colleges to give students a "waiver," and all waivers are coded in their student information

system. The institutional representative explained that "high school students cannot enroll in college credit courses without going through the waiver process."

- ***Some institutions rely on the state agency/system to complete the fall enrollment and 12-month enrollment surveys.*** Two of the eight institutions in our sample rely on the state agency/system to complete the fall and 12-month enrollment surveys. The institutional representatives indicated that they send student-level data to the state, which includes indicators for students who are current high school students taking college courses, and the state completes the surveys based on these data. Thus, the state would have the ability to determine which students were high school students taking college courses.

Finding 1f: Reporting Practices and Reporting Methods for FTIC Students who Earned College Credits in High School Vary

Similar to reporting practices for current dual enrolled students, we found that institutional reporting practices for FTIC students who earned college credit in high school were consistent with fall enrollment and 12-month enrollment survey instructions, with the exception of one institution noted below.

- ***When feasible, institutions reported FTIC students who earned college credits in high school in the first-time cohort.*** IPEDS instructions indicate that new students who earned college credit in high school should be reported in the first-time cohort, and all but one institution in our sample indicated they reported students in this way that correctly aligns with IPEDS instructions. However, one institution with an early college high school indicated that students who enrolled in college credit from their institution as a high school student or who earned college credit from another institution would not be in a first-time cohort because "they've had prior college experience and therefore not first-time to college."

- ***Methods used to identify students who earned college credit in high school from other institutions are not always reliable and institutional capacity to do this varies.*** We found that institutions used several different methods to identify if FTIC students earned college credits in high school. These methods include matching with the National Student Clearinghouse (NSC), use of self-reported data from the admission's application, and validating high school graduation dates and credits earned from transcript information. The NSC data only captures whether students enrolled in other colleges in high school, not if students earned college credit. Admission's application information is self-reported by students, which may be unreliable. Validating credits earned from other institutions against high school graduation dates is likely the most accurate way of identifying FTIC students who earned college credits in high school because institutions can determine if college credits were earned before students' high school graduation. However, this requires that (1) students will send transcripts of college courses earned in high school; and (2) those transcripts will arrive by the date needed to report anything to IPEDS. Although some institutions in our sample aspired to correctly identify and report FTIC students who earned college credit in high school for the purpose of answering our

second research question (see below), others did not have the capacity to do so and indicated it would be difficult and burdensome to identify these types of students.

- ***Because of variation in institutional capacity to identify FTIC students who earned college credits in high school from institutions other than their own, students who should be in the first-time cohort may be counted as transfer students.*** Some institutions reported that it is difficult or they do not have the capacity to identify FTIC students who earned college credits in high school from a college other than their own. As a result, at least three institutions in our sample indicated that these students are currently counted as transfer students. As one institution indicated, "It is difficult for us to look at transfer students and know which credits were from dual enrollment and which were after high school." Another institution said they would need to check high school graduation dates and compare them to transfer credit dates, but "the data are not great."

RESEARCH QUESTION #2:

Are dual enrollees influencing fall enrollment and 12-month enrollment numbers, and if so, how and to what extent? How and to what extent do students who participated in dual enrollment influence the first-time cohort numbers and first-time cohort graduation rates?

The purpose of the second research question was to examine historical data from the sample of institutions and states to understand how dual enrolled students influence fall and 12-month enrollment and how students who participated in dual enrollment in high school influence the first-time cohort and graduation rates. We asked institutions and states to complete data templates that disaggregated historical IPEDS cohorts by dual enrollment status and we present these data below. We present four primary findings related to different surveys and cohorts: (1) high school students taking college courses: fall enrollment survey; (2) high school students taking college courses: 12-month enrollment survey; (3) percent of FTIC students who enrolled in college courses in high school; and (4) differences in first-time cohort graduation rate by dual enrolled status.

High School Students Taking College Courses: Fall Enrollment Survey

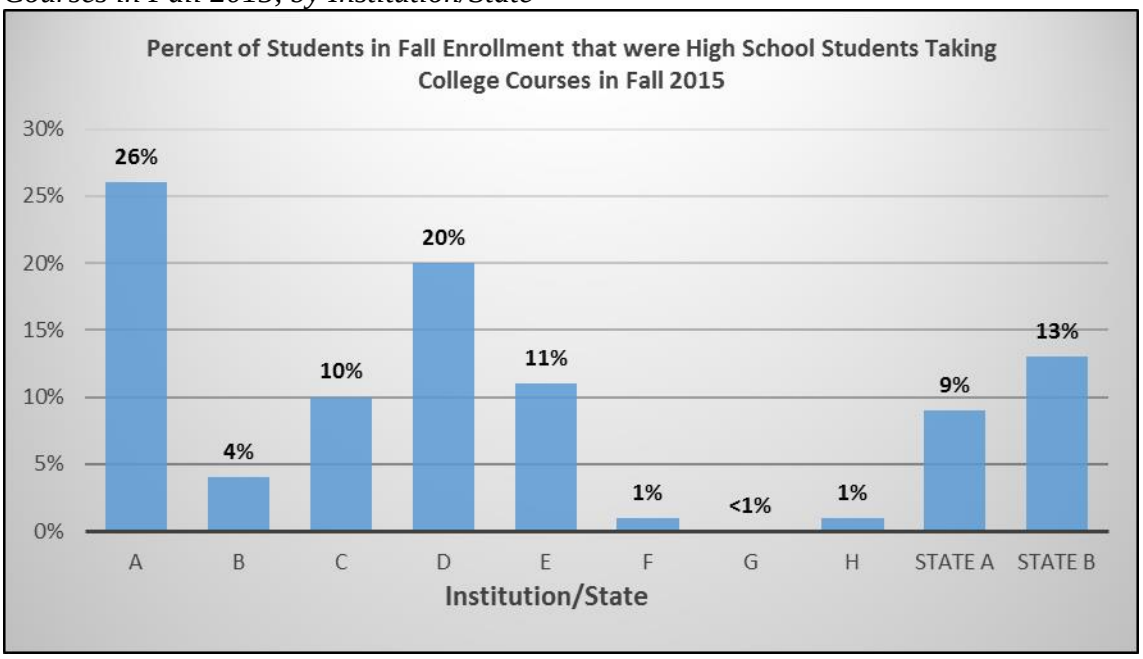
There are three main findings from Table 2. First, the percent of fall enrollments who were high school students taking college courses varied across institutions. For some institutions (e.g., Institutions B, F, G, and H), this percent was small, ranging from less than 1% to 4%. For other institutions (e.g., Institutions A, C, D, and E), the percent was more notable, ranging from 9% to 26%. The second finding is that the percent of fall enrollments who were high school students taking college courses was relatively stable between fall 2010 and fall 2015 for the majority of institutions in our sample. The exception is Institution A where the percent increased from 14% in fall 2010 to 26% in fall 2015. The third finding is that the percent of fall enrollments who were high school students taking college courses increased at the state level, most notably in State B where it increased from just 3% in fall 2010 to 13% by fall 2015. Figure 2 is a graphic that shows the variation by institution/state in the percent of students in fall 2015 enrollment that were high school students taking college courses.

Table 2. *Percent of Students in Fall Enrollment who were High School Students Taking College Courses*

Institution	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015
Institution A	14%	14%	17%	22%	24%	26%
Institution B	2%	3%	3%	4%	4%	4%
Institution C	10%	10%	10%	10%	10%	10%
Institution D	19%	18%	17%	19%	20%	20%
Institution E	NA	NA	NA	11%	9%	11%
Institution F	1%	1%	1%	1%	1%	1%
Institution G	<1%	<1%	<1%	<1%	<1%	<1%
Institution H	1%	1%	1%	1%	1%	1%
State A	6%	6%	7%	8%	8%	9%
State B	3%	3%	5%	7%	9%	13%

NA: Data not available and not reported to researchers.
Source: Institutional and state data provided to researchers.

Figure 2. *Percent of Students in Fall Enrollment that were High School Students Taking College Courses in Fall 2015, by Institution/State*



Source: Institutional and state data provided to researchers.

High School Students Taking College Courses: 12-Month Enrollment

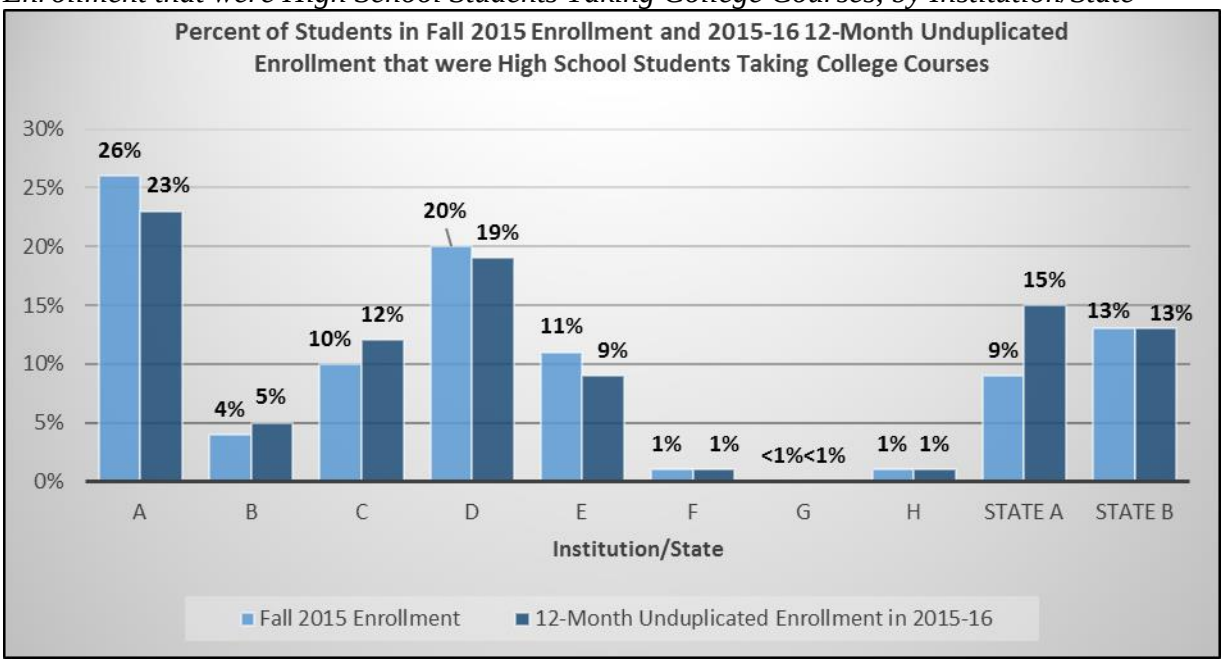
The results from Table 3 tended to mirror that of Table 2: Variation across institutions in the percent of 12-month enrollment who were high school students taking college courses, relative stability in the percent over time for most institutions in the sample, and growth in the percent for Institution A and in State B (although the growth trend for State A was more subtle). Although the trends within the 12-month enrollment survey were similar to the trends within the fall enrollment survey, there were differences in the raw percent between Table 3 and Table 2 within institutions. Figure 3 illustrates these differences based on fall 2015 enrollment and the 2015-16 unduplicated enrollment.

Table 3. *Percent of Students in 12-Month Unduplicated Enrollment who were High School Students Taking College Courses*

Institution	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Institution A	NA	NA	17%	20%	22%	23%
Institution B	2%	3%	4%	5%	5%	5%
Institution C	10%	11%	11%	12%	12%	12%
Institution D	17%	18%	16%	18%	18%	19%
Institution E	UK	UK	UK	9%	8%	9%
Institution F	<1%	1%	1%	1%	1%	1%
Institution G	<1%	<1%	<1%	<1%	<1%	<1%
Institution H	1%	1%	1%	1%	1%	1%
State A	15%	14%	15%	15%	15%	15%
State B	2%	3%	4%	6%	9%	13%

NA: Data not available and not reported to researchers.
Source: Institutional and state data provided to researchers.

Figure 3. *Percent of Students in Fall 2015 Enrollment and 2015-16 12-Month Unduplicated Enrollment that were High School Students Taking College Courses, by Institution/State*



Source: Institutional and state data provided to researchers.

Percent of FTIC Students who Enrolled in College Courses in High School[2]

For many institutions, a large percent of the first-time cohort previously enrolled in college courses in high school. Tables 4 and 5 show the percent of students in the first-time cohort and first-time, full-time (adjusted) cohort who enrolled in college credits in high school, respectively.

[2] Note: We asked institutions and states to report the percent of students who enrolled in college courses in high school, not the percent who earned college credit from those enrollments. It is likely that not all students who enrolled in college credit actually earned college credit, but we wanted to measure enrollments to understand this baseline. We did not ask institutions and states to report both the percent enrolled and the percent earned because we felt this would be an undue burden.

We report these separately because we felt it was important to understand this percentage for all first-time students as well as the percent for all first-time, full-time (adjusted) students, the latter of which is the denominator for the IPEDS graduation rate. For the most part, differences between the two tables are rather small (1%–3%), but Institution B saw differences as high as 8% (Figure 4 compares the first-time and first-time, full-time (adjusted) cohorts for fall 2015 only to illustrate the differences). Looking across both tables, at two institutions, over 40% of the first-time and first-time, full-time (adjusted) cohorts in fall 2015 were students who enrolled in college courses in high school. In fact, by the fall 2015 cohort, six of the seven institutions that provided us with information reported that one fifth or more of their first-time students had enrolled in college courses in high school.

Table 4. *Percent of First-Time Cohort (all first-time students) who Enrolled in College Credits in High School*

Institution	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015
Institution A	16%	21%	22%	25%	25%	22%
Institution B	4%	5%	9%	9%	6%	6%
Institution C	19%	18%	17%	18%	16%	19%
Institution D	37%	38%	44%	42%	43%	43%
Institution E	28%	27%	33%	31%	32%	32%
Institution F	32%	34%	31%	26%	29%	30%
Institution G	7%	14%	33%	38%	40%	44%
Institution H	DNI	DNI	DNI	DNI	DNI	DNI
State A	9%	9%	10%	10%	10%	10%
State B	3%	3%	2%	4%	6%	7%

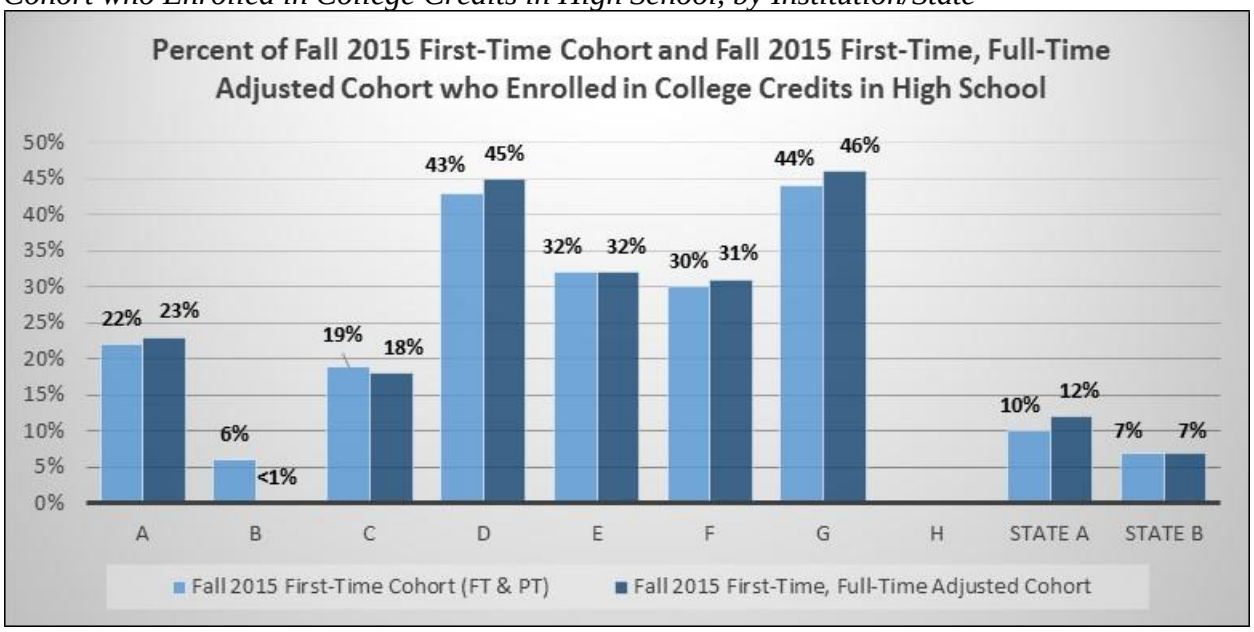
Note: DNI indicates that Institution H did not include students who enrolled in college courses in high school in the first-time cohort. However, Institution H realized that they should be reporting this in IPEDS and reported that for all years in this table, <2% of the first-time cohort had enrolled in college credits in high school.

Table 5. *Percent of First-Time, Full-Time Adjusted Cohort who Enrolled in College Credits in High School*

Institution	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015
Institution A	17%	23%	24%	26%	26%	23%
Institution B	<1%	<1%	<1%	<1%	<1%	<1%
Institution C	19%	16%	16%	17%	16%	18%
Institution D	38%	40%	45%	45%	45%	45%
Institution E	28%	27%	33%	31%	32%	32%
Institution F	33%	36%	33%	26%	29%	31%
Institution G	7%	14%	34%	39%	42%	46%
Institution H	DNI	DNI	DNI	DNI	DNI	DNI
State A	11%	11%	12%	12%	12%	12%
State B	3%	3%	2%	4%	6%	7%

Note: DNI indicates that Institution H did not include students who enrolled in college courses in high school in the first-time, full-time (adjusted) cohort. However, Institution H realized that they should be reporting this in IPEDS and reported that <2% of the first-time cohort had enrolled in college credits in high school.

Figure 4. *Percent of Fall 2015 First-Time Cohort and Fall 2015 First-Time, Full-Time Adjusted Cohort who Enrolled in College Credits in High School, by Institution/State*



Source: Institutional and state data provided to researchers.

Influence of Dual Enrollment on First-Time Cohort Graduation Rate

We asked institutions to disaggregate one first-time cohort (fall 2010) by students who enrolled in college credit in high school and those who did not enroll in college credit in high school and to calculate the graduation rate (within 150%) for each subcohort separately[3]. As displayed in Table 6, the 150% graduation rates for students who enrolled in college credits in high school are higher than the 150% graduation rates for those who did not for all institutions in our sample, with discrepancies in graduation rates of 3% to 46% between these two groups; the only exception is State B where dual enrolled students had a 5% lower graduation rate than non-dual enrolled students. However, these results clearly show that dual enrolled students have higher graduation rates at the majority of institutions in the sample. The large range in the difference between dual enrolled students and non-dual enrolled students may be due, in part, to the way that institutions and states identified which students dual enrolled. For example, some institutions/states said they only counted students who dual enrolled at their institution. This is the case for Institution B, for example. And the majority of those dual enrolled students at Institution B were part-time students, so the large graduation rate is based on a very small cell size. Figure 5 illustrates the differences in the graduation rate for first-time, full-time adjusted cohort.

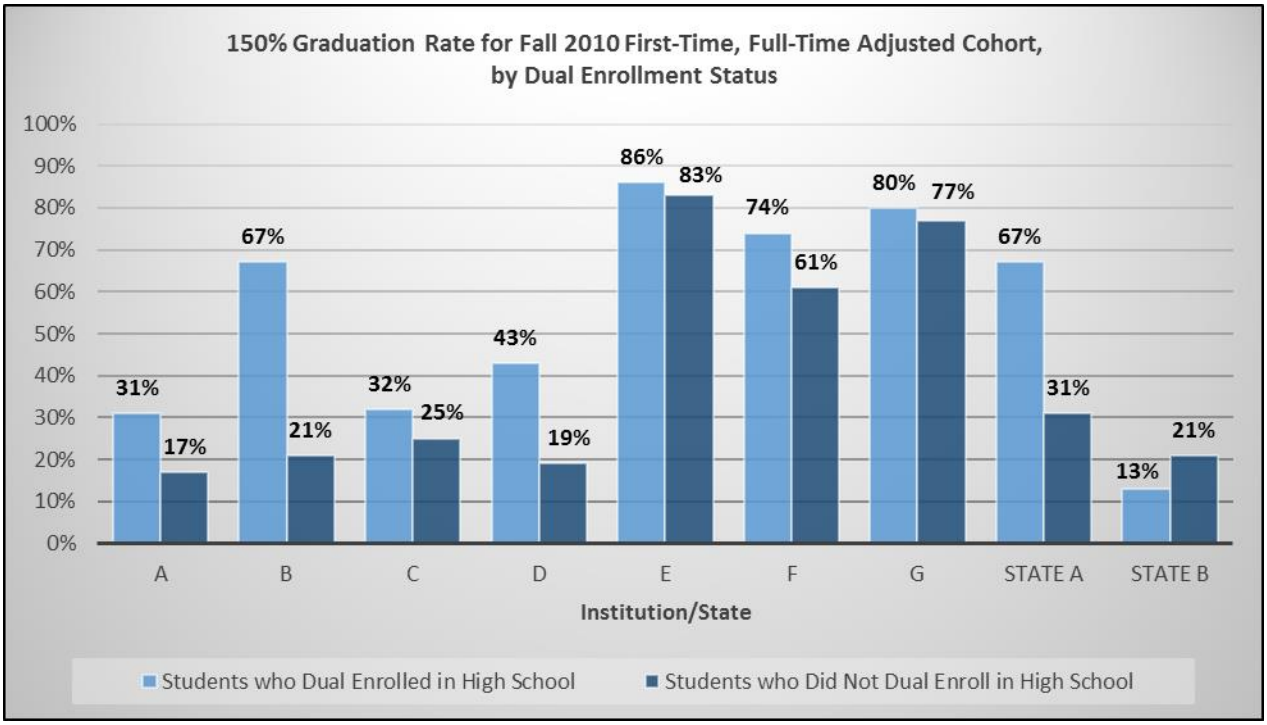
[3] We only asked institutions to produce the 150% graduation rate because we did not want to burden institutions with the data request. We expect the graduation rates would be different if we measured the 100% graduation rate or the 200% graduation rate. We also acknowledge that the differences displayed in Table 6 and Figure 5 do not account for students who might have transferred but not completed a degree.

Table 6. *IPEDS Graduation Rate (150%) by Cohort and Dual Enrollment*

	Total: 150% Graduation Rate	Dual Enrolled: 150% Graduation Rate	Not Dual Enrolled: 150% Graduation Rate	Difference between DE and Not DE
Institution A: First-Time Cohort	17%	28%	14%	14%
Institution A: First-Time, Full-Time Adjusted Cohort	20%	31%	17%	14%
Institution B: First-Time Cohort	17%	32%	16%	16%
Institution B: First-Time, Full-Time Adjusted Cohort	21%	67%	21%	46%
Institution C: First-Time Cohort	18%	23%	17%	6%
Institution C: First-Time, Full-Time Adjusted Cohort	26%	32%	25%	7%
Institution D: First-Time Cohort	18%	28%	13%	15%
Institution D: First-Time, Full-Time Adjusted Cohort	24%	43%	19%	24%
Institution E: First-Time Cohort	84%	86%	83%	3%
Institution E: First-Time, Full-Time Adjusted Cohort	84%	86%	83%	3%
Institution F: First-Time Cohort	50%	59%	46%	13%
Institution F: First-Time, Full-Time Adjusted Cohort	53%	74%	61%	13%
Institution G: First-Time Cohort	72%	79%	71%	85%
Institution G: First-Time, Full-Time Adjusted Cohort	72%	80%	77%	3%
Institution H	DNI	DNI	DNI	--
State A: First-Time Cohort	27%	61%	24%	37%
State A: First-Time, Full-Time Adjusted Cohort	35%	67%	31%	36%
State B: First-Time Cohort	19%	14%	19%	-5%
State B: First-Time, Full-Time Adjusted Cohort	21%	13%	21%	-8%

Note: DNI indicates that Institution H did not include students who enrolled in college courses in high school in the first-time, full-time (adjusted) cohort. However, Institution H realized that they should be reporting this in IPEDS and reported the following graduation rates that correspond with each of the four columns in this table: 25%, 90%, 24%, 66%.

Figure 5. *150% Graduation Rate for Fall 2010 First-Time, Full-Time Adjusted Cohort, by Dual Enrolled Status and Institution/State*



Source: Institutional and state data provided to researchers.

RESEARCH QUESTION #3:

How should IPEDS modify the fall enrollment and 12-month enrollment surveys to collect better information on dual enrollment students? What additional information should IPEDS collect on dual enrollment students, dual enrollment courses, and dual enrollment outcomes?

The recommendations in this section were generated from our review of IPEDS survey instruments and instructions and our conversations with institutions, including direct recommendations from institutional representatives. The recommendations are also based on our analysis of conversations from all stakeholders and what we believe would benefit the field to improve reliable data collection, provide opportunities to conduct better research, and use data and research to inform and improve practice. With that, we offer the following recommendations:

Recommendation 1**: Modify existing IPEDS definitions for dual credit, dual enrollment, and Advanced Placement as well as relevant survey instructions.**

IPEDS definitions for dual enrollment, dual credit, and Advanced Placement as well as survey instructions are problematic in the ways previously noted. We offer the following recommendations to address those problems and provide clarity on the definitions and instructions.

Suggested definitions:

- ***Dual enrollment:*** "Refers to high school students who enroll in college courses offered by an institution of higher education. Student performance is recorded on a college transcript and college credit is awarded for a passing grade in the course. Dual

enrollment includes all college courses, independent of course delivery mode, course location, course instructor, whether high school credit is also offered, or whether the student enrolls through a formal state/local program or enrolls outside a formal state/local program. Dual enrollment does not include credit-by-exam models such as Advanced Placement ® and International Baccalaureate ® whereby the student is not enrolled at an institution."

    - As previously noted, the current IPEDS dual enrollment definition does not address how to treat courses offered for credit that are at the remedial or developmental level. The definition we recommend does not address this issue, because we strongly recommend that NCES consider whether high school students taking college courses at the remedial or developmental level should be included in enrollment counts. On the one hand, these courses are typically not considered "college-credit-bearing" or "college-level" courses that apply toward degree programs, meaning the student is not enrolled as a college student. On the other hand, as the Colorado example suggests (p. 12), many high school students are enrolled in these courses, the courses generate credit that are prerequisites for a degree program, and they are noted on students' college transcripts.

- ***Dual credit:*** We suggest striking this term from IPEDS.
- ***Advanced Placement®:*** "College-level courses taught in high school under the College Board's Advanced Placement ® program. Students may take an examination at the completion of the course; acceptable scores allow students to earn college credit toward a degree, certificate, or other formal award."
- ***IPEDS fall enrollment and 12*-month enrollment survey instructions:** Change the instruction language from including "high school students taking regular college courses" to "high school students enrolled in college courses through dual enrollment."
- ***Advanced Standing:*** This definition is provided in parenthetical references in the FAQ and we recommend it be changed from "(college credits earned before graduation from high school)," to "(college credits earned before graduation from high school via dual enrollment, Advanced Placement ®, International Baccalaureate or other college credits earned before graduation from high school)."

Recommendation 2: Report current dual enrolled students separately in IPEDS fall enrollment survey.

Nearly all institutional representatives recommended that current dual enrolled students be reported separately in IPEDS fall enrollment survey. Institutional representatives noted that reporting dual enrolled students separately is important because of the increase in high school students taking college courses and the need to measure enrollment changes over time. Reporting dual enrolled students separately can be easily accomplished by adding a third category on the fall enrollment survey in addition to the existing two categories. The three categories could be: (1) degree/certificate-seeking; (2) non-degree/non-certificate-seeking; and (3) high school students who are dual enrolled.

- ***Trend data and indicators:*** The creation of a new category for high school students who are dual enrolled in the fall enrollment survey will have implications for IPEDS trend data. For example, should this recommendation be adopted, accurate trend data for non-degree/non-certificate-seeking students would need to include the sum of non-degree/non-certificate-seeking students and high school students who are dual enrolled.

This change would also have implications for how other indicators are calculated within IPEDS. For example, the student-to-faculty ratio is calculated using student enrollment; IPEDS would need to assess and decide how to treat high school students who are dual enrolled in the calculation of this ratio and other indicators that are generated using enrollment numbers.

- ***Disaggregate dual enrolled students:*** We asked institutional representatives if dual enrolled students should be reported and disaggregated by race/ethnicity, gender, and part-time/full-time status in a similar way that all non-degree/certificate-seeking students are currently reported in IPEDS. Several indicated that this information would be valuable, but this may result in very small cell sizes at some institutions. Despite the potential small cell sizes, we recommend reporting by these characteristics because it is critical to understand basic demographic and enrollment intensity information for an increasing student population. Administrative records are often not consistent across institutions, so it is important that NCES provide guidance on how best to collect and store these data, particularly if these data are primarily collected by high schools and sent to the colleges, which is not unusually in current practice.
    - Some institutional representatives expressed a desire for IPEDS to collect additional information on dual enrollment students such as course location, faculty type, and the number of dual enrolled credits. Although this information would be valuable to have, the burden and cost of collecting it likely outweigh the benefits. Indeed, a few institutional representatives indicated this information would be difficult or too nuanced to collect and report in IPEDS, particularly in a standardized way.
- ***Adjust reporting deadline:*** Given potential discrepancies in enrollment timing between high schools and colleges (see Institution E example above), it is important that institutions have flexibility in reporting fall enrollment deadlines while also adhering to the intent of the fall enrollment survey. Thus, although IPEDS institutions indicate that institutions should report fall enrollment as of the census date, we recommend NCES allow institutions flexibility in reporting deadlines, particularly if students were enrolled as of the census date but that enrollment record had not been sent from the high school to the college as of the census date.
- ***Consider Early College models:*** This recommendation does not address students enrolled in Early and Middle College High Schools (EMCHS) who may be seeking a degree. One institution in our sample operated an EMCHS and indicated that the intent was for high school students taking college courses to complete an associate's degree prior to or at the time of high school graduation. In other words, the institution enrolled these high school students with the intent to seek a degree; however, IPEDS instructs that "high school students enrolled in creditable courses prior to high school graduation are considered non-degree/certificate-seeking students." Data from the Early College High School Initiative show that more than 280 high schools have been redesigned in 31 states and the District of Columbia, serving more than 80,000 students (Jobs for the Future, 2017), which is not an insignificant number of students. Because of the large number of students affected and because many students earn associate's degrees that are not counted in IPEDS graduation rates, it is important for these students, on the one hand, to be accurately captured as degree-seeking students and for their outcomes to be appropriately measured and reported. Thus, one approach might be to allow institutions

to report ECMHS students as first-time, degree/certificate-seeking students. On the other hand, reporting these students as degree/certificate-seeking could lead to unintended consequences, because all EMCHS students may not seek an associate's degree and all do not complete their degrees for various reasons. For example, several 4-year institutions operate an EMCHS and they do not confer associate's degrees, so if these students were counted as degree/certificate-seeking in the first-time cohort, this could negatively influence institutional retention and graduation rates. EMCHS models are a unique subset of the larger dual enrollment landscape, and we recommend this topic receive further inquiry and debate about the possibilities and the trade-offs of how to treat EMCHS students in future IPEDS data collections.

Recommendation 3: Report current dual enrolled students separately in IPEDS 12-month enrollment survey.

The rationale for Recommendation 2 extends to Recommendation 3, and we recommend that high school students taking college courses be reported separately in IPEDS 12-month enrollment survey. An additional rationale for this recommendation is that Table 2, Table 3, and Figure 3 show differences in the percent of dual enrolled students in the fall enrollment and 12-month enrollment estimates, so capturing dual enrollment in the fall enrollment survey and the 12-month enrollment survey would provide a more complete picture of high school students taking college courses than reporting separately in one survey and not the other.

Recommendation 4: Report a subcohort of first-time students who earned college credits in high school on the fall enrollment survey, and track their outcomes on the graduation rates survey and outcome measures survey; but invest time to develop institutional reporting capacity, clear instructions, and consistent reporting.

This is a multi-faceted recommendation that is based on our interviews, the aggregate data we collected, and existing research on dual enrollment. Ultimately, we believe the benefits of implementing Recommendation 4 outweigh the costs, but as we note below, implementing Recommendation 4 will require careful attention to and assessment of institutional capacity, and it will require detailed instructions to ensure consistent data collection and reporting.

Below are our rationales for and analysis of this recommendation:

- ***Institutional feedback:*** First, institutional representatives from five institutions in our sample recommended that institutions should report a subcohort of first-time students who earned[4] college credits in high school in the fall enrollment survey and track these students' outcomes in the graduation rates survey and the outcome measures survey; however, institutional representatives from three institutions advised against Recommendation 4. The rationales offered for and against Recommendation 4 were many and offered by all institutions. Most institutions discussed the tradeoffs between the value and the drawbacks or burden of Recommendation 4.
    - ***Benefits:*** For example, most institutions recognized that first-time students who enter with college credit earned in high school (any type of college credit) may have different outcomes than those who enter without college credit. Because

[4] See note below about measuring students who *earned* college credits in high school vs. students *enrolled* in college credit in high school.

IPEDS currently does not disaggregate first-time students who enter with and without college credit, IPEDS outcome measures such as the 100%, 150%, and 200% graduation rates may be biased, particularly at institutions that enroll large numbers of first-time students who enter with college credit earned in high school. Stakeholders recognized that a benefit of creating a new subcohort would allow for more accurate and less biased outcome measures, which could inform the development and improvement of policies and practices related to dual enrollment. Another benefit of Recommendation 4 mentioned by institutional stakeholders is the ability to more accurately characterize the first-time student population. For example, as we previously noted and as some institutional stakeholders articulated, IPEDS' definition of first-time students is somewhat contradictory because students who enter with college credit earned in high school are not necessarily "first-time" students, although they are entering college for the first time after high school graduation. Reporting a subcohort of students who enter with college credit earned in high school would more accurately characterize these students and distinguish them from first-time students who enter without college credits. Initiatives such as the Bill & Melinda Gates Foundation's *Completion by Design*[5] and the American Association of Community Colleges' Pathways Project[6] have used the term "first-time-ever-in-college" (FTEIC) to describe students who enter college without any prior college enrollment records. NCES might consider using this term or a similar term to distinguish between students who enter college after high school graduation with and without prior college experience.

- ***Drawbacks:*** Despite these benefits, several institutional representatives articulated the drawbacks of this recommendation, and three were identified: potential reporting inaccuracies, inadequate capacity, and increased burden. Although institutional representatives indicated they could easily identify first-time students who earned college credit in high school at their institution, they could not necessarily distinguish between transfer credits or dual enrolled credits earned at other institutions. Thus, reporting a subcohort could result in inaccuracies in reporting. However, as we previously noted and learned from our interviews, some institutions are inaccurately reporting first-time students who earned college credit in high school as transfer students. Recommendation 4 would prompt institutions to develop more precise, accurate, and consistent ways to accurately distinguish transfer students from first-time students who earned college credit in high school. Another possible source of inaccuracy is the method institutions use to identify whether a first-time student earned college credit in high school. As previously noted, some institutions rely on self-reports, transcripts, or a match with National Student Clearinghouse. If Recommendation 4 were to be adopted, NCES would need to provide clear instructions for identifying students to reduce variations and inconsistencies in reporting. An issue related to inaccurate reporting that was raised by a couple of institutional

[5] See http://www.completionbydesign.org/blog/first-time-or-first-time-ever

[6] See http://www.aacc.nche.edu/Resources/aaccprograms/pathways/Documents/AACCPathways_KPIDefinitions_AdvanceWorkInstructions11-12.pdf

representatives was how to deal with students who enter with college credit other than through dual enrollment (e.g., Advanced Placement ®, etc.); this is discussed in more detail below. A second drawback was inadequate institutional capacity to identify students who dual enrolled at institutions other than their own. Institutional representatives mentioned that identifying students who earned college credit in high school at institutions other than their own would likely require additional capacity, because it may require careful transcript analysis or require matching to National Student Clearinghouse. Institutions with small or relatively non-existent institutional research staff could be disproportionately affected. Before implementing Recommendation 4, it is critical to assess and develop capacity for institutions to accurately identify and report the subcohort. A final, related drawback is the increased burden that Recommendation 4 might require of institutions. However, it is difficult to assess the extent of this burden, so it might be reasonable for NCES to pilot Recommendation 4 to better assess the increased burden as well as the capacity and resources needed to successfully implement it.

- ***Supporting data:*** Second, the data we collected to answer the second research question illustrate a clear difference in the 150% graduation rate for first-time students who did and did not dual enroll in high school; first-time students who dual enrolled had higher graduation rates across all institutions and in one state in our sample (see Figure 4). This illustrates that IPEDS graduation rates (and potentially other outcomes, such as the retention rate and transfer-out rate) may be overinflated in that institutions who enroll more first-time students who dual enrolled in high school will likely have higher graduation rates. This difference in outcomes is a compelling reason to implement Recommendation 4, because doing so would offer opportunities to have more accurate IPEDS enrollment information and support the ability to conduct analyses and research to inform policy and practice related to dual enrollment.
- ***Supporting literature:*** Third, the research reviewed in the introduction shows that students who take college courses in high school have higher college success and completion rates than students who do not (e.g., An, 2013; Karp et al., 2007; Speroni, 2011; Taylor, 2015). These studies and others show that even after controlling for other factors and using robust quasi-experimental designs, dual enrollment positively impacts college outcomes. This literature reinforces the institutional data reported in this paper and reinforces the need to implement Recommendation 4 to collect more accurate enrollment data and inform dual enrollment policy and practice.

Additional considerations for this recommendation:

- ***Consider other types of high school college credit:*** This paper was intentionally focused on dual enrollment and not on other types of college credit earned in high school. However, several institutional representatives advised that NCES needs to consider how to treat other types of college credits in high school in IPEDS, such as credits earned through exam, like Advanced Placement ® and International Baccalaureate ®, as well as credit in escrow models. The rationale provided by institutional representatives was that these credits operate in ways similar to dual enrollment, and they likely influence student

outcomes in a similar way. Indeed, empirical research shows this is the case (e.g., Speroni, 2011).
    - Because our charge from NPEC was to focus the paper on dual enrollment and not on other types of college credit earned in high school, Recommendation 4 does not include other types of college credit earned in high school. However, given the advice shared by institutional representatives, we recommend that NCES consider how to treat exam-based credit and other types of college credit earned in high school before proceeding with Recommendation 4 so any IPEDS changes to students with advanced standing can be implemented simultaneously.
- ***Consider enrolled or earned credits:*** Finally, this recommendation indicates that the subcohort should be defined as students who *earned* college credit in high school and not just *enrolled* in college credit in high school. It is likely that some students were dual enrolled but never earned college credit. Despite this recommendation, we believe this distinction is important and warrants further exploration. For example, additional assessment of institutional capacity to measure college credits earned in high school may reveal that measuring college credits earned in high school in a consistent and reliable way across institutions is not feasible, but measuring enrollment in college credit via the National Student Clearinghouse is more reliable. Further exploration of this should also consider the purposes of reporting the subcohort. One purpose and rationale for asking institutions to report students who *earned* college credit in high school and not students who *enrolled* in college credit is that credits earned will likely influence outcomes measured in other IPEDS surveys, but enrollment in credit may not, particularly if the student did not earn credits as a result of that enrollment. However, another important purpose might be accurately characterizing the first-time cohort or a possible first-time-ever-in-college cohort. In this case, measuring and reporting enrollment rather than credits earned in high school would be more accurate if IPEDS is interested in accurately characterizing the first-time cohort and any subcohorts. Either way, we contend that this distinction will warrant further discussion and distinction.

Recommendation 5**. Dual enrolled students impact other IPEDS surveys and metrics, and further research and analysis should be conducted to understand how and to what extent.** When we asked institutional representatives about recommendations for modifying IPEDS data collection, we probed about how other IPEDS metrics or data collection is impacted by high school students taking college courses. The surveys and issues identified below were not the focus of our study, so we only report what institutions shared with us and encourage additional inquiry and analysis of these issues to understand them and to identify how, if at all, they should be addressed. It is possible that dual enrolled students impact IPEDS surveys and metrics beyond what is listed below, so this list may not be comprehensive.

- ***Human Resource Survey.*** Institutional representatives reported that dual enrollment could influence the human resource survey. For example, one institutional representative indicated that on the human resource survey, they only report the number of faculty based on the number of faculty that are college employees. However, they noted that some faculty teaching for the college through dual enrollment are not "employees" of the college, but they are contracted through arrangements with the high school. The institutional representatives indicated that these dual enrollment faculty would be

classified as contractual services on IPEDS finance survey and not reported in the college's faculty count.

    - ***Student*-to-faculty ratio.** A couple institutional representatives indicated that the student-to-faculty ratio is implicated by high school students taking college courses. Because the student-to-faculty ratio numerator is based on the number of fall full-time equivalent (FTE) students, high school students taking college credit courses are included in this calculation. Similarly, the student-to-faculty ratio denominator is based on instructional faculty, and if faculty teaching dual enrollment in high schools are not reported on the human resource survey, then they are not counted as part of the ratio.

- ***Finance Survey.*** One institutional representative indicated that dual enrollment has implications for the IPEDS finance survey. For example, revenue generated from tuition is not reported separately for high school and non-high school students, but includes both. Although no other institutional representatives mentioned this during our interviews, it raises the question of whether all institutions consistently report this revenue. As previously noted, dual enrollment tuition prices vary extensively among states and institutions, so it follows that the tuition revenue collected from institutions and reported (or not reported) to IPEDS might also vary extensively. This could skew average revenue reported, since dual enrollment tuition is sometimes much lower than that of college students.
- ***Completions Survey.*** One institution that operated an ECHS indicated that if a high school student completes an associate's degree, then they report this completion in IPEDS Completion Survey. IPEDS Completions Survey has a "distance education" reporting option and might consider an additional reporting option that would indicate if the student completed awards exclusively through dual enrollment as a high school student.

Limitations

We offer two noteworthy limitations of this study. First, this paper is based on a small sample of institutions, and the perspectives and date herein may not be representative of the large number of colleges and universities in the United States. Readers should not interpret the findings to be nationally representative. However, we purposefully selected our sample to be inclusive of broad institutional types and in different regions of the United States, and we believe the sample at least reflects a range of perspectives and data that are important to advancing this work. Second, we found that other IPEDS surveys are implicated by dual enrolled students, but because the focus of this paper was on the fall and 12-month enrollment surveys, we did not systematically assess IPEDS surveys and instructions other than the fall and 12-month enrollment surveys; thus, we may have overlooked aspects of those surveys that are not reported in this paper.

Conclusion

The purpose of this paper was to examine the phenomenon of dual enrollment and how IPEDS can clarify and improve data collection to better measure dual enrollment in the fall and 12-month enrollment surveys. To accomplish this objective, we assessed IPEDS surveys and instructions, interviewed a sample of institutional representatives, and collected historical IPEDS data from a sample of institutions and states. Overall, findings and recommendations suggest the need to clarify and improve IPEDS data collection related to dual enrollment in several ways.

More specifically, our analysis identified the need to clarify IPEDS instructions related to dual enrollment, modify the fall and 12-month enrollment surveys to more accurately measure the number and percent of high school students taking college courses, modify the fall enrollment and 12-month enrollment surveys to better identify first-time students who enrolled in college courses in high school, and modify the outcomes survey to calculate outcomes for a subcohort of first-time students who enrolled in college courses in high school. Collectively, the detailed recommendations included in this paper offer an opportunity to enhance IPEDS data collection and reporting, which will benefit our understanding of dual enrollment and potentially contribute to improvements in educational policy and practice.

References

Allen, D. (2010). *A comprehensive literature review & bibliography*. New York: CUNY Collaborative Programs.

Allen, D., & Dadgar, M. (2012). Does dual enrollment increase students' success in college? Evidence from a quasi-experimental analysis of dual enrollment in New York City. *New Directions for Higher Education, 2012*, 11–19. doi: 10.1002/he.20010

An, B. P. (2013a). The impact of dual enrollment on college degree attainment: Do low-SES students benefit? *Educational Evaluation and Policy Analysis, 35*, 57–75. doi: 10.3102/0162373712461933

An, B. P. (2013b). The influence of dual enrollment on academic performance and college readiness: Differences by socioeconomic status. *Research in Higher Education, 54*, 407–432. doi: 10.1007/s11162-012-9278-z

An, B. P., & Taylor, J. L. (2015). Are dual enrollment students college ready? Evidence from the Wabash National Study of Liberal Arts Education. *Education Policy Analysis Archives, 23*. doi: 10.14507/epaa.v23.1781

Austin-King, K., Lee, P. N., Little, J. A., & Nathan, J. (2012). *Progress and possibilities: Trends in public high school student participation with Minnesota's dual credit programs*. Macalester College: Center for School Change at Macalester College.

Blackboard Institute. (2010). *Dual enrollment: A strategy for educational advancement of all students*. Washington, DC: Author.

Borden, V. M. H., Taylor, J. L., Park, E., & Seiler, D. J. (2013). *Dual credit in U.S. higher education: A study of state policy and quality assurance practices*. Chicago: Higher Learning Commission. Retrieved from https://content.springcm.com/content/DownloadDocuments.ashx?aid=5968&Selection=Document%2Ce3823bc3-3c88-e211-ad6c-0025b3af184e%3B.

Bragg, D.D., Kim, E., Barnett, E.A. (2006). Creating access and success: Academic pathways reaching underserved students. *New Directions for Community Colleges, 135*, 5-19. San Francisco, CA: Jossey-Bass.

Collins, C., Blanco, C., & Root, M. (2013). *Essential elements of state policy for college completion*. Atlanta, Georgia: Southern Regional Education Board. Retrieved from http://publications.sreb.org/2013/013_ess_elem_tran_courses.pdf.

Conley, D. T. (2012). *A complete definition of college and career readiness*. Eugene, OR: Educational Policy Improvement Center.

Colorado Department of Higher Education. (2017). *Annual report on concurrent enrollment: 2015-2016 school year*. Denver, CO: Author.

Education Commission of the States. (2017). Dual enrollment: Who is primarily responsible for paying tuition. Retrieved from http://ecs.force.com/mbdata/MBQuestRTL?Rep=DE1404

Hoffman, N., Vargas, J., & Santos, J. (2008). *On ramp to college: A state policymaker's guide to dual enrollment*. Boston: Jobs for the Future. Retrieved from http://www.jff.org/sites/default/files/OnRamp.pdf.

Integrated Postsecondary Education Data System. (2017). 2016–17 Glossary. Retrieved from https://surveys.nces.ed.gov/ipeds/VisGlossaryAll.aspx?

Jobs for the Future. (2017). *Reinventing high schools for postsecondary success: Schools*. Retrieved from http://www.jff.org/initiatives/early-college-designs/schools

Karp, M. M., Calcagno, J. C., Hughes, K. L., Jeong, D. W., & Bailey, T. R. (2007). *The postsecondary achievement of participants in dual enrollment: An analysis of student outcomes in two states*. St. Paul: University of Minnesota.

Kim, J., & Bragg, D. D. (2008). The impact of dual and articulated credit on college readiness and retention in four community colleges. *Career and Technical Education Research, 33*, 133–158. doi: 10.5328/CTER33.2.133

Kim, J., Barnett, E., & Bragg D. D. (2003). *Dual credit in Illinois: Results of expert panel deliberations and a Delphi study of definitions and priorities*. Champaign, IL: Office of Community College Research and Leadership, University of Illinois at Urbana-Champaign.

Lile, J. R., Ottusch, T. M., Jones, T., & Richards, L. N. (In Press). Understanding college-student roles: Perspectives of participants in a high school/community college dual-enrollment program. *Community College Journal of Research and Practice*. doi: 10.1080/10668926.2016.1264899

Lowe, A. I. (2010). *Promoting quality: State strategies for overseeing dual enrollment programs*. Chapel Hill, NC: National Alliance of Concurrent Enrollment Partnerships. Retrieved from http://files.eric.ed.gov/fulltext/ED537071.pdf.

Smith, A. A., (2016, November 29). College courses in high school. *InsideHigherEd*. Retrieved from https://www.insidehighered.com/news/2016/11/29/dual-enrollment-rise-texas-community-colleges

Struhl, B., & Vargas, J. (2012). *Taking college courses in high school: A strategy f or college readiness: The college outcomes of dual enrollment in Texas*. Boston: Jobs for the Future.

Taylor, J. L. (2015). Accelerating pathways to college: The (in)equitable effects of community college dual credit. *Community College Review, 43*, 355–379. doi: doi:10.1177/0091552115594880

Taylor, J. L., Fisher, D., & Bragg, D. (2014). *Dual credit funding models in Illinois community colleges*. Champaign, Illinois: Office of Community College Research and Leadership.

Retrieved from http://occrl.illinois.edu/docs/librariesprovider4/dual-credit/illinois-models.pdf.

Texas P-16 Council. (2007). *Study on dual credit programs in Texas: A report to the 80th Legislature from the Texas P-16 Council*.

Thomas, N., Marken, S., Gray, L., & Lewis, L. (2013). *Dual credit and exam-based courses in U.S. public high schools: 2010–11*. Washington, DC: National Center for Education Statistics.

Tobolowsky, B. F., & Allen, T. O. (2016). On the fast track: Understanding the opportunities and challenges of dual credit. *ASHE Higher Education Report, 42*, 7–106. doi: 10.1002/aehe.20069

Tobolowsky, B. F., & Ozuna Allen, T. (2016). (Un)intended consequences: The first-year college experience of female students with dual credits. *Journal of The First-Year Experience & Students in Transition, 28*, 27–47.

Waits, T., Setzer, J. C., & Lewis, L. (2005). *Dual credit and exam-based courses in U.S. public high schools: 2002–03*. Washington, DC: National Center for Education Statistics.

Wang, X., Chan, H.-y., Phelps, L. A., & Washbon, J. I. (2015). Fuel for success: Academic momentum as a mediator between dual enrollment and educational outcomes of two-year technical college students. *Community College Review, 43*, 165–190. doi: doi:10.1177/0091552115569846

Zinth, J. (2015). *State approaches to funding dual enrollment*. Denver, CO: Education Commission of the States.

Appendix A: Interview Protocol Questions

1. To begin, we want to start with the fall enrollment and 12-month enrollment surveys.
    a. What is your understanding of how IPEDS instructs institutions to report high school students enrolled in college courses in the fall and 12-month enrollment survey?
    b. Now we want to understand how you report these students in practice. Can you describe how your institution reports these students in the fall and 12-month enrollment surveys?
        i. Probe: Do you feel confident that your institutional data collection mechanism captures all possible high school students taking college courses? Are there ways that a high school student might enroll in a course without IR knowing and capturing it in their data system?

2. Outside of the fall and 12-month enrollment surveys, are there other ways in which IPEDS instructions ask you to report data relative to a dual enrollment student, class, or program?

3. One goal of our study, which we hope to understand through the aggregate data request, is to assess how former dual enrollment students influence the first-time cohort.
    a. When defining and generating the first-time cohort, how does IPEDS instruct you to deal with students who have college credit while they were in high school?
    b. In practice, how do you handle students who took college credit in high school? How do you report them in your first-time cohort?

4. One goal of our study is to provide recommendations to NCES about how to improve IPEDS data collection related to high school students taking college course.
    a. From your perspective, how would you change or improve IPEDS data collection on dual enrollment and why?
        i. Probe on specific aspects of the fall and 12-month enrollment surveys

Appendix B: Unanswered Questions and Issues

The scope of this paper was limited to the research questions articulated in the introduction. While writing this paper, several additional issues and questions emerged in relation to dual enrollment and IPEDS data collection. Below is a list of these issues and issues that are important considerations but outside of the scope of this paper. These are listed in no particular order.

- What data on dual enrollment are currently collected by NCES at the secondary level? What data, if any, should be collected at the secondary level? How are these data similar to or different from data collected by IPEDS now or in the future?

- Dual enrollment course and programs have many configurations and variations based on factors such as: course location (e.g., high school, college, and online), instructor characteristics (e.g., college faculty and high school faculty), instructor qualifications and training, admission and intake processes and procedures, faculty and administrative costs, state models for cost reimbursement, price of tuition to students and families, and quality and accountability policies, among others. Many of these factors are observable and measurable, and many may influence students' access to dual enrollment and the outcomes of students who participate in dual enrollment.

- IPEDS Institutional Characteristics Survey has a question about dual credit programs that states: "Does your institution accept any of the following? (check all that apply)." Dual credit is one option and the survey links to IPEDS definition of dual credit. What data should be collected on dual enrollment in the institutional characteristics survey?

- State definitions of dual enrollment, concurrent enrollment, dual credit, etc. vary and may conflict with IPEDS current or future definition of dual enrollment. How, if at all, can or should any standard definitions be established?

- Given different definitions and different ways of measuring dual enrollment, what are the differences in federal definitions and state definitions and what accounts for these differences? How might different definitions result in different enrollment numbers?