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High School Students Who Take Acceleration Mechanisms Perform Better in SUS Than Those Who Take None

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Introduction. Dual Enrollment is one of several acceleration mechanisms specifically authorized by the Florida Legislature (Section 1007.27, Florida Statutes). The Dual Enrollment program allows a student to take postsecondary courses simultaneously creditable toward high school completion and a career certificate, an associate degree or baccalaureate degree while still in high school. College Preparatory, vocational preparatory or physical education skill courses are not available through Dual Enrollment.

Any student wishing to take a Dual Enrollment course must first meet eligibility criteria. Students who plan to enroll in college credit Dual Enrollment courses must have at least a 3.0 unweighted high school grade point average (GPA) and must pass the section of the College Placement Test applicable to the Dual Enrollment course. Students who plan to enroll in career and technical certificate programs through Dual Enrollment courses must have at least a 2.0 unweighted high school GPA. Florida Statute requires that career Dual Enrollment students enroll for the purpose of seeking a degree or certificate from a complete career and technical education program, not enroll in isolated career courses (s. 1007.271 (4), F.S.). While Dual Enrollment participation requires students to meet statutory eligibility criteria, other acceleration mechanisms, including Advanced Placement (AP) and International Baccalaureate (IB), do not require standard eligibility criteria, but rather each district sets the entrance criteria for AP and IB. A random review of district policies found that criteria range from no entrance requirements to minimum GPA and test scores.

There are several advantages to participating in the Dual Enrollment program:

- The student earns high school and postsecondary credit simultaneously;
- The student goes to college for free (i.e., students are exempt from the payment of registration, tuition and laboratory fees);
- Successfully completed courses may apply towards the requirements necessary to earn a certificate or degree, thereby shortening the time it takes to earn an award after high school;

- Students can potentially complete an associate degree program or career and technical certificate program while still in high school; and
- Students have access to expanded course options beyond their high school.

Dual enrollment differs from the other acceleration mechanisms in that the student is enrolled in an actual postsecondary course and receives credit for successful completion of the course. In contrast, college credit is only awarded for AP and IB if the student meets a designated score on a standardized exit examination. It is important to note that this paper does not distinguish between Academic Dual Enrollment and Career and Technical Education Dual Enrollment. Dual enrollment course offerings range from general education courses in subject areas like English and Mathematics to Career and Technical Education courses in subject areas like Health Sciences and Engineering at the certificate and Associates level. On the other hand, AP and IB courses are generally limited to academic core (or the high school equivalent of general education), foreign language and performing and fine arts.

While distinctions do exist among acceleration mechanisms, this paper should not be construed as a comparison of Dual Enrollment to Advanced Placement or International Baccalaureate. All three programs are legitimate acceleration mechanisms authorized by the Florida Legislature. Instead, this paper is designed to show who is enrolling in the Dual Enrollment program, and the performance of Dual Enrollment students in their secondary and postsecondary education.

Who Dually Enrolls? Students from all races/ethnicities participate in Dual Enrollment. Exhibit 1 shows the subtle changes in the racial/ethnic distribution of students who participated in the Dual Enrollment program over the last five years.

Exhibit 1
Racial/Ethnic Distribution of Dual Enrollment Students, 2002-03 through 2006-07

Year		Black	Hispanic	White	System
2002-03	Number	3,210	3,289	25,840	34,732
	Percent	*9.20%*	*9.50%*	*73.40%*	
2003-04	Number	3,175	3,677	26,169	35,424
	Percent	*9.00%*	*10.40%*	*73.90%*	
2004-05	Number	2,973	3,515	25,528	34,574
	Percent	*8.60%*	*10.20%*	*73.80%*	
2005-06	Number	2,820	3,421	24,023	32,916
	Percent	*8.60%*	*10.40%*	*73.00%*	
2006-07	Number	2,931	3,440	23,274	32,196
	Percent	*9.10%*	*10.70%*	*72.30%*	

Source: Florida Community College Student Data Base, 2002-03 through 2006-07.

The Division of Community Colleges' analysis of the prevalence of the participation of current high school students in Dual Enrollment was published in July 2007[1]. Using the Florida Community College Student Data Base, Dual Enrollment headcount by community college was obtained for 2005-06. Dual Enrollment headcount for each community college was matched to students in grades 11 and 12 in high schools of the appropriate service districts.

Exhibit 2 shows that almost 10% of 11th and 12th graders participated in Dual Enrollment. Penetration into the local service area ranges from less than 5% to almost 50%. One shortfall of this analysis is that it does not include private or home school students.

Exhibit 2
Rates of Penetration in Dual Enrollment by College, 2005-06

College	Dual Enrollment Headcount	Dual Enrollment Penetration Rate, All Students	College	Dual Enrollment Headcount	Dual Enrollment Penetration Rate, All Students
Brevard	2,764	26.57%	Okaloosa-Walton	559	10.54%
Broward	1,742	4.88%	Palm Beach	1,772	7.79%
Central Florida	1,107	13.89%	Pasco-Hernando	1,301	13.39%
Chipola	411	19.02%	Pensacola	1,912	21.32%
Daytona Beach	1,082	10.93%	Polk	841	7.98%
Edison	1,364	7.33%	St. Johns	735	7.56%
Florida CC @ Jax	1,645	10.52%	St. Petersburg	1,604	10.71%
Florida Keys	306	27.47%	Santa Fe	681	13.88%
Gulf Coast	2,063	48.99%	Seminole	465	5.01%
Hillsborough	1,080	4.63%	South Florida	925	36.35%
Indian River	1,823	18.39%	Tallahassee	998	18.43%
Lake City	443	17.54%	Valencia	1,578	5.45%
Lake-Sumter	461	8.17%			
Manatee	1,329	12.38%	***System***	***32,916***	***9.69%***
Miami Dade	1,617	3.45%	Minimum	306	3.45%
North Florida	308	15.98%	Maximum	2,764	48.99%

Penetration is calculated as:
NUMERATOR=Dual Enrollment student headcount by community college, 2005-06, Florida Community College Student Data Base
DENOMINATOR=Public school membership in grades 11 and 12, Fall 2005, Education Information and Accountability Services
Source: *Fast Facts: Student Success Series #2007-06, Dual Enrollment Penetration Study*

[1] Source: *Fast Facts: Student Success Series #2007-06, Dual Enrollment Penetration Study,* http://www.fldoe.org/cc/OSAS/FastFacts/FFSSS2007_06.pdf.

The Performance of Dual Enrollment Students. This section will demonstrate the performance of Dual Enrollment students in a variety of ways. First, the rate at which Dual Enrollment students earn postsecondary credit will be discussed, followed by the performance of Dual Enrollment students regarding secondary and postsecondary GPA. Finally, the performance of Dual Enrollment students on their subsequent university courses will be discussed.

Earning Postsecondary Credit. As mentioned earlier in this paper, a major benefit to participating in the acceleration mechanisms offered to high school students is to earn postsecondary credit. Dual Enrollment students earn postsecondary credit by successfully completing the Dual Enrollment course, typically with a grade of C or better[2]. AP and IB courses, on the other hand, require a specific score on a standardized end-of-course exam. The Articulation Coordinating Committee Credit-by-Exam Equivalencies denotes exam scores that must be attained to receive postsecondary credit.

Exhibit 3 shows the percentage of Dual Enrollment students and AP test takers who earned college credit. To be included, a Dual Enrollment student had to earn a passing grade (A, B, C, P, or S) in at least one Dual Enrollment course; an AP student had to earn a score of 3-5 on at least one AP test; and an IB student had to earn a score of 4 or better on at least one IB test. While Dual Enrollment students are more likely to earn postsecondary credit for participation in an acceleration mechanism, both programs have high rates of earning credit. It bears restating that both Dual Enrollment and International Baccalaureate programs have academic eligibility requirements for participation which may positively impact success rates.

Exhibit 3
Percentage of Dual Enrollment Students, and AP/IB Test Takers Who are Eligible to Earn Postsecondary Credit

Year	Dual Enrollment	Advanced Placement	International Baccalaureate
2003-04	87%	52%	84%
2004-05	89%	52%	85%
2005-06	90%	48%	84%
2006-07	91%	47%	83%

Source: Florida Community College Student Data Base (Dual Enrollment figures); The College Board, Florida State Report (Advanced Placement figures); International Baccalaureate North America, Examination Review and Data Summary (International Baccalaureate figures).

Secondary and Postsecondary Performance. For the remainder of the paper, a cohort was tracked to assess student performance in Dual Enrollment, AP, and IB. The Florida Department of Education's K-20 Education Data Warehouse provided a cohort of 2005-

[2] A grade of C or better is earned by successful performance on course assignments and exams (including final exams) required of all students (Dual Enrollment and regularly enrolled community college students).

06 high school seniors who subsequently enrolled in one of the State University System's (SUS) institutions in 2006-07. For Dual Enrollment students, it was determined that the grades earned in subsequent course work in the SUS would be the best method of determining the effectiveness of the program. The Dual Enrollment students represented in these analyses includes only those who continued on to the SUS. There is a substantial portion of Dual Enrollment students who attend a community college after high school. These students are not represented in this study.

The files supplied by the K-20 Education Data Warehouse included: demographic information; individual flags for participation in AP and IB; any Dual Enrollment courses taken by the cohort; and all English and mathematics courses taken during 2006-07 in the SUS. To be included in this study, students participated in Dual Enrollment, AP, or IB any time prior to 2006-07.

The student groupings used during this analysis are defined as follows:

- **No Acceleration Students** – Students who never enrolled in an AP, Dual Enrollment, or IB course while in high school. (n=12,991)
- **AP Only Students** – Students who enrolled in at least one AP course while in high school, but did not enroll in Dual Enrollment or IB courses. (n=6,203)
- **DE Only Students** – Students who enrolled in at least one Dual Enrollment course while in high school, but did not enroll in AP or IB courses. (n=4,665)
- **IB Only Students** – Students who enrolled in at least one IB course while in high school, but did not enroll in AP or Dual Enrollment courses. (n=978)
- **AP & DE Students** – Students who enrolled in at least one AP course ***and*** at least one Dual Enrollment course while in high school, but did not enroll in IB courses. (n=1,947)

While the original data supplied by the K-20 Education Data Warehouse was comprised of 28,925 students, only students who could be defined by one of the above groupings were used in the subsequent analyses presented here. These analyses relate to 26,784 students.

SAT Analysis. To provide context for each of the groups in this section, the distribution of students across SAT composite score ranges was analyzed. Students with high SAT scores (1100 and above) are more likely to participate in multiple acceleration mechanisms than those with lower SAT scores.

The majority of **No-Acceleration Students** who did not participate in an acceleration mechanism scored less than 1100 on the SAT, whereas the majority of **AP & DE Students** scored between 1100 and 1499 (see Exhibit 4).

Exhibit 4
SAT Composite Scores Presented by Students Who Did and Did Not Participate in Acceleration Mechanisms

SAT Composite Score Range	No Accel. Students	DE Only Students	AP Only Students	AP & DE Students	IB Only Students
899 or less	18%	16%	4%	5%	2%
900 to 1099	53%	46%	23%	14%	18%
1100 to 1299	27%	33%	52%	56%	57%
1300 to 1499	3%	4%	20%	24%	23%
1500 or above	0.1%	0.1%	1%	1%	1%

Source: Florida K-20 Education Data Warehouse.

Academic Characteristics. Students in each of the groups were tracked from their senior year in high school through their first year at a state university. Exhibit 5 displays the average high school GPA, postsecondary GPA, and SAT math and verbal scores. It is clear that students participating in an acceleration program perform better in secondary and postsecondary coursework than those who do not participate.

The average high school GPA is between 3.2 (**No Acceleration Students**) and 3.6 (**AP & DE Students**). The average postsecondary GPA is between 2.6 (**No Acceleration Students**) and 3.2 (**AP & DE Students**). The mean SAT scores for all students was well above 440 on each SAT section; 440 is the SAT equivalent to a passing score on the Entry Level College Placement Test (CPT) for placement into college level coursework.

Exhibit 5
Academic Characteristics for Selected First Year SUS Students

Variable	No Accel. Students	DE Only Students	AP Only Students	AP & DE Students	IB Only Students
Mean high school GPA	3.2	3.4	3.4	3.6	3.4
Mean SUS GPA	2.6	2.8	3.1	3.2	3.1
Mean SAT math score	526	545	597	614	609
Mean SAT verbal score	517	534	591	602	599

Source: Florida K-20 Education Data Warehouse.

Analysis of the academic characteristics by SAT composite score ranges reveals that **DE Only Students** earn high school and SUS GPAs comparable to their **AP Only** counterparts. Additionally, this analysis further supports the higher performance of students participating in acceleration programs than those who do not (see Exhibit 6).

Exhibit 6
Academic Characteristics for Selected First Year SUS Students by SAT Composite Score

SAT Composite Score	Variable	No Accel. Students	DE Only Students	AP Only Students	AP & DE Students	IB Only Students
900-1099	*Number of students*	*6,822*	*2,158*	*1,423*	*268*	*172*
	Mean high school GPA	3.2	3.4	3.3	3.4	3.2
	Mean SUS GPA	2.6	2.8	2.9	3.1	2.9
1100-1299	*Number of students*	*3,485*	*1,546*	*3,255*	*1,092*	*561*
	Mean high school GPA	3.2	3.4	3.5	3.5	3.4
	Mean SUS GPA	2.7	2.9	3.1	3.2	3.1

Source: Florida Education Data Warehouse, 2005-06 high school.

Subsequent University Coursework. The final analysis presented in this paper focuses on the performance of select groups in the English and mathematics courses taken at a state university during the first year after high school. This analysis was limited to three groups: **No Acceleration Students**, **DE Only Students**, and **AP Only Students**. The results presented in Exhibit 7 are in keeping with the other analyses in this paper in that students participating in acceleration programs consistently outperform those who do not participate.

Exhibit 7
Mean Course Grades for Selected English and Math Courses

Course Prefix	No Accel. Students	DE Only Students	AP Only Students
Subsequent University Courses			
ENC Courses	3.0	3.1	3.3
LIT	3.0	3.0	3.5
MAC Courses	2.3	2.4	2.8
MGF	2.3	2.6	2.7
STA	2.6	2.8	3.2

Source: Florida K-20 Education Data Warehouse.

Conclusion. The analyses presented in this paper have not been to compare one acceleration program to another, but rather to demonstrate that all of the programs are viable options and that all are authorized by the Florida Legislature.

Each student should consider all of the available options and should understand the different requirements for earning postsecondary credit which are specific to each program. Dual Enrollment, AP, and IB provide thousands of high school students the opportunity to accelerate their postsecondary careers and to enrich their high school course offerings. Complete information on the characteristics of all acceleration mechanisms will allow each student to make the appropriate choice of what is best for them.

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