

Advancing Academic Excellence: Expanding Access and Success in College-Level Courses in High School

Evaluation Report

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1. Executive Summary

The Advancing Academic Excellence initiative assists thirty-seven high schools across the state of Indiana to increase the percentage of students who earn college credit while in high school. To evaluate the progress and effectiveness of the initiative, data were collected on student participation and performance in their college-level programs. In addition, students were also administered surveys about their thoughts on participation in the AAE initiative.

Data collection and entry seemed to be a difficult task for many schools. The longitudinal follow-up of students was also a challenge, as it was difficult to get students to respond to correspondence.

Data collected show that overall participation in college-level program has increased for students from nearly all ethnic and economic backgrounds. Participation has also significantly increased for first generation college bound students.

Performance in college-level program significantly increased for White students as well as Free/Reduced and Paid lunch students. Performance also significantly improved for first generation college bound students.

At the end of their senior year, roughly one-fifth of participants reported that participation influenced the pool of colleges they considered attending. Roughly half said they expected to finish college faster because they had earned college-credit while in high school.

After entering college, 45% of survey respondents said that their high school work was on their college transcript and worth college credit. Additionally, they reported feeling very well prepared for the rigors of college.

2. Introduction and Methods

Supported by the Lumina Foundation for Education, the American Student Achievement Institute, (ASAI) runs the Advancing Academic Excellence (AAE) initiative that assists thirty-seven high schools across the state of Indiana in increasing the percentage of students who earn college credit while in high school. Project directors from each participating school work to create and implement strategies unique to their school's goals and needs to increase student enrollment and success in Advanced Placement, International Baccalaureate, and dual credit courses. Typical strategies schools implement include:

1. establish college level courses,
2. provide professional development for teachers,
3. actively recruit students (including underrepresented populations),
4. provide career and academic guidance for students,
5. promote academic rigor to increase the number of students prepared for college level courses,
6. establish "extra help" programs to support students who are capable of college-level work with assistance, and/or
7. provide financial assistance to help students cover the cost of tuition and/or test fees.

In 2007, ASAI contracted with the Center for Evaluation and Education Policy (CEEP) to conduct the external evaluation for the AAE initiative. The evaluation plan was designed to determine the extent to which the individual schools as well as the initiative as a whole has reached its goals and had an impact on student lives.

This evaluation report has two main components which are listed here.

1. **AAE Online Data.** Data were entered by Project Directors from each school reporting the participation and performance of students from their school in numerous initiative related areas.
2. **Survey Data.** To determine the long-term impact of the AAE initiative, online surveys were administered to AAE students at the end of their senior year of high school and after they had entered college.

AAE Online Data Entry

Despite numerous efforts by CEEP and ASAI staff (and those working in the schools themselves), some schools still do not have complete data entered as of the writing of this report. Incomplete data entry prohibits a complete and accurate evaluation of the entire AAE initiative. Thus, all results reflect the changes only in schools who have reported data.

Additionally, based on email, telephone, and in-person contact with individual school project directors, there seems to be high turnover within schools for staff members working with ASAI. Moreover, the transition from one project director to the next seems to sometimes include very little transfer of institutional knowledge regarding AAE, specifically with how to enter data into the ASAI system (and sometimes even what data need to be collected). Because each school has its own method of data collection, some schools were able to collect and enter data with ease.

However, others needed to supplement their typical data collection methods to collect all the AAE data.

AAE Online Data Accuracy

Several Project Directors reported concern about the accuracy of student self-report data. Specifically, there was no standardized method of establishing which students were First Generation College-Bound. Each school established its own method and reported its own findings. However, several Project Directors noted some concern over student self-report data at a meeting with ASAI and CEEP staff. One Project Director in particular expressed her concern because she was tallying student responses to the first generation college-bound query and saw one student's response of "yes" when she (the Project Director) knew that both parents had post-graduate degrees.

Similarly, several data entry errors were found in the online entries. Where possible (e.g., when a school reported that there were 10 Native American students in the school but 15 Native American students were participating in college-level program) CEEP staff contacted schools to correct these errors. However, not all errors were obvious. For example, a school with 2,000 students might report that 12 of its 20 teachers participated in professional development activities in 2006 and then 15 of its 38 teachers participated in 2007. It is unlikely that that school has either 20 or 38 teachers, but those mistakes will make it appear as though the proportion of teachers participating is decreasing, when it is actually likely increasing. CEEP staff attempted to rectify as many of these (likely) errors as possible, but these errors were much more difficult to identify and correct.

Survey Data

Project Directors were instructed to have all students from their school who were participating in the AAE initiative complete an online survey. At the end of each survey, students were asked to provide an email address for future correspondence. At the end of the freshman year of college, students were then asked to complete a follow-up survey. The response rate to this initial follow-up survey was extremely low. Based on the low number of responses, and the high number of emails returned as being sent to invalid addresses, the follow-up survey was moved and conducted in the fall following each student's high school graduation. In the follow-up email, students were asked to provide their college email address so they could be contacted again in the fall of their sophomore year to measure retention rates in college. However, despite the earlier survey window, the response rate remained extremely low.

This report analyzes the changes in participation and performance in AAE schools from the 2004-2005 school year through the 2006-2007 school year as well as reporting trends in student responses to both surveys that were administered. The report concludes with a recommendations section.

Statistical Introduction

All of the following analyses were conducted to evaluate the extent to which programs changed in their enrollment or their performance (i.e., percent earning a 3 on an AP test, an International Baccalaureate Diploma, or transferable dual credit) over time. There will always be small fluctuations year to year, but the purpose of this report is to evaluate all significant changes over time. Two common ways to express significant change is a **statistical significance level** and an **effect size**.

A change is considered statistically significant if there is a 5% (or less) chance that the observed change occurred due to chance. This significance level is expressed via a p -value. The smaller the p -value, the less likely the observed change occurred due to chance. For example, a p -value of .001 indicates a very small chance (0.1%) that the observed change is due to chance. A p -value of .875 indicates that any observed change is likely due to chance and probably not a “real” change. The typical cut-off for being considered statistically significant is $p \leq .05$.

Where p -values report whether a change occurred, an effect size reports an estimate of the size of the change. The effect sizes reported here range from -1 to 1. A negative effect size indicates a decrease whereas a positive effect size indicates an increase. The more extreme an effect size (the closer it is to -1 or 1) indicates how large the change is. Here is a general guideline for interpreting effect sizes:

- 1.0 to -0.5 large negative change.
- 0.5 to -0.2 negative change.
- 0.2 to +0.2 little or no change.
- +0.2 to +0.5 positive change.
- +0.5 to +1.0 large positive change.

Also, if the p -value is large, indicating that an observed change is likely due to chance, then the effect size is probably not that informative. However, if both the p -value and the effect size are small, that means that a change was likely found, but it is a small (possibly meaningless) one.

Interpretations for how each of these numbers applies to AAE’s performance should be made with consideration to variations within each program’s individual characteristics (e.g., size of the program, how long it’s been in place, initiative goals).

If any group has fewer than 10 participants (i.e., there were only 7 Native American students participating), no analysis was conducted because the sample is too small to measure significant or meaningful changes.

If it is not explicitly mentioned in the Analysis section, no significant changes were found for that aspect of the AAE initiative.

Finally, the findings below are based on the data that each school entered in the ASAI system. If incorrect data were entered into the system, these analyses represent those errors and cannot overcome them. Mistakes such as these and other data entry issues are discussed in greater detail below.

3. AAE Online Data

The total number of students eligible to be included in each analysis depends on several factors. First, not all 37 schools currently participating were a part of AAE in 2005. This means the possible number of students participating in that year was much smaller than in 2007. Second, many schools did not offer all of the college-level programs. For example, some schools only offered AP courses, but not IB or dual credit options. This limits the number of possible students participating in any specific college-level program. Third, despite numerous efforts to contact and assist them, not all schools fully completed their data collection and entry. To ensure the most accurate evaluation of actual changes due to the AAE initiative and not due to fluctuations in school participation or data entry, each analysis was conducted based on the data entered for each specific variable. Because of this specificity, each item relies on a unique base value of possible students participating. To help clarify these variations, each table below includes the number of students participating, the number of possible students, and the percent that is equal to, as well as the *p*-value and effect size.

College-Level Course Enrollment and Performance

Overall, there was a significant increase in the proportion of students participating in college-level programs. This increase was also observed with Native American, Black, Hispanic, White, and Multiracial students. The increase in participation is noteworthy with Multiracial students because its effect size suggests a substantive positive increase in participation. No increase in participation was observed in Asian students. The proportion of students participating in college-level programs who received Free/Reduced lunch or who were in the Paid lunch group also increased. First generation college-bound and not first generation college bound students both saw an increase in participation in 2006 that dropped back down to previous levels in 2007.

There was a very small decrease in the proportion of all students who received credit from a college-level program. However, there were no specific ethnic groups whose proportion of students earning credit decreased. In fact, the proportion of White students earning credit slightly increased over time. There was a statistically significant decrease in the proportion of Free/Reduced Lunch students earning credit and a statistically significant increase in the proportion of Paid Lunch students earning credit. However, the changes in both cases were practically negligible. Similar small, but statistically significant, changes were found in First Generation College Bound and Not First Generation College Bound students.

Table 1 College-level course enrollment and performance.

	2005	2006	2007	p-value	Effect size
COLLEGE-LEVEL COURSE ENROLLMENT AND PERFORMANCE					
College-level course enrollment					
All Students	16% (2377/15058)	17% (6002/35792)	16% (6014/36551)	.024	.0092
Native American	3% (2/61)	27% (3/11)	50% (5/10)	.0001	.4965
Black	3% (120/4084)	6% (736/11669)	8% (990/12538)	.0001	.0667
Asian	27% (56/204)	35% (166/470)	34% (168/495)	.1294	.0592
Hispanic	13% (50/381)	8% (98/1272)	12% (165/1382)	.0003	.0739
White	18% (2184/12323)	22% (4865/22561)	21% (4681/22171)	.0001	.0372
Multiracial	21% (31/146)	16% (105/671)	34%(260/774)	.0001	.1991
Free/Reduced Lunch	13% (723/5688)	6% (709/11511)	8% (1089/12851)	.0001	.0842
Paid Lunch	22% (2007/8937)	24% (4895/20282)	24% (4741/19495)	.0018	.0161
First Generation College Bound	12% (53/458)	16% (399/2505)	11% (331/3015)	.0001	.0714
Not First Generation College Bound	14% (292/2019)	17% (509/3038)	14% (483/3522)	.0002	.0380
College-level course performance					
All Students	8% (743/9867)	7% (2030/30599)	7% (2161/31443)	.0092	-.0114
Native American	0% (0/12)	11% (4/36)	11% (4/38)	.4873	.1293
Black	1% 8/1271)	1% (112/8045)	1%(111/8931)	.0749	.0169
Asian	12% (12/99)	15% (50/329)	18% (69/377)	.2630	.0576
Hispanic	2% (2/82)	2% (16/912)	2% (26/1079)	.5878	.0226
White	6% (347/5706)	10% (1776/18041)	10% (1776/17740)	.0001	.0455
Multiracial	8% (7/91)	7% (39/557)	6% (40/662)	.7201	.0224
Free/Reduced Lunch	3% (69/2394)	3% (253/8080)	2% (187/9263)	.0001	-.0336
Paid Lunch	8% (375/4872)	12% (1724/14881)	11% (1798/16160)	.0001	.0408
First Generation College Bound	4% (49/1241)	3% (104/3438)	4% (139/3253)	.0220	.0310
Not First Generation College Bound	12% (241/2019)	6% (174/2797)	8% (291/3725)	.0001	-.0783

Advanced Placement Enrollment and Performance

As shown in Table 2, there were statistically significant changes in the proportion of students enrolled in and earning credit in AP courses. Both changes are very small and imply very little change in rates over time.

Table 2 Advanced placement enrollment and performance.

	2005	2006	2007	<i>p</i>-value	Effect size
ADVANCED PLACEMENT ENROLLMENT AND PERFORMANCE					
AP enrollment	13% (2244/16908)	11% (4480/40967)	12% (5110/42113)	.0001	-.0262
AP performance	3% (314/11230)	4% (1531/40967)	4% (1512/42113)	.0001	.0156

International Baccalaureate Enrollment and Performance

As shown in Table 3, there was a statistically significant increase in the proportion of students enrolled in IB courses, but no change in those earning credit. As can be seen in the table below, the small observed growth in participation was primarily from 2005 to 2006.

Table 3 International baccalaureate enrollment and performance.

	2005	2006	2007	<i>p</i>-value	Effect size
INTERNATIONAL BACCALAUREATE ENROLLMENT AND PERFORMANCE					
IB enrollment	0% (37/15066)	2% (541/32885)	2% (621/33366)	.0001	.0493
IB performance	0% (16/10240)	0% (44/29986)	0% (42/30694)	.8904	.0018

Dual Credit Enrollment and Performance

As shown in Table 4, there was a statistically significant decrease in the proportion of students enrolled in and earning credit in Dual Credit programs. In both cases, the decrease was very small and occurred gradually from 2005 to 2007.

Table 4 Dual credit enrollment and performance.

	2005	2006	2007	<i>p</i>-value	Effect size
DUAL CREDIT ENROLLMENT AND PERFORMANCE					
DC enrollment	11% (1449/13451)	8% (2295/30487)	7% (2068/31251)	.0001	-.0554
DC performance	5% (626/13141)	4% (1294/31024)	3% (926/32240)	.0001	-.04

AAE Strategy Data

As shown in Table 5, there were statistically significant changes in all AAE Strategy Data categories. The proportion of students receiving tuition subsidies rose dramatically from 2005 to 2006 and then shrank in 2007 (but still above 2005 levels). Both test subsidies and academic support rose consistently from 2005 to 2007, but in each case the increase was small. The proportion of teachers reported participating in professional development decreased slightly from 2005 to 2007. However, as discussed elsewhere in this report, this change may be a function of inaccurate reporting of the total number of teachers in each school for some years and may not represent actual change in participation rates.

Table 5 AAE strategy data.

	2005	2006	2007	<i>p</i>-value	Effect size
AAE STRATEGY DATA					
Tuition subsidy	0% (32/10161)	6% (1517/24989)	1% (317/25140)	.0001	.1458
Test subsidy	1% (53/9614)	1% (425/34071)	2% 839/34129)	.0001	.0551
Academic support	0% (30/9645)	2% (441/24089)	3% (804)	.0001	.0741
Professional development	32% (307/961)	27% (421/1561)	25% (420/1697)	.0003	-.0618

Preparation for Rigor

As shown in Table 6, there was a statistically significant increase in the proportion of students earning at least two credits in algebra. This increase, though small, occurred primarily from 2005 to 2006.

Table 6 Preparation for rigor.

	2005	2006	2007	<i>p</i>-value	Effect size
PREPARATION FOR RIGOR					
Credits in algebra	44% (1174/2681)	55% (3261/5912)	55% (3279/5935)	.0001	.0887

College Admissions Testing

As shown in Table 7, there was a significant increase in the proportion of students taking either the SAT or the ACT. Both increases were small, with the rise in ACT testing being slightly larger than the rise in SAT testing (though it also started lower than the SAT participation).

Table 7 College admissions testing.

	2005	2006	2007	<i>p</i>-value	Effect size
COLLEGE ADMISSIONS TESTING					
SAT	28% (1831/6440)	32% (5536/17541)	30% 5447/18191)	.0001	.0242
ACT	6% (400/6440)	11% (1752/15423)	12% (1754/15109)	.0001	.0652

4. Survey Data

A total of 2,367 and 1,451 students completed the 2007 and 2008 high school surveys respectively.

Table 8 shows which programs the students completing the survey participated in, whether participating influenced the pool of colleges they considered, and whether they expected to complete college in fewer semesters as a result of their participation in college-level programs.

Based on these results, it appears that participation in college-level programs influenced the pool of schools that students considered attending for about one-fifth of respondents. However, roughly half of respondents said they expected to finish college faster because they had earned college-credit while in high school.

Table 8 Online survey data: high school.

	AP Courses	AP Exams	IB	DC	Influence College Pool	Expect Fewer Semesters
Online Survey Data						
2007	90%	62%	4%	26%	17%	51%
2008	81%	53%	4%	14%	21%	47%

Reasons for participation

Students were asked to provide open-ended responses for why they chose to participate in a college-level program. Four themes emerged from their responses. These themes are:

1. Earn college credit while spending less money.
2. Desire to experience a college class before entering college.
3. Wanting to push self academically.
4. Personal interest in the content of the course.

Advantages of participation

Students were asked to provide open-ended responses about what they believed to be advantages of having participated in a college-level program. Five themes emerged from their responses. These themes are:

1. More challenging than alternatives
2. Inexpensive way to get a head start on college
3. Enjoy the peer group
4. Better teachers
5. Smaller classes

Disadvantages of participation

Students were asked to provide open-ended responses about what they believed to be disadvantages of having participated in a college-level program. Four themes emerged from their responses. These themes are:

1. More homework than non-college-level courses.
2. Has the potential to lower GPA if not weighted.
3. Stressful.
4. None (although not an actual disadvantage, it was a common sentiment).

Preparation for rigor of college

Students were asked to provide open-ended responses about how well the college credit they earned in high school prepared them for the rigor of college courses they will be taking the next year. Student responses range from extremely confident to extremely unconfident. A representative sample of actual student responses is list below.

- I think I'm ready to take on the college courses. What I have heard from previous AP students is that college seems easier than the AP classes we take in high school.
- I think that it really put things into perspective and now I kind of know what to expect out of college courses.
- They will prepare me pretty well, but not completely because the college classes will be more work each day, but not every day.
- I learned a lot as far as time management, as well as learning the value of "learning" in general -- the joy of reading and searching for answers. The classes I've taken have made me more confident.
- i'm going to IU so i don't have to worry about rigor
- I don't think AP classes have prepared me well for college at all. The differences between high school and college courses are so extreme that any form of preparation is inadequate.
- I believe that I will be very prepared in English next year, and hopefully I will advance out of Freshmen Comp because of the credit hours.

Longitudinal Follow-up

As mentioned above, the response rate to the longitudinal follow-up was extremely low. Only 68 students responded after they had entered college. Such a low response rate causes concern for the generalizability of responses. All results should be interpreted with caution because they are likely from an unrepresentative sample of all AAE participants.

Nearly all those who responded participated in AP course while in high school and over 80% received a Free or Reduced price lunch. However, very few were first generation college students or expected to take a remedial course in college.

Table 9 Longitudinal survey data: College students.

	AP Courses	IB	DC	Free/Reduced Lunch	First Generation College	Expect Remedial Courses
Online Survey Data						
2007	94%	10%	22%	81%	11%	7%

How college-credit is being used

Students were asked how they were using the college-credit they earned in high school in college. Their responses are reported below. Nearly half reported that they had been awarded college credit for their participation whereas 22% did not yet know how their credit would be used.

- 45% Put the course on my college transcript and awarded college credit
- 4% Put the course on my college transcript but did NOT award college credit.
- 1% Allowed me to count the course as a college graduation requirement
- 7% Allowed me to take a more advanced course to meet a college graduation requirement
- 6% My college does not recognize the college-level work that I did in high school.
- 9% None of the above.
- 22% I don't know.

Retrospective: preparation for rigor of college

Students were asked to provide open-ended retrospective responses about how well they felt the college-level programs they took in high school prepared them for the rigor of college. Overall, responses were extremely positive; some representative responses are pasted below.

- Very well, it prepared me far better than any standard high school class. I dare say I would be quite lost had it not been for the AP classes
- Many of the AP courses I took in high school helped prepare me for the type of work but as pertains to the rigor and workload. I was thoroughly surprised and had to add many hours of study to my academic routine
- Very well. The social studies and English AP courses I took have made me feel like I am ahead of the students in my classes. Some of the stuff they are learning for the first time, I already know
- I think it prepared me fairly well, but I was not prepared for that amount of work for each class.

- Relatively well. There needs to be more reading/studying involved in the course work to prepare for college level.
- High School learning is such a different format than college. The only class that really prepared me for a college level course would have been AP Java.

Retrospective disadvantages to participation

Students were asked to provide open-ended retrospective responses about what they believed to be disadvantages of having participated in a college-level program now that they had begun college. In general, responses were very positive, with the most common response being that there were no disadvantages. Some representative responses are pasted below.

- Absolutely not, those classes are only positive.
- I focused so much on taking the college level courses that I did not take the time to take classes that were of a personal interest to me. I took Calculus my senior year instead of International Relations and Painting because I felt that it would give me a leg up in college. This did not end up being the case.
- No. It was a lot of work, and I didn't score well enough to receive any college credit, but I don't regret it. The point was to prepare me for college, and I think it did a very good job of it.
- It was a harder class therefore my grades were not the best in those classes, so it did drop my GPA. I was on the edge of being in Top 30 which I did not receive because of my lower grades. But no, I do not regret it because I feel like it has prepared me for college work.

5. Recommendations

Based on the AAE Online Data, the Online Survey, and working with the AAE initiative in general, several recommendations have been developed. They are listed below with some explanation.

Data Entry and Accuracy

Establishing an initiative-wide Project Director protocol with a calendar of due-dates and actions may help schools with data collection and entry problems. This protocol could include instructions for what needs to be collected and entered, when it needs to be done, examples of how other AAE schools successfully accomplish the task, and contact information for whom to contact with questions or problems.

Explicitly sharing the success stories of AAE schools with other participating schools (especially those just starting) may also assist them in implementing more successful strategies and not reinventing the wheel.

Having a raffle for a gift certificate that goes to the school and/or Project Director who gets all their data accurately entered on time may also foster the data collection and entry process.

Having the person who actually collects and/or enters the data for each school (it is often not the Project Director) attend an AAE Data Accuracy meeting may facilitate the data collection and entry process.

Survey Data

Marketing the AAE initiative to participating students will make them aware that they are receiving benefits from the program. This awareness could improve the response rate of longitudinal follow-up surveys.

Making students aware of the AAE initiative may also help avoid as many sarcastic and insincere responses to the initial high school survey. More sincere and candid responses to this survey will lead to more real contact information being provided, expanding the pool of potential respondents to the longitudinal follow-up surveys.

Having a participation inducement (e.g., possibly winning an ipod or a gift certificate) will increase participation in the college survey.

Having Project Directors contact the former students from their own school (with the text and survey being provided to them) may also increase the response rate to longitudinal follow-up surveys. This way, all correspondence to students comes from someone they know, rather than a stranger.