

Title of Study: Action Research Increasing STEM AP Enrollment

Dates of Study: 2017-2018

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Purpose of the Action Research: The proposal outlines an action research study of strategies to improve student participation at Willow Tree High School with the purpose of increasing student awareness of the benefits of enrolling in AP courses in hopes of increasing the number of student participation.

Research Question/Hypothesis: The main research question that will guide this study is: What factors affect enrollment into advanced placement courses in a suburban high school in Southern California? The two sub-research questions are: 1. What strategies can teachers use to effectively increase AP STEM enrollment? 2. What are the attitudes and perceptions of teachers and students regarding AP stem enrollment?

The Existing Need: Educators have recently become concerned about the discrepancy between the number of students who enroll in STEM AP courses compared to the number of students who take a non-STEM AP course. Judson (2017) also noticed that students tend to take non-STEM AP exams 2.3-2.4 times more often than STEM AP exams. However, “the percent of students passing STEM and non-STEM exams decreased over the 17 years. The small but steady declines in pass rates led to an average annual decrease of 0.4% for STEM and an annual average decrease of 0.5% for non-STEM from 1997 to 2013” (Judson, 2017, p. 213). Unless the trend is adequately addressed, schools will continue to see a decline in AP student taking and passing the exam.

Research Connection: Advanced placement courses provide many benefits to students who participate in the program. Morgan and Ramist (1998) compared AP students, who received AP credit, to non-AP students and discovered that AP students performed better and were more likely to pursue more college coursework (as cited in Scott et al., 2010). Additionally, studies have shown that Hispanic and African-American students are underrepresented in AP programs. According to Moore and Slate (2008), AP courses encourage minority students to enroll in college by providing information as well as stressing the importance of college (as cited in Flores & Gomez, 2011). AP courses can improve their academic skills, like writing skills and problem-solving skills. Therefore, the advantages of taking an AP class outweigh the disadvantages.

Participants: 200-300 students who attend a suburban high school in California

Sex: Male and female students

Grade: 9-12

Ethnicity: 64.3% Latinx/Hispanic, 16.6% White, 8.4% Asian, 5.8% African American, 4.5% Filipino, 0.3% American Indian/Alaska Native, and 0.2% Pacific Islander

Intervention: *The intervention planned for this action research proposal includes professional development for AP benefits and correlation between AP and PSAT.*

Results: *According to the data from a Learning Management System, the overall school enrollment has dropped, and in comparison, it seems as though the AP enrollment has gone up. However, according to the school administrators and staff, the future goal is to offer one AP course per subject similar to the AP English Literature and Language program. There are a few factors that affect enrollment into advanced placement courses. Some elements, based on the student survey, were that students were not programmed or aware that they can request to be enrolled in AP courses and some felt that they would not be able to handle the workload. Some students did mention that there were not enough time slots in their school schedule. Both faculty and students felt that if they were provided with mentors, a specific study block or support, students would be more likely to take an AP course(s). Additionally, after analyzing the school's data and completing surveys, faculty and staff were asked to attend a PD where they were asked to examine, discuss in groups and come up with particular strategies that may increase AP enrollment. When asked what should be given priority for the future, the majority of the faculty felt that we need to promote the program and celebrate students' successes. Finally, the faculty was asked to analyze Figure 4 which compared the past five-years' number of students enrolled in AP, the number students that enrolled and tests, number of AP tests taken, and scores. About 45% of the staff stated that they noticed a decline in enrollment and test taking.*

Conclusions: *According to the study, there has been a significant drop in the AP course enrollments, specifically in STEM courses. The findings of the study were consistent with Ohrt et al. (2009) who suggest schools need to have active counseling programs that support students in AP courses. Teachers and counselors need to collaborate to develop an effective action plan and promote students from AP Potential list (Ohrt et al. 2009). In addition, faculty felt the need to add AP Parent Night, parent and student workshops, identify and train motivated teachers similar to what Flores and Gomez (2010) suggested. Jeong (2009) suggested to provide incentives and reduce the exam fees, which currently students who are on free-reduced lunch take the test for \$5, but we need to figure out ways to waive the fees for students who are not on the list and cannot afford the exam.*

Recommendations: *The data gathered during the current research was limited due to time. The data collected was insufficient since we were not able to implement any changes as mentioned in our study. Changes such as providing incentives to both teachers and students, rigorous prerequisites, a "No Drop" AP class policy, identify and train motivated teachers. Since time was an issue, it would be worthwhile to continue the study to see if the recommended changes were to be made, would there be an increase in AP course enrollment.*