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Los Angeles

Closing the Achievement Gap:

Improving Success of Low-Income Minority Students in AP Programs

A dissertation submitted in partial satisfaction of the requirements

for the degree Doctor of Education

by

Erin Marie Higgins

2015

ABSTRACT OF THE DISSERTATION

Closing the Achievement Gap:

Improving Success of Low-Income Minority Students in AP Programs

by

Erin Marie Higgins

Doctor of Education

University of California, Los Angeles, 2015 Professor Emeritus Wellford W. Wilms, Chair

This study examined how dismal passage rates on Advanced Placement Exams by low-income and minority students in urban schools might be improved by focusing on teacher development through the formation of a professional learning community of educators across content areas discussing and sharing research-based instructional strategies. A qualitative study of nine educators at one site in a large urban city who taught various AP courses for at least one year met over the course of the Spring 2015 leading up to the AP exams. Through the formation of the PLC of AP teachers, there were three major recommendations teachers had to improve the AP program: 1) Administration should include more teacher input in decision-making, 2) An "AP culture" must be built with clear expectations and buy-in from all stakeholders, and 3) Teachers want more meaningful and ongoing professional development in teaching AP to diverse learners. The dissertation of Erin Marie Higgins is approved.

Mark P. Hansen

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University of California, Los Angeles

2015

DEDICATION PAGE

I give this manuscript as a gift to my mother, Ann Higgins Gonzalez, who has supported me wholeheartedly in all of my academic endeavors. She has always taught me to see the best in people, and has always believed in me even when I had difficulty believing in myself. It is her strong will that I strive to embody, and which fills me with the humanitarian spirit as I continue to believe in and fight for social justice for all youth, that they too are worth believing in and deserve every opportunity to succeed.

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Committee and Chair

An amazing group of dedicated AP teachers

My mom, for being my support system and always believing in me

VITA

EDUCATION

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CHAPTER 1

PROBLEM STATEMENT AND RESEARCH QUESTIONS

Introduction

Students are entering colleges and universities in the United States without the skills required to handle college-level work; therefore, money and resources are being expended on remediation and intervention at the college level. According to NCES (2001), 28% of students entering colleges or universities as freshmen were in remedial classes, by 2012 the number rose to 58% of students requiring at least one remedial course (The Gates Foundation). USA Today reported that in 2008, college remediation courses cost colleges and taxpayers between \$2.3-2.9 billion. Enrolling more students in Advanced Placement courses and allowing them access to rigorous coursework is one way to close this achievement gap, reducing the need to expend resources on college remediation courses (NCES, 2001).

Yet the students who are the least prepared for college, from lower socioeconomic and racial minority groups are not taking these courses, and in some schools have been denied access to them (ACLU, 1999; Daniel vs. State of CA, 1999; Education Trust, 2000; Pearsall & Walker, 2012). Despite growing numbers of students applying to colleges each year, these students reveal a great disparity in terms of the socioeconomic achievement gap. This disparity is also linked inevitably to a racial achievement gap (Barton, 2004; Black, 1992; Camara, 2003; Conger et al., 2009; Flowers, 2008; Solorzano & Ornelas, 2004).

Students enter college without the basic skills necessary to engage in college-level work (Conley, 2005; Lewin, 2005). The College Board's mission in creating the Advanced Placement program is to provide a challenging college preparatory program to prepare students for college level academics (The College Board, 2002). Rigorous high school curriculum, including

Advanced Placement courses, is the strongest predictor of postsecondary education completion (Adelman, 1999; Department of Education 2004). In addition to receiving credit if they pass the exams, Advanced Placement courses provide students with the information and skills that higher education institutions will expect of them (Adelman, 1999; College Board, 2000). In fact, enrollment in an AP course is among the most significant predictors of college attendance (Adelman, 1999; Camara, 2003; Department of Education, 2004; NCES 2003). In addition, students who take AP courses receive better grades in college and are more likely to complete a Bachelor's degree than their non-AP course-taking peers (Morgan & Crone, 1993; Morgan & Ramist, 1998).

To provide better training for teachers of AP in urban settings with poor students outcomes, we must identify best practices of teachers who are experiencing success with students in AP who are not considered traditional AP students. Data on teacher self-reported best practices, "what is working," triangulated with observable practices of AP teachers proven effective at getting urban students to pass AP exams should be collected to give recommendations for specialized workshops offered by College Board to teachers in urban communities with populations of students that have unique needs, different from private school or gifted and talented students. The problem is, with only a 40% passage rate on AP exams for students in the Los Angeles Unified School District, the largest school district in the country; success cases are few and far between, particularly when the data is disaggregated for race and income. Teacher turnover and changes in course offerings make it difficult to conduct a longitudinal study of "what is working." Additionally, changes in AP exams over the past few years have required teachers adapt their methodologies to prepare students for new exam formats.

Background and Context

In 2001, 40,449 African American students and 45,740 Chicano students took AP exams compared with 556,865 White students. White students thus made up 65.5% of students who took AP exams, while African Americans were only 4.3% and Chicano students 4.9% (The College Board, 2002). Both minority and low-socioeconomic students are drastically underrepresented in AP participation. In 2001 (more officially endorsed in 2009), College Board shifted to an "AP-for-all" open enrollment philosophy encouraging any student who wanted to enroll in Advanced Placement courses, regardless of prerequisite requirements or teacher recommendations, participation in AP skyrocketed. For example, Long Beach Unified School District more than doubled AP participation from 2003-2013 while maintaining a passage rate of 54%. While participation increased greatly, total numbers who passed the AP exams with a 3 or higher to receive college credit remained fairly static. Though more minority students and low-SES students were taking the exams, few were passing. Los Angeles Unified School District became an open-enrollment urban school district in 2009. From 2009-2013, the district increased student enrollment in AP courses from 12.5-17.7% while holding constant a passage rate of 40%. Great disparities exist among student populations in urban school districts. In LAUSD, overall AP exam passage is 40% district-wide, yet it varies greatly from 62.5% for white students to 25.7% for African-American students.

Other schools across the United States, such as J.B. Alexander High School in Laredo, Texas, followed suit instituting this type of open door policy, meaning any student can elect to take Advanced Placement Courses. Open enrollment is aligned with College Board's philosophy that all students can benefit from the rigor of AP. At J.B. Alexander High School in this Mexican border town, 80% of students who take AP exams are Hispanic. This high school proves that AP is not just for "gifted" students anymore. They believe all students benefit from AP and it prepares them more for college-level work (The College Board, 2002).

With the Open Access movement by The College Board, schools across the United States started to remove the prerequisite courses and teacher approval requirements that existed previously. Typically increasing enrollment in AP courses led to a static or decrease in passage rates. The immense benefits of AP for students in terms of college success outcomes is well-documented in the literature, yet a study by the College Board and Long Beach Unified School District determined that for every 100 kindergarten students in the United States, only 11 will pass an AP exam with a score of 3 or higher (The Broad Foundation, 2010). At Charlotte-Mecklenburg School in North Carolina, African American participation in AP tripled from 1996-2001 yet only twenty percent of African American students in this district passed the AP exam with a 3 or higher.

The growth in U.S. students participating in AP since the shift to open admission is well documented; however, the passage rates are far from impressive. The College Board cites this lack of increase in scores as inevitable with the statistical effect of an increased number of examinees. Yet, allowing an increased number of students to enroll in AP courses and often issuing fee waivers is an expensive experiment if more participation is not going to mean more passage on the exams. In 2011, 91,009 low-income students took 160,605 exams. L.A. Unified, the state's largest school district, participates in a statewide program that provides additional funds for AP exams. Low-income students are required to pay \$5 per exam for up to three tests, and \$53 for any subsequent exams. The actual cost per exam is \$87 (LA Times, 2012). Even after Congress slashed federal funds in December 2011, 29 million dollars is still being spent per year for low-income students to receive fee waivers for AP exams. Despite increased access,

minorities' performance on the AP exams has remained dismal. Seventy-two percent of African-American students scored less than a 3 on the AP exams in 2006 compared with 36% of White students in the same year. In 1997 only 64% of African Americans scored less than 3 (The College Board). While more minority students are enrolling, they are not achieving success as shown by passing the AP exams.

Why do minority and low-socioeconomic students need to pass the AP exams? The literature shows that passing AP exams is linked to college success outcomes such as higher completion rates and higher college GPAs (Chajewski, Mattern, & Shaw, 2011; Curry, MacDonald, & Morgan, 1999; Martinez & Kloppot, 2005; Santoli, 2002). If we are to work towards closing the racial and poverty achievement gap, getting students of color and from poverty into the AP courses is not enough (Lichten, 2007). We need to discover what can help more of these nontraditional AP students reap the same benefits their white peers have obtained. While the dismal achievement for students of color and those from lower-socioeconomic backgrounds are well documented, what is not known is what is working to get some of these students to pass the exams?

Despite overall dismal passage rates, there are some success stories. Thirteen LAUSD schools increased the percentage of AP exams with a passing score and the number of AP exams taken in 2012-13: Torres Hum/Art/Tech, Orthopedic Hospital Magnet; Mendez Learning Center Math/Science; Fremont Senior High; Cleveland Senior High; Bravo Medical Magnet; Roybal Learning Center and Polytechnic Senior High. So what are teachers doing that are experiencing success?

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Current Teacher Training Available

There are currently more than 100,000 teachers in the United States teaching Advanced Placement. 34.1% of these teachers work at schools where open enrollment for AP courses is the norm. While Ethnic minority, English learner, and economically disadvantaged students are severely underrepresented in Advanced Placement courses, only 12.1% of teachers cited their school has an initiative to get more underrepresented student populations into AP. Ninety-five percent of these teachers are white, and 53.7% are female. Only 1.3% is African American, 3.1% are Mexican American, and 0.1% other Hispanic or Latino. While it is recommended that teachers take a diversity-training course to be prepared to teach students from different backgrounds, there is not any specific College Board training to teach AP to non-traditional students.

The College Board provides teacher training workshops and institutes and separates teachers into two categories: experienced and non-experienced based on whether they have taught AP before or not. What seems to be a missing link is providing training for teachers based on the needs of the students they serve. Students with language gaps, reading level challenges, or special education students who previously were not commonly seen in AP classes, are now more frequently enrolled in these courses, particularly at certain charter schools that offer AP to everyone and often require students to take AP courses.

What are the special needs of minority and low-SES students in AP?

While much research has been done in the area of closing the achievement gap to investigate instructional strategies to support special populations of students such as English learners and students with learning disabilities, little is known about strategies to best support nontraditional AP students for success in AP courses and on AP exams. Furthermore, teachers at non-performing schools rarely go observe AP teachers at highperforming schools, or any other AP teachers of the same content at all for that matter. One might be surprised to learn that AP teachers at the same school site are rarely afforded time to meet, co-plan, or discuss best practices, which could provide such valuable insight on how to best serve the same population of learners. Teachers learn best from other practitioners, and yet high school teachers often work in isolation, deprived of the value of collaboration.

Problem Statement and Research Questions

When the College Board wanted open access granting all students the ability to take AP, they are not always prepared for the rigor and there is a lack of training for AP teachers of nontraditional AP students tailored to meet the needs of a particular population of students. My research addressed the following questions:

- 1. According to teachers, what are the major barriers to preparing low-income and minority students to pass Advanced Placement exams?
- 2. What changes to the current AP program do teachers recommend to address these barriers?
- 3. To what extent do teachers use instructional strategies shown to be effective with lowincome and minority students as interventions in the AP classroom?
- 4. What are the perceived benefits of forming a Professional Learning Community of AP teachers?

Research Design

Rationale for a Qualitative Study

I used a qualitative research design for this study. Since the goals of the study were to investigate common trends of teacher practices and observed strategies of AP teachers, a

qualitative approach was most appropriate to capture this information about this focus group of teachers. The various practices and beliefs could not be accurately described through quantitative methods.

Population

For my project, I identified eight teachers of AP in a Los Angeles urban public high school serving high populations of minority and low-socioeconomic students who were not experiencing success as shown by AP passage rates significantly lower than the district average of 40% which has remained the same over the past four years (LA School report, 2013). California Scholar Charter School (pseudonym, that I refer to as CSCS) was chosen, as it was an accomplished college preparatory public charter high school urban high school with high minority and low-SES student populations with an impressive AP program with nine AP course offerings, eight AP teachers, and only approximately 500 students. These students are admitted to the school based on lottery, and AP classes by student choice rather than merit. Despite the school being an exemplary charter school in urban Los Angeles, the AP passage rates are very low. The school and its AP teachers wanted to participate in the study in order to evaluate the current AP program and find ways to improve student outcomes.

LAUSD adopted open enrollment for AP courses in 2009 and traditionally has had poor performance of these non-traditional AP student groups on AP exams. In order to best represent the Los Angeles urban student population, the school meets the criteria for urban student population and open access to AP courses.

Methods

I conducted a pre-observation questionnaire (Appendix A) to learn what instructional practices the teachers say they use and believe to be important in the urban AP class setting. Next,

I interviewed the teachers on the subject of common instructional methods and practices to investigate what the teachers report to be working or not working in four domains of strategies, as well as their perceptions of the benefits of the formation of a PLC of AP teachers. Over the course of six weeks, I held four PLC sessions to focus on four areas of instructional strategies and facilitate a teacher-led discussion on best practices in the AP classroom. At the conclusion of the project, a follow-up questionnaire (Appendix E) was used to allow participants the opportunity to provide feedback on the PLC experience.

Significance of the Research

Currently, the College Board offers 3-day AP institutes and one-day AP workshops at cost for teachers of AP nationwide. Yet not all schools pay to send AP teachers to these trainings every year as recommended. In fact, some teachers teach AP courses without any training at all. I will use this qualitative data on the experiences of a focus group of AP teachers to discuss the benefits and give recommendations for how professional learning communities of AP teachers formed within a site can help improve outcomes on AP exams for minority student groups. Understanding the obstacles to forming such a PLC will be useful in knowing how to replicate at other sites if proven to be successful.

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CHAPTER 2

LITERATURE REVIEW

Introduction

In 2012, only 20% of California students in Los Angeles County were deemed ready for college in English Language Arts and only 6% in Math according to data from the Early Assessment Program (The California State University, 2012). Low-income and minority students in particular are falling even further behind than their middle and upper class White peers. There is a clear problem with how to prepare high school students to be "college-ready." The College Board's Advanced Placement program offers college-level coursework to high school students and is widely viewed as the standard of rigor. Students who take AP courses and pass the exams, in addition to receiving college credit, have higher college retention, higher GPAs, and higher graduation rates. Yet in the past, low-income and minority students have not had access to AP courses. Several nationwide efforts have opened AP to minority and low-income students as a way of better preparing them for college, but without widespread success.

This literature review will first discuss the problem of students, especially low-income and minority students, not being prepared for college at high schools across the country. Next, I address the clear benefits of Advanced Placement courses as a solution for the issue of collegereadiness. I then discuss issues of equity and success in AP for low-income and minority students, followed by what has already been done to try and expand and improve AP programs in urban schools. Afterward, I examine studies on effective teacher practices for low-income and minority students, and best practices in AP courses. Finally, I explore how best practices of successful AP teachers including known effective literacy practices, student-centered activities, and use of technology for low-income and minority students can be leveraged to help improve student access and outcomes in low performing urban schools.

I. The Gap: It's an Inequality Issue

College-readiness is on the minds of nearly all educators today. As teachers from preschool through high school begin to prepare for the demands of common core standards, the problem is clear: students are going off to college ill-prepared.

We see this in the statistics and in the remediation programs that are popping up at colleges and universities across the country to address the need to close major gaps, particular in English and Math, before a student can receive college credit. If a student has to spend a lot of time attending college courses before they can even get to the level in which they receive credit, they drop out. Minority and low-income students, especially in California with a large population of English learners, are entering college at higher rates, but underprepared to access the college-level coursework.

Why are students today not prepared to go to college? Many reasons are thrown around as leading to college under-preparedness that has become such an epidemic today: the media blames ill-prepared teachers, teachers blame low-income neighborhoods for lack of parent involvement, teachers blame the low-income schools they work at for having less resources, and the list goes on.

Some real root causes that are actionable are addressing the Language minority students, support for students living in poverty or are first-in-the-family to attend college, students with low reading skills, limited access to quality teachers, and the lack of pre-AP skill instruction that underserved students receive.

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There has historically been limited access for minority students to advanced placement course offerings as well as qualified teachers in urban schools. Bringing rigorous AP courses to students who have been deprived of these courses typically reserved for the elite students, with adequate support to address what skills they might not have acquired that their more affluent peers have may be a step in the right direction to addressing the achievement gap when it comes to college readiness.

II. Benefits of AP

According to College Board, 1.6 million students took AP exams in 2009 compared to 700,000 students ten years earlier (The College Board, 2009). There is good reason why these programs continue to grow. A large body of research supports a link between AP participation and college success (Bleske-Recheck, Lubinski & Benbow, 2004; Casserly, 1986; Dodd, Fitzpatrick, De Ayala & Jennings, 2002; Dougherty, Mellor & Jian, 2002; Keng & Dodd, 2008; Morgan & Ramist, 1998; Santoli, 2002). In particular, students who can successfully complete an AP course and pass the AP exam are those most likely to graduate from college (NCEA, 2010). Morgan and Ramist (1998) conducted a study at 21 colleges and found that students who received college credit for an AP exam placing them out of an introductory course earned higher course grades on average in all courses up to the fifth series in a curriculum than non-AP students who had to take the introductory courses. Bleske, Recheck, Lubinski, and Bendow (2004) found AP participation to be "a positive predictor of educational success and satisfaction for intellectually talented youth" (p.219). This same study found AP students to be more likely to obtain a master's degree or higher.

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III. Need for Equitable Access

Advanced placement courses are a standard of rigorous high school coursework aimed at preparing students for college. Previously, there has been inequitable access to these courses for minority and low-income students in high schools across the United States. Studies show that minority students and students from lower income backgrounds are severely underrepresented in advanced classes or AP courses (Black, 1992; Braddock & Dawkins, 1993 Conger, Long, & Iatarola, 2009; Corcoran, Evans, Godwin, Murray, &Schwab, 2004; Hallinan, 1992; Klopfenstein, 2004; Lucas, 1999; Lucas & Gamoran, 1993; Ndura, Robinson, & Ochs, 2003; Oakes, Ormset, Bell, & Camp, 1990; Rosigno, Tomaskovic-Devey, & Crowley, 2006; Slavin & Braddock, 1993; Solorzano & Ornelas, 2004; Vanfossen, Jones, & Spade, 1987; Iatarola et al., 2011; Radenbush et al., 1998). To address this underrepresentation, College Board pushed for a movement to open access to AP courses for any student choosing to enroll. Schools began to do away with the traditional tracking systems of selection for AP courses, which only allowed an elite group of students access to these courses.

IV. Intervention: Make AP open, when traditionally only given to an elite group

Because of this link between AP classes and college success, policymakers have pushed for expansion of AP programs in schools, especially in low-income and minority communities to serve students traditionally not ready for college. This underprepared population is growing: In 2011, 21% of children ages 5-17 lived in poverty, an increase of 4.3% from 2007, leaving greater numbers of children without an appropriately challenging education (Unlocking Emergent Talent, 2012). Of the five million English language learner students in the United States, 60% qualify for the free and reduced lunch program due to low-income. Educating these students matters because the numbers of ill-prepared student in college are growing each year, increasing the need for remediation at the college level. Even high-achieving minority students do not perform at comparable levels to their high-achieving White and Asian peers. Academic disparities persist through and after high school (Unlocking Emergent Talent, 2012).

Former President Bush allotted \$52 million dollars of the 2006 budget for AP and similar programs under NCLB (White House Press Release, 2005, p.1). Between 1998-2002, minority participation in AP courses increased 77%, and low-income participation increased 110%, well above the overall 48% increase in AP enrollment (Casement, 2003).

Studies have shown that it is not simply taking advanced courses, but passing the exams that predicts later success (Keng & Dodd, 2008). To provide evidence that access to AP courses promotes educational equity and college readiness among low-income and minority students, from 2002 to 2006 the National Center for Educational Achievement (NCEA) conducted research on the relationship between AP participation and college success. Four major findings emerged from this study: taking AP courses alone is not enough to implicate college success; taking AP courses and passing the exams is what matters; low-income and minority students have low AP exam passage rates; and academic preparation in the early grades is needed for AP readiness.

Minority students have a lot to gain from Advanced Placement courses (Burton, 2002; Fincher-Ford, 1996; Heinrich, 2004). A study of public Texas high schools from 1998-2002 (Hargrove, Godin & Dodd, 2008) showed that students who took AP courses and exams had higher college GPAs, earned more college credits, and had higher four-year graduation rates than non-AP students. Another proof that AP exams and the rigorous coursework that accompanies them are a good indicator of college success was shown in a study of a national sample of college freshmen which determined that students who passed their AP exams with a 3 or higher had higher first-year college GPAs and higher retention to the second year of college than students who received a score of a 1 or 2 on the AP exams (Mattern, Shaw & Xiong, 2009).

Recent research indicates that providing a high-powered enriched curriculum and scaffolding for advanced thinking and questioning skills, a gifted curriculum rather than remediation, was successful in raising the academic achievement of learners of varying ability and socioeconomic levels (Gavin, M., Casa, T., Adelson, J., Caroll, S., & Sheffield, L., 2009).

V. Access alone not the issue: poor success rates of minority and low-income students

Despite efforts to promote access to Advanced Placement to low-income and minority students, performance on the AP exams by these students has remained dismal. Seventy-two percent of African-American students scored less than a 3 on the AP exams in 2006 compared with 36% of White students in the same year. In 1997 only 64% of African Americans scored less than 3 (The College Board). While more minority students are enrolling, they are not achieving success as shown by passing the AP exams. Getting them into the courses is not enough (Lichten, 2007).

In 2013, 2, 218, 578 students took 3, 938, 100 exams. 348, 073 were White students, compared with 86,632 combined Black, Mexican American, Other Hispanic, and Puerto Rican students. This minority subgroup took 198, 873 AP exams in California in 2013, yet only 83,230 of those exams received a passing score of a 3 or better qualifying them to receive college credit. Black students have a mean score of 2.3, Mexican American students 2.43, Other Hispanic 2.39, and Puerto Rican students 2.75, all compared to White students' mean score of 3.16 (The College Board, 2013). Clearly, there exists a problem larger than simply access to AP: we must

examine how these subgroups' performance can be improved. Problems with this: low success rates, again goes back to unpreparedness, and the vicious cycle of inequity continues.

In 2003, only 12,901 low-income students scored a 3 or better on an AP exam, compared to 38, 310 in 2013. It is encouraging that this number has gone up every year, up from 34, 681 only a year before in 2012 (10th annual AP Report to the Nation, 2014). But this is still alarming knowing that in 2003, 58, 489 low-income students took AP exams and up to 275,864 in 2013. In 2013, Hispanic/Latino-35, 730 passed with a 3 or better, 2,427 Black students in California scored a 3 or better.

VI. Efforts to diversify AP courses still show little to no improvement in passage rates

Several entities recognize the problem: more minority and low-income students are taking the AP exams, but they are not passing them. Preuss College Preparatory School in San Diego Unified: requires its students, mostly minority and low-income, to take a series of AP courses. Yet Preuss has been greatly criticized for having an AP passage rate significantly lower than the district average of 45%. While Preuss has more than 90% of its students admitted to 4-year colleges and was ranked in 2007 US News & World Report as one of the nation's top ten high schools, only 26% of Preuss students pass AP exams.

While many acknowledge low-income and minority students are not having nearly the same success on AP exams as their White and Asian peers, no one is quite sure what to do about it. Several programs have started pilot programs to target these underperforming students and create resources to try and close the gap. The federal government created grants through APIP (Advanced Placement Incentive Program), to try and motivate teachers and schools to increase the participation of low-income students in AP courses. These grants provide funds for

professional development for teachers, curriculum development, books and supplies, or other AP-related activities geared at getting more underrepresented students to take AP courses. Yet again, many schools can claim they increased the number of students in AP, few however, can say the passage rates have also increased.

College Board created an initiative called EXCELerator to try and diversify the AP classroom. Five urban districts participate in Chicago, Denver, District of Colombia, Duval County and Hillsborough County, both in Florida. One group of schools began in the 2006-2007 school year, and by 2008 there were 45,000 in 27 schools participating in the program (Education Week, 2008).

EXCELerator is one of many projects taking place across the US, supported by the idea that schools need to stop supplying their rigorous courses only to the elite. In our growing globally competitive world, all students need college-level skills, even if they don't go on to college. College Board, based out of New York, uses its own money plus a grant from the Gates Foundation to support EXCELerator. Early data from this pilot group of schools shows that while the number of AP exams being taken has more than doubled in these schools, the number of exams earning a passing score of 3 or higher has not increased much.

Samuel W. Wolfson High School in Jacksonville, Florida is one of the 27 participating EXCELerator schools. Wolfson has more than tripled its AP enrollment, from 346 students in 2005-2006, to 1,156 in 2007-2008 and the number of exams taken rose from 238 AP exams in 2006 to 968 in 2007. However, consistent with the national trend we are seeing at schools across the country, as the number of students taking AP tests rises, the passage rates decline. While Wolfson had a 40% passage rate on AP exams taken in 2006, only 20% passed in 2007 when they expanded the program.

Officials at College Board cite two major explanations for the lack of passage on AP exams: the students now taking the exams have not had the same strong academic preparation leading up to AP that the traditional AP students have, and also many teachers are new to the curriculum and have not had adequate training (Education Week, 2008). Herein lies the need to address the problem earlier in the pipeline through pre-AP programs and more rigor in the earlier grades to better prepare students for AP. College Board has created SpringBoard, a pre-AP program aimed at preparing students in grades 6-8 to be ready for the rigor AP courses demand by the time they get to high school. SpringBoard lessons include a set of project- and inquiry-based English and Math courses that aim to prepare students with the skills needed for AP courses in these subjects later on.

Participating EXCELerator schools receive intensive teacher training from College Board to understand the underserved students' needs and support them as they undertake these rigorous courses. For one, the reading-skills issue is a major concern. The students EXCELerator aims to serve are generally reading below grade level, while the AP textbooks are written at a college-level. At Wolfson High mentioned above, only one in four of its sophomores are reading at grade level. While the dismal passage rates are discouraging, College Board vice president Michael N. Riley who oversees the EXCELerator program says, "The scores will get better through development of the pipeline, with more teacher training, and more support for kids" (Education Week, 2008).

On a bright note for California, Mr. Riley's promotion of time will tell has had some positive AP outcomes. While LAUSD's 40% passage rate seems depressing, California as a whole is actually ranked 8th in number of exams passed per thousand 11th and 12th graders in the nation, with large gains in both number of students taking exams and exams passed. Only 135 per thousand junior and seniors in high school passed AP exams in 1996 compared to 210 per thousand by 2008 (PPIC).

VII. AP Success Cases

College Board uses AP data to create the AP District Honor Roll, celebrating school districts for successful AP exam passage rates. In 2011, 646 Los Alamitos LAUSD students in AP courses took 1,281 AP tests, and had a passage rate of 83.4%. This district showed a continuous increase in number of students enrolled, number of exams taken, and passage rates over nearly ten years. The baseline in 2002 was 344 students who took 633 tests and had 77% passage.

In five years, LAUSD increased 30,000 AP exams taken in 2008 to 44,000 in 2013. Despite this large increase in exams, the passage rate has remained a steady district average of only 40%. There are some success cases within LAUSD serving high minority and low-income student populations, and getting students to pass AP exams. Van Nuys, Granada Hills, and North Hollywood High Schools are three examples of better than average AP programs within LAUSD.

Of the eighteen school districts in California that made the College Board National Honor Roll in AP, thirteen of these schools are in the Los Angeles area, including LAUSD the nation's largest public school district with high numbers of minority and low-income students. These schools proved they were up to the challenge and were able to increase the percentage of AP exams that received a passing score and increased number of exams taken last school year, 2012-2013. These thirteen success cases are: Torres Hun/Art Tech, Orthopedic Hospital Magnet, Mendez Learning Center Math/Science, Fremont Senior High, Cleveland Senior High, Bravo Medical Magnet, Roybal Learning Center, and Polytechnic Senior High. A future study might investigate, what are these schools and teachers doing differently that is working.

It is clear more teacher training is needed to provide underserved students with supports if they are to access the same rigorous courses their peers have been prepared for over the course of their schooling. Yet, no one has been able to describe "successful AP teaching" and what that looks like. Clearly there are lots of factors involved: school climate, parent involvement, vertical teaming, and professional development for teachers, etc. This study acknowledges that the schools experiencing success with minority and low-income may have many external factors at play, but for purposes of learning best practices of instructional strategies we will zoom in on four types of strategies teachers may use. While there may be no cookie-cutter recipe to AP success, there are research-based strategies that have shown to be effective in both traditional AP classrooms, and with minority and low-income students who struggle academically. Thus, as this study explores AP classrooms that are achieving some measure of success better than expected with non-traditional AP students, one would expect to see some common trends of effective instructional practices that lead to success where most schools are failing. These strategies can be categorized into four domains that this study seeks to view in successful AP classrooms: literacy strategies, cognitive questioning, student-centered activities, and technology use.

VIII. Effective Instructional Practices for the underrepresented population in AP

Teacher quality is the most important in-school factor affecting student achievement. Unfortunately, a November 2013 study confirms that on average, students who receive free or reduced lunch have less effective teachers (US Dept of Ed, 2013). If we could get quality teachers in the areas that need them most through training to equip them with needed strategies and tools to address the underserved population's skill gaps and better prepare them for the rigor of advanced placement courses, we would be on the right track to closing the achievement gap. There are also so many quality teachers already employing these research-based strategies in traditional classrooms, that if we could identify these educators, learn from their best practices, and apply these techniques to open-access AP classroom, there is real potential for growth.

Successful teachers use a variety of instructional strategies in response to specific student needs (Darling-Hammond, 2000). No one strategy is a magical anecdote. Yet a model that combines several research-based strategies aimed at individual students' needs could be a formula for success.

A. Literacy-specific Strategies

One major obstacle to minority and low-SES student performance on AP exams may be their reading level. Reading is a key skill in AP courses where the textbooks are written at a college-level. Yet the minority and low-income students that are being encouraged to enroll in these courses are often not even reading at grade level.

Research-based reading strategies fall into one of three categories: annotating, dialectical journaling, and summarizing (Herman, Gomez & Gomez, 2008). These are a few known literacy practices that could be applied to AP-reading skills: development of reading comprehension skills: note-taking, SQ3R, dialectical journaling, key-term sheets, reading quizzes, use of student-developed notes on daily quizzes. Because textbooks are college-level, it is essential that student's reading level be above grade level. A study during the 2008-2009 school year of reading comprehension strategies in high school science classrooms sought to explore if the three empirically-based reading strategies would help increase content area learning in science.

A "good reader" does not automatically into sophisticated literacy skills that certain content areas require, particularly in Advanced Placement courses. Explicit "disciplinary literacy" skills need to be taught (Shanahan & Shanahan, 2008). One created effort by the Social Studies Vertical Teams at College Board to address the issue of equity and access to the reading in AP History courses and widely accepted as a good strategy for document analysis is called APPARTS. This strategy is helps students develop necessary skills to more closely analyze primary source documents to use as evidence in essays as they need to do on the AP exams with Document-Based Questions (DBQs).

Another technique for document analysis developed by the project "Bringing History Home" at the University of Iowa, is called SOCC. This strategy teaches students as young as elementary to source, observe, contextualize, and corroborate.

The College Board created a pre-AP program that is being piloted in schools around the country called "SpringBoard." This program aims to begin building necessary reading skills prior to high school to better prepare students for AP classes once they reach high school. These programs take place in middle school, grade 6-8 and have specific reading strategies they emphasize, including AP strategies SIFT, SMELL, SOAPSTone, and TP-CASTT. All four of these strategies teach students how to analyze different kinds of texts: SIFT is for analyzing fictional texts by looking at style, images, figures of speech, and theme or tone; SMELL is a technique for analyzing a persuasive text or essay by examining the sender-receiver relationship, the message, the emotional and logical strategies, and the language of the text; SOAPSTone helps students analyze a text by identifying the speaker, occasion, audience, purpose, subject, and tone; and TP-CASTT is for analyzing a poetic text by identifying the title, paraphrase, connotation, attitude, shift, theme and title again.

As these SpringBoard programs are still in their pilot phase, there is little to no literature on the success of these strategies at closing the achievement gap in open-access AP classrooms for below-grade level readers. One would assume that successful AP classes would make use of these strategies, and the earlier students are exposed to strategies for analyzing different types of texts, the more success they will have in AP courses (The College Board, 2011).

B. Higher-level (Cognitive) Questioning

Critical thinking is a key college-level skill that all AP courses require. For students who likely come from classrooms where cognitive questioning was never employed and students had to memorize facts, AP teachers in open-enrolled classes have a large challenge to help students new to AP rigor to adjust to this way of thinking. On AP exams, students are asked to analyze and synthesize information. Whether it is a data-based question (DBQ) on the AP US History exam, or multiple written and spoken artifacts on an AP World Language exam. Teachers need to use strategies aimed at getting students to think this way. Research-based strategies include reciprocal teaching, meta-cognitive strategies, having a question wall in the class tied to real-world authentic problems, which overlaps with student-inquiry and problem-solving techniques in project-based learning.

C. Project-Based Learning as an AP instructional tool

The focus has moved in recent years from a direct instruction classroom to one where students are more engaged in their own learning. Student-centered models such as Socratic seminars or fishbowls where student-talk is the focus and creativity and innovation is embraced to promote student learning. Research shows learner-centered activities with a peer-collaboration focus have a great impact on student learning (Vygotsky). One would expect to see many student-centered activities taking place in high-performing classrooms. There has been much research in recent years on student inquiry-based models, incorporating real-world situations with a focus on problem-solving skills. Research shows one such effective model for AP for all is project-based learning. Studies show significant increases on AP exam passage rates for minority and low-SES students when this model is used in the AP context.

A 2008 study called "Knowledge in Action" conducted pilot programs in Washington and Iowa high schools rewriting the curriculum for two Advanced-Placement courses around the research-based method of project-based learning. Studies show that when project-based learning in used to teach AP courses, diverse students are more engaged and show significant academic gains compared to students in traditional AP classrooms (GLEF, 2008). Not only did 80% of students in this study say they prefer the PBL method of learning, but the data showed a 30% AP exam passage rate increase for higher-achieving students compared to their peers in traditional AP classes in other schools within the district. With its emphasis on deepening critical thinking, and use of creative thinking through problem solving in real-life scenarios, research shows that PBL can significantly improve outcomes for student populations who usually do not perform well in traditional classrooms. In the aforementioned study, there was a 10% passage rate increase for high-poverty students in PBL classes compared to their peers in traditional classrooms.

D. Use of technology and digital tools in the AP classroom

When used to enhance student learning, the potential of technology and digital tools in the AP classroom is limitless. Teachers use technology both in the AP classroom, and to provide supplemental resources to students through creation of their own websites such as Wikispaces or Edmodo. These tools multiple the access students have to resources to help prepare them for the AP exam. Technology may also be an important key to help minority and low-income students succeed in AP courses as the material can be differentiated to meet their needs. Programs such as Achieve3000 actually measure and track a student's reading level, and delivers content in a format they can access and pushes students to increase their lexile to close the literacy gap for students who enter far below grade level in reading.

A 2012 study of 2,462 U.S. middle and high school teachers, the majority of which were AP teachers, conducted a survey and focus group sessions to determine technology use and the incorporation of digital tools in the classroom. 92% of teachers said that the Internet has a "major impact" on their ability to access content, resources, and materials for their teaching (Purcell, Heaps, Buchanan & Friedrich, 2013). Mobile technology such as cell phones, E-readers, and tablets are being used as educational devices in and outside of the classroom. 73% of teachers surveyed said that students in their classes use mobile devices in the classroom or to complete assignments. 79% of teachers said they regularly have students access assignments online, and 76% have students submit assignments online. More interactive online learning activities, such as developing wikis, engaging in online discussions, and editing work using collaborative platforms such as GoogleDocs, are used by the teachers in the study to enhance learning both during instructional time and from home. 62% of teachers said their schools do a good job of supporting teachers' use of digital tools in the classroom, 68% said their schools provided training in the use of these tools, yet 85% of teachers said they still seek out additional ways to effectively incorporate these tools into their teaching. It comes as no surprise that there is a disparity among available technologies at schools from differing socio-economic backgrounds. 54% of teachers surveyed said that their students have adequate access to technology while at school, but only 18% said their students had sufficient access at home.

Another study by CompTIA found that 78% of high school teachers and administrators believe technology has positively impacted the classroom and student productivity (US

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News.com, 2011). While there is little data indicating that technology use has an impact on test scores, we see gains in student enthusiasm, attendance, and engagement. Grants to supply iPads to students have been issued to large school districts such as Chicago Public Schools and Los Angeles Unified School District. "If you have the teachers who are motivated and know how to use a tool, we've seen some good results" said Talha Basit, client computer service manager at Chicago Public Schools (Lytle, 2011). In his article, Using Technology in the Classroom, Arnold Pulga (2012) states that technology in AP classrooms increases student achievement. Brenda Dyck, a technology integration coach in Alberta Canada agrees, "Technology is especially effective for facilitating the development of critical thinking skills in students. Technology helps move students from restating information to creating new information; facilitating innovative thinking in students. That is why the use of technology is especially useful in AP classes, in which teachers should be taking students beyond the regular curriculum" (Education World, 2012). Tools such as Socrative and Poll Everywhere allow a teacher to get data in real-time on student learning and display it as a learning tool. The concept of "Bring Your Own Device" in many schools is creating a shift from the traditional message of hiding cell phones during class, and instead employing them as learning tools. In Ramsey Musallam's AP class at Sacred Heart Cathedral Preparatory in San Francisco, cell phones are a natural extension of the way he communicates with his students (Barseghian, 2012). When students enter his AP Chemistry class, students receive a focus question sent directly to their mobile devices via a text blast to begin the day's lesson. There are incentives for the first correct answers, therefore providing motivation for students to get to class on time and participate.

One major restructuring of the classroom using technology that is gaining popularity in many classrooms, including AP classrooms is the flipped classroom model. In this model,
teachers record video lectures that students can access from home to learn at their own pace, and classroom time is reserved for work on homework after students have already pre-viewed that weeks lectures.

IX. Benefits of a Professional Learning Community

Can the best practices of successful AP teachers combined with research-based strategies for supporting the learning of low-income and minority students in the urban classroom be brought to a professional learning community (PLC) of AP teachers, discussed, implemented and analyzed to improve student outcomes on AP exams? PLCs have become such a buzzword in the 21st century that researchers fear it has lost all meaning. It seems nearly any group can be deemed a PLC. Yet as DuFour asserts, "the very essence of a PLC is a focus on and a commitment to the learning of each student" (DuFour, DuFour, Eaker & Many, 2010). This resonates with the College Board's philosophy (2009) that every high school student should have the option to take rigorous AP courses to prepare them for, and perhaps allow them to earn credit for college. For this study, the researcher defines a PLC is a group of educators who come together to investigate a problem and possible solutions towards a common goal.

Though studies on the impact of PLCs on student achievement are still in their infancy, the results are impressive. When there is collective efficacy, ownership and commitment from the participant members of the community, there is a positive impact on student achievement that exceeds the effects of other factors such as race, or socioeconomic status (Goddard & Goddard, 2001; Goddard, Hoy et al., 2000).

Qualitative studies on how teachers discuss pedagogy, data, and strategies have demonstrated how such a community of practitioners can improve student outcomes (Berry, Johnson & Montgomery, 2005; Hollins, McIntyre, DeBose, Hollins & Towner, 2004; Straham, 2003). "Effectively responding to students who experience difficulty in their learning requires a systematic process of intervention—a collective response—rather than relying on the actions of individual teachers" (DuFour, DuFour, Eaker & Many, 2010, p.97).

X. Conclusion: Collective Teacher Efficacy is Key

The goal of this study is to identify instructional practices shown to have success with historically underserved populations of students and leverage teacher collaboration through formation of a professional learning community of AP teachers across content areas within one site to focus on improving student achievement in an underperforming AP program. There is little to no literature on successful practices in open-access AP classrooms. There also exists a gap in the literature between how research shows minority and low-income students learn and the training that AP teachers receive. Much could be learned from a qualitative study which looks for commonalities and trends about instructional practices of AP teachers such as this study seeks to explore.

The hypothesis is that forming a Professional Learning Community of AP teachers at a site to discuss and implement research-based instructional practices known to be effective with low-income students in certain ways in the AP context will lead to improvements in student success. Current AP training institutes and workshops cater to teachers in two categories: experienced and inexperienced, rather than based on the population of students they serve who likely have different needs. If common trends in instructional practices, particularly in the hypothesized areas of literacy strategies, cognitive questioning, student-centered activities, and technology use occur among a group of identified successful teachers of this population, recommendations for training of AP teachers in open-access urban schools could be made.

CHAPTER 3

PROBLEM AND DESCRIPTION OF THE PROJECT

Goals and Conceptual Framework

Students, especially minority and low-income students, are entering college ill prepared. High schools attempt to prepare students for the rigor of college-level work by offering advanced classes (AP classes) while students are in high school for which they can receive college credit, or at the very least, will help expose them to college-level work while in high school. However, these courses are not representative of the nation's student demographics. White and Asian students are highly overrepresented in these advanced courses. To remedy this, the College Board began a national campaign to de-track these advanced placement courses to encourage traditionally underrepresented student subpopulations, especially diverse ethnic groups, to take these rigorous courses. Schools receive incentives from the government for achieving diversity in their AP classes. Despite opening access to rigorous courses for underrepresented students, these students are not experiencing success as seen by non-passage of the exams.

This project examined the effects of creating a PLC of AP teachers at a high-performing school with low AP exam passage rates and looked for trends in instructional practices in four main categories: literacy strategies, cognitive questioning, student-centered learning, and use of technology or digital tools in the classroom.

Research Questions

- 1. According to teachers, what are the major barriers to preparing low-income and minority students to pass Advanced Placement exams?
- 2. What changes to the current AP program do teachers recommend to address these barriers?

- 3. To what extent do teachers use instructional strategies shown to be effective with low-income and minority students as interventions in the AP classroom?
- 4. What are the perceived benefits of forming a Professional Learning Community of AP teachers?

Research Design

A qualitative research design fit the goals of this study, as I was interested in underlying reasons for the decisions AP teachers make about instructional strategies. For my study, I as the researcher, functioning as the key instrument, planned to investigate in a natural setting, at the site of the problem: the AP classroom. To answer my research questions, I wanted to speak directly to the authorities themselves, the AP teachers, in order to collect my data. I examined documents, observed behavior and interviewed participants, all key components of a qualitative study. Using these multiple sources of data, I paid close attention to patterns and kept the focus on the participant reflective process through which the teachers were learning about their own use of instructional strategies and decision-making (Creswell, 2013).

A qualitative approach was also appropriate since the goals of the study were to investigate common trends of teacher practices of effective AP teachers. My research questions were open-ended and seek to gather information from the participants identified as "successful AP teachers" in order to understand more about the decisions they made in the classroom and the rationale behind utilizing certain instructional strategies at different times. In this study, I wanted to investigate this teacher-decision making practice and probe why teachers did what they did during this process. The key idea was to learn from the participants and address the research to obtain more information on the problem researched (Creswell, p.186). A qualitative study using interviews, extensive observations, and teacher reporting during a designated period of time via documents, check-ins, allowed teachers to describe the strategies they used that they believe to be effective at getting students to pass the AP exams, allowed observations and interviews to triangulate the data to confirm the use of these instructional practices in the AP classroom, and allowed the researcher to probe the participants in interviews on the use of the four research-based instructional strategies.

The various instructional practices could not be accurately described through quantitative methods because I was not interested in numbers of strategies used, nor how frequently, as could be determined in a quantitative study. Rather, I explored the teacher thought processes themselves that occur within certain contexts. Observations and interviews helped me answer my research questions. A key component was also the participants' reflection on the forming of a PLC to improve student outcomes on the AP exams, as well as a follow-up questionnaire on the PLC formation itself, as a learning process.

Site Selection

One school site within LAUSD, including affiliated charter schools, was selected from the pool of successful school sites that met the criteria of serving a high population of minority and low-income students, but who struggled with an AP exam passage rate well below the district average of 40%. Site access was gained with the site principal's approval, as the researcher was a teacher in a non-supervisory role at the school site. The teachers participated on a voluntary basis but with a clear agreement from the school that granted me access to these willing teachers to conduct classroom observations and facilitate Professional Learning Community meetings.

Why the school site meets the criteria

Because I wanted to look at public urban school settings with high minority populations, LAUSD, the second-largest public school district in the United States with a large minority and low-SES student population was an optimal choice. Also, because AP passage rates have remained low at only 40%, this made it difficult to study successful teachers, let alone whole sites, with successful passage rates. I wanted to work with a site that has not been having successful outcomes for students on the AP exams despite being considered a high-performing school. The selected school had AP passage rates well below the district average of 40% yet have a common goal of improving the AP program as a whole.

I shared the findings of my study with the site principal, who immediately used the data to inform site changes to improve the AP program. The PLC meetings continued after my project ended and I left the school, and teachers remained largely involved over the summer to facilitate the changes suggested in the study. I plan to also share these findings with the College Board in the hopes of creating workshops specially designed for open-access teachers of AP in urban schools to improve student outcomes on the AP exams district-wide.

Participants

I ensured participant confidentiality by holding observations, PLC meetings, and interviews at the school site.

Interviews and observation notes were all transcribed protecting each teacher's anonymity, and all audio and transcription files were saved on my password-protected computer. Any file that contained actual names of participants was password-protected and destroyed as soon as all interviews were transcribed. I made all participants aware of the process to be followed to ensure confidentiality. Participants in the PLC received a stipend of \$200 from the researcher as compensation for the additional time and work required in this study outside of work hours. Most sessions were held during the lunch hour and the participants were provided with lunch by the researcher. A consent form agreeing to participate was signed by each individual guaranteeing their involvement for the duration of the study (February-May 2015) in all sessions due to the small participant pool, it is important all members attend all sessions. This form also assured them that this study had no bearing on their employment and was merely for research purposes into how teacher collaboration can improve student achievement.

Data Collection Methods

Because I was particularly interested in teacher decision-making, I used questionnaires, reflection forms, and interviews to discover what teachers said were their most effective strategies (research question 1), what both the teachers and the researcher believed were the benefits of forming a PLC of AP teachers within a site (research question 2), what impact the PLC had on student achievement in AP (research question 3), and how this might be replicated at other sites if successful (research question 4).

I used interviews because I wanted to know what teachers said were their most effective strategies and what they believed were obstacles to getting students to pass the AP exams. Probing questions explored their specific teaching strategies and beliefs about their students. I wanted to know about the decision-making processes teachers go through when planning lessons and units, and why they choose to use certain instructional practices at particular times and for what aim. I investigated the use and frequency of literacy strategies, cognitive questioning, student-centered activities, and use of technology in the classroom. Understanding the reflective process teachers undergo when making instructional choices required interviews to probe into teachers thought processes. It is the teachers who best know the instructional strategies they choose and the rationale behind it. Also, because my ability to observe was limited due to my position as a full-time classroom teacher, interviews were necessary to elicit more information on the instructional practices teachers use throughout the year.

Teachers in the site being studied completed a questionnaire (Appendix A) to self-report their use of the four instructional practices I looked for, why they chose to use them and in what context, and how frequently they used them over the course of a designated period of time. This was necessary to gage how often the teachers use these strategies because observations were not conducted. They were also asked how important they view these strategies in their AP classrooms, and any obstacles they believe impeded successful use of these research-based strategies.

I observed each PLC session as a facilitator, taking detailed field notes during the meetings in addition to recording for playback in the future. I listened for such evidence as literacy strategies, cognitive questioning, student-centered learning, and technology use to document the strategies teachers used, how they used them, and in what contexts of the classroom they were used.

Data Analysis Methods

I used the data collected from a questionnaire (Appendix A), interviews (Appendix B), PLC sessions (Appendix C), participant reflection forms (Appendix D), and a follow-up questionnaire (Appendix E) to look for indicators of research-based instructional practices as well as observed and reported benefits of teacher collaboration through the formation of a Professional Learning Community of AP teachers.

1. AP Teacher Questionnaire

In order to assess the current situation of the AP program at the school site, a questionnaire on use and importance of instructional activities in the open-access AP classroom was given to the group of AP teachers prior to the study to collect pre-intervention data. While the survey was anonymous, it did ask for content area and average yearly passage rate by students on the AP exam. This allowed the researcher to gather data on instructional practices being used by both high and low-performing AP classrooms, and see what alignment, if any, existed with research-based instructional strategies known to be effective with this population of students as well as assess the teachers' knowledge and attitudes toward these strategies prior to entering into the PLC.

2. Interviews (Teachers)-RQ 1, 2, & 4

Transcribed audio recordings of the participant interviews (Appendix B) were examined for trends and commonalities about effective teaching practices. I investigated teachers' thought processes during the lesson-planning phase, and why they chose certain strategies to use at various points in instruction. I cross-referenced these strategies with what the literature says are effective instructional strategies for working with this population of students.

3. Professional learning community sessions (RQ 2, 3, 4)

With the chosen group of AP teachers at the school site, I held six 45-minute sessions to discuss best practices and intervention strategies around student learning in the open-access AP classroom (Appendix C). The primary focus was how to best support all learners to reach the high academic expectations set by the rigorous AP courses. This PLC was a results-oriented community of practice that discussed and implemented shared practices aimed at raising student achievement on the AP exams. In an effort to do this, the researcher acted as facilitator to raise

Collective Teacher Efficacy (CTE) to empower the individuals to work as a team towards this common goal.

4. Participant Reflection forms

After each PLC session, participants filled out a reflection form (Appendix D) with their takeaways from that session as well as what they wanted to discuss in the next session that was not addressed.

As part of this reflective process, participants were asked to assess themselves and the team on the progress continuum.

Role Management

A key part of the researcher's role as facilitator of the PLC sessions was to promote teacher leadership and ownership over the school reform initiatives. The facilitator had clear objectives, norms, and expectations that the group members committed to, but allowed for some flexibility based on participant feedback as the process was just as important in the learning community as the end result.

Credibility and Transferability

Triangulating the data of what teacher say are their most effective strategies in interviews with observations of their classroom practices added validity to this study.

A threat to the credibility of my study was the fact that my findings may be more applicable to certain AP content subjects, and difficult to generalize for all AP teachers in urban schools. I also intentionally did not include AP Spanish as many urban schools in Los Angeles have high populations of Spanish-speakers, and therefore results on this AP exam are very high. This is not to say that including AP Spanish teachers in professional learning communities of AP teachers in future studies would not provide possible benefits. Due to overall low passage rates on AP exams in urban schools in Los Angeles, the applicant pool of teachers who fit the criteria I was looking for to answer the survey on instructional practices in high-performing AP classrooms was small. As a result, this piece was eliminated from the project design. This further limited my ability to find commonalities of instructional practices among a group of teachers and generalize for a larger population of AP teachers in open-access contexts. Furthermore, my time constraints as a full-time classroom teacher limited my abilities to do observations of each teacher, so this aspect of the method design was eliminated as well, and would be an interesting part of a future study.

Another possible threat to internal validity was regression. Participants with high AP class averages were chosen as case studies, and naturally, these extremes may change year to year and regress towards the mean (Creswell, p.174). I chose the participants based on their scores from 2013-2014 school year, but worked with them during the 2014-2015 school year in preparation for the 2015 AP exam, and data on teacher performance was not available until after the conclusion of this study.

Ethical Issues

There is always a concern of selection bias, particularly when handpicking participants from among a small pool of applicants. The demographic survey allowed me to carefully determine whether the sample of AP teachers represented the diverse range of experience and backgrounds of AP teachers.

Certain issues such as the ability to keep anonymity and confidentiality of the sites and teacher participants raised some ethical concerns. Access to the data alone, even if the districts or schools were eager participants, posed an issue since I was looking to work with teachers that fit certain criteria. The participants' anonymity needed to be protected so they could assuredly speak freely in the interviews. When reporting teacher concerns and needs to the administration, individual teachers were not identified. The principal was be present at the first PLC session to show her support behind the project, but did not attend future meetings to prevent inhibiting the teachers' efficacy as a team invested in teacher-led reform initiatives.

Summary

While a very small number of studies exist examining AP classrooms and teaching practices, no qualitative studies researching open-access urban AP classrooms existed prior to this study. Since this is a relatively new phenomenon (2009), it is a fairly new field that little is known about. I believe this study revealed some best practices to share with other practitioners and inspire future research.

After I collected and analyzed the data, I shared the findings with the school so that they could have a better idea of what is working and not working in their AP classrooms, demonstrate how formation of a PLC of AP teachers may address these issues and allow teachers to learn from one another, and design site-specific professional development to improve AP outcomes school-wide. Additionally, I hope to use my findings to encourage the College Board to develop workshops for AP training of teachers who serve traditionally underrepresented student populations in urban schools as well as within school site PLCs to bring AP teachers together to work towards improving student learning. These findings provide insight on effective implementation of instructional strategies for use in the open-access AP classroom to improve student outcomes.

CHAPTER 4

FINDINGS

Introduction

This study investigated the effects of forming a Professional Learning Community (PLC) of Advanced Placement teachers (that I refer to as "AP") at one under-performing high school. It examined what teachers report as instructional strategies that help low-income and minority students pass the AP exams, and what obstacles the teachers face with this population. I wanted to determine what could be done to improve the student outcomes in AP in open-enrollment courses where all students have the opportunity to elect to take AP courses, regardless of ability.

One effective strategy appears to be using a Professional Learning Community of teachers to improve instructional practice (Dufour, 2005). Creating a space where teachers can share ideas, especially at the high-school level where teachers often feel isolated, can have positive outcomes for both students and teachers. Through qualitative data from a questionnaire, field notes, observations, transcriptions of six PLC-sessions, and one-on-one interviews with eight participants, this investigation sought to answer the following research questions:

1. According to teachers, what are the major barriers to preparing low-income and minority students to pass Advanced Placement exams?

2. What changes to the current AP program do teachers recommend to address these barriers?

3. To what extent do teachers use instructional strategies shown to be effective with lowincome and minority students as interventions in the AP classroom?

4. What are the perceived benefits of forming a Professional Learning Community of AP teachers?

The findings from this study are presented in four sections of this chapter. In the first section, teachers report what they believe to be the major barriers to preparing more students to pass the AP exams: limited English and low literacy rates. The second section addresses what teacher-recommended changes to the AP program are needed to address these barriers. In the third section, I discuss the extent to which teachers use research-based strategies that are shown to be effective with populations of low-income and minority students in the AP classroom. Finally, section four includes what teachers reported as benefits to forming a Professional Learning Community.

Demographic Analysis

I chose an urban public charter high school, California Scholar Charter School (pseudonym, that I refer to as CSCS), serving approximately 97% low-income and minority students (see Table 1 below) in a large U.S. urban city.

Table 1: CSCS Percentage of Low-income and Minority Students

According to SARC (School Accountability Report Card), CA Department of Education,

2013.

Group	Percent of Total Enrollment
Black or African American	0.0
American Indian or Alaska Native	0.0
Asian	0.6
Filipino	1.4
Hispanic or Latino	97.5
Native Hawaiian or Pacific Islander	0.0
White	0.0
Two or More Races	0.3
Socioeconomically Disadvantaged	96.6
English Learners	10.4
Students with Disabilities	10.6

Student Enrollment by Student Group (School Year 2013-14)

The school has received several awards and recognitions, including ranking on the 2013 USC Center on Educational Governance's top 10 charter high schools in California report, receiving the US News Top High Schools-Gold Award, and maintaining an API (Annual Performance Index used to rank schools on various points) score over 800.

Despite these achievements, only a small number of students pass the AP exams each

year (Table 2).

Content	Students tested in 2014	Students passed in 2014	% passed in 2014	Students tested in 2015	Students passed in 2015	% passed in 2015
AP Eng Lang	28	4	14%	32	2	6.25%
AP Eng Lit	17	0	0%	23	5	21.74%
AP Calc/AP	47/30	0	0%	32/30	1/0	3.13%/0%
Stats						
AP Bio	27	2	7.4%	30	2	6.67%
AP Chem	18	0	0%	17	0	0%
AP Env	61	5	8.2%	61	1	1.64%
AP	25/26	3/6	12%/23%	32/21	3/3	9.38%/14.29%
World/AP						
US						
AP Gov	32	0	0%	27	0	0%

Table 2: 2014 vs. 2015 Comparison of AP Exam Passage

*15 out of 16 students passed the AP Spanish Language Exam with a 3 or higher

Of the 21 teachers at CSCS, 11 teach at least one AP course, and eight of them participated in this study. Teachers of AP Spanish Language, AP Art Studio and AP Art 2 were excluded due to native language or art exams with portfolio submissions. The scores for AP Spanish are extremely high since the school is 97% Hispanic and Latino and fluent Spanish speakers. AP Art classes require a portfolio as the AP exam so the researcher believed that the instructional strategies being investigated were not applicable to these courses. The demographics of the eight teacher participants are shown in Table 3 below. They ranged in age from 29 to 52, and they had from two to ten years of teaching experience. Most teachers were teaching Advanced Placement for the second year, and no one had taught AP for more than five years.

Participant	Age	Gender	Years teaching	Years teaching AP
Teacher A	37	М	10	2
Teacher B	30	F	5	2
Teacher C	29	М	7	2
Teacher D	34	М	8	2
Teacher E	30	F	2	2
Teacher F	52	М	6	5
Teacher G	35	М	5	4
Teacher H	30	М	2	2

Table 3: Demographics of the 8 Teacher Participants

As a part of this Advanced Placement Professional Learning Community (APPLC), the teachers met with me once a week for six weeks to discuss best practices and obstacles in preparing their students to pass the AP exams. The teachers gave recommendations to improve the overall AP program to get better student outcomes. A questionnaire gathered data on teachers' prior knowledge and attitudes toward the research-based strategies known to be effective with urban students such as those at CSCS. I also observed six 45-minute PLC sessions after which I reviewed the teachers' notes and their answers to questions I posed at the end of each session. The information I gathered from these documents, as well as the notes of my observations and a final one-on-one interview, provided the data reported below.

Discussion of Findings

Barriers to Higher Passage Rates

According to teachers, there are two main barriers keeping low-income and minority students from obtaining higher passage rates on the AP exams: 1) limited English language and 2) low literacy rates.

1) Limited English. Many of the students at this school typically speak Spanish at home and have little knowledge of English. Not surprisingly when they start school, usually around age six, their limited knowledge of English causes these students to lag behind their Englishspeaking peers. Relying solely on schools to provide language remediation, without support from the home environment, is not enough to help them reach the necessary level of language proficiency.

Another reason that non-English speaking students are disadvantaged from the start, when compared with native English speakers, is that non-native English speakers have a limited vocabulary. Vocabulary in AP courses is at an advanced level that is difficult for English learners. One teacher, Mr. F explained:

The text reading assignments...they [use] certain very specific vocabulary that our kids just do not possess, they're not there, and unfortunately...the amount of content in an AP class is such that having to address every single one of the things just leaves you with no time. Either I teach AP or I teach vocab.

Vocabulary acquisition is a crucial piece in teaching Advanced Placement, yet teachers of students with limited English end up teaching vocabulary that students are expected to already know. Teacher F felt that there was not enough time to teach all the vocabulary his students' required and cover all the AP required content. Another teacher supported teacher F saying, "They don't have enough exposure to people that talk and speak that way." What this teacher is saying is that children model the speech they hear, and more affluent, non-minority families tend to be more highly educated and use more sophisticated language around their children.

There is also an inherent cultural bias that exists in the language used on AP exams. For example, in one PLC session, teacher C recalled a problem on an AP test from the year before which included the term "plow." The problem required students to read a chart on agricultural machinery use, and although they did not need to know what a "plow" was, not knowing this word confused many of the students and prohibited them from being able to read the graph and solve the problem. Teacher E mentioned something similar from a science AP exam that included the term "caribou." Once again, understanding the term was not an obstacle to solving the problem, but with students who already have low self-efficacy in English language skills, unknown words hinder their confidence even more. Vocabulary is a challenge to teach in any AP content, and when students enter with limited vocabulary they are also likely reading below grade level.

2) Low Literacy Rates. Language and literacy are inevitably linked, and in the case of students at CSCS, both are obstacles when it comes to passing AP exams. While many secondary students struggle with comprehension of text, Advanced Placement courses with vast amounts of content covered in a limited amount of time often with college-level readings are particularly burdensome to urban students reading below grade level. One teacher explained how students fall behind:

I think they're not passing for two reasons. One is just their overall skills, in terms of literacy and vocabulary, I think it's a bigger issue than just [school site], I think it's an issue that starts earlier, middle school, elementary. They're being passed on, they're moving up to higher-grade levels and they don't have the skills.

This teacher is referring to a larger systemic problem of passing students onto the next grade without the necessary skills. Research shows that holding students back to repeat a grade is not always the best method of remediation, yet not addressing gaps in crucial skills leaves many high school students far behind their peers. Most if not all, lack the reading and studying skills to access the dense AP text. Ms. E added why it is especially difficult for AP teachers to try and address the literacy gap:

I think it's hard in an AP class to try to address literacy issues because most of the time you're trying to spend reviewing content, and the more time you spend on test-taking skills, and literacy skills, and vocab, and critical reasoning, the less time you have for AP content in general.

CSCS students, similar to many other urban high schools, face obstacles on a daily basis that make succeeding in AP difficult. Mr. G reported, "Most students do not have quiet places at home to study. As a whole, the school has not created an AP culture based on resilience or reading expectations." The teacher is referring to the school's different system of grading, Mastery-Based Grading, which does not lend itself to incentivize the type of rigor necessary to work through the hours of interpreting vast amounts of information and data. Students have unlimited chances to retest to demonstrate mastery, so many teachers feel there is a lack of urgency around work completion.

One hundred percent of the teachers in the PLC said the number one strategy they wanted more training on was reading and literacy strategies in the AP classroom. Despite this, the teachers did have many strategies they already use in order to close the literacy gap for these students to access the AP content. Three teachers mentioned the importance of reading guides and guiding questions to help students better focus their attention and comprehend the reading. Mr. G mentioned a reading strategy that he uses in his class, Students are taught different modes of annotation in order to break down dense paragraphs. Students are taught how to use guiding questions/timelines/primary documents/and headers to make sense of the structure of the chapters.

For AP teachers who had textbooks, several mentioned how they scaffold the material to or supplement the readings to make it more comprehensible for lower-level readers. Some are fortunate enough to have the high school level text as well as the college-level AP text that covers the same content. That way, teachers like Mr. G can best serve the students' individual needs to access the reading:

Every student should have the option of whether they can read the college-level text or they can opt for the high school text. However, the high school text should be offset by a more rigorous writing task and vocabulary piece to assess understanding. This should be done throughout semester 1 but not in semester 2. This will deter the stronger readers from opting out while simultaneously transition the lower-level readers into reading rigor expected of all AP students.

Needed Changes to the AP program at CSCS According to Teachers

Teachers had many suggestions for what needed to change at CSCS in order to address the barriers described in the first section, but six out of eight teachers said they felt they did not have any opportunities to share suggestions.

Creating an environment where teachers feel safe to discuss instructional practices and ideas for change is a primary function of a professional learning community. Through the formation of the PLC of AP teachers, there were three major recommendations teachers had to improve the AP program at CSCS: 1) Administration should include more teacher input in decision-making, 2) An "AP culture" must be built with clear expectations and buy-in from all stakeholders, and 3) Teachers want more meaningful and ongoing professional development in teaching AP to diverse learners.

Ask for Teacher Input. A major trend throughout the PLC sessions, interview

transcripts, and questionnaire data was the demand for more teacher-input in administrative

decision-making regarding AP. As one teacher described,

Administration "went in overzealously wanting to plan an AP program so that we'd have an AP program, but now we have a mediocre AP program because they didn't really take suggestions from teachers, which I think is a mistake.

AP teachers are the ones in the classrooms every day but are often not involved in decisions made that affect their students. A second teacher echoed this concern to be heard and be a part of the conversation,

> Letting us be included in the conversations and not just being told to do something when they [admin] don't even come to watch us teach these things and don't really know.

Not being involved in decision-making creates trust issues between administrators and teachers.

Teachers need to feel they have a voice and that their input matters. A third teacher further

explained feeling unable to make suggestions,

When admin wants to talk about things, as if it's a discussion, when it's really not a discussion. It's more 'let's talk about this and make sure the staff is okay with it' rather than 'what do the staff really want to change and how can we help them?' I think that if we were given the opportunity to suggest things that would actually be taken seriously, I think the teachers would be able to design a better AP program than the admin or the school has.

Teachers suggested several changes they would address immediately to improve the AP

program. In terms of logistics, class size should not be over 20 students according to four AP teachers, and another three teachers said classes should not be larger than 28 students. In terms of resources, every student needs access to a book at home, thus a class set is not sufficient. If students do not have a book to take home, they cannot complete required readings outside of

class. The teachers also had suggestions for better placement of students in suitable AP classes using data-driven selection criteria and a solution to some of the competition for AP courses with the concept of 2-year content tracks (both described in detail in chapter 5).

Building an "AP Culture." To address the misalignment of student and teacher expectations of AP, an "AP Culture" must be created with buy-in from all stakeholders. Administrators support teachers by providing resources and training, teachers support one another by having consistent expectations for students, and students understand and commit to the demands of an AP course.

An unexpected suggestion that was brought up by two of the eight teachers was the need to solicit parent involvement as a main component setting consistent expectations. One teacher explained that helping parents feel invested in their child's education requires showing them ways they can be hands-on. A second teacher mentioned how he has a meeting with all AP parents once a semester to communicate transparent expectations as well as ways to support their student at home. For example, ensuring the student has a quiet place to read, giving an approximate amount of time he/she should be spending per night for AP homework or reading, quizzing the student on AP vocabulary flashcards, and more. Teachers believe that transparency among all stakeholders about the expectations of AP will have a positive impact on student achievement.

The teachers acknowledged that shifting the school culture would take time. There are also perceived threats to successfully shifting the culture. Even at a small school such as California Scholar Charter School, teachers feared a lack of a united front from the teachers would ruin any chances of shifting the culture:

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I've heard comments [from teachers] that, 'these kids aren't going to pass anyway.' That's really hard when you are trying to put so much into building an AP culture and then there's teachers who don't do that.

Ongoing Professional Development. Whether in the form regular PLC meetings, summer institutes or AP trainings, or organized observations of successful AP teachers, the teachers at CSCS want more professional development. Attending one training a year is simply not enough according to five out of eight teachers. Mr. H elaborates on why teachers continue to need professional development:

We tend to grow in isolation...there should be some sort of outreach...in which they facilitate some sort of exchange of ideas and collaboration across other campuses.

Two teachers described inadequate experiences visiting other AP classrooms, "Her class consisted of eleven students that had to qualify for it. It was incredibly unrealistic and not even remotely comparable to what I was doing," and "At the AP institute the guy who was teaching us, ...he teaches up in Silicon Valley...so it's very hard to relate to that teaching wise. It would be nice to see a teacher who has a similar population and can get good results. That would be really helpful."

Eight out of eight teachers in the study valued the PLC sessions with their colleagues onsite and also mentioned wanting more content-alike opportunities for professional development with other AP teachers in their subject area. Teacher D shared his vision for professional development,

I think at least once a month, if not twice a month...Not just to meet with AP teachers from [school site], at the school, but also to meet just for my own professional development for [content area]. I could see two professional developments a month, one with just [content] teachers, and then one with everyone on-site, so we could try to develop the culture and consistency throughout our own AP program.

Teachers want to meet regularly to share strategies, gather new resources, and see successful AP teaching. Mr. F expressed what all eight teachers brought up as a suggestion in the final PLC session, "If I could go to more professional developments and have the opportunity to observe other AP teachers in other high schools that would be great." Ms. B agreed with Mr. F, "To be in successful teachers' classrooms would be great." Another teacher even suggested the benefits if students could go visit successful AP classrooms,

Maybe just doing a field trip to a different school and plugging the kids into it like this is what an AP class looks like...just being exposed to that in a different environment that I feel I can't provide here because everyone is on the same level.

Successful Strategies in AP for all learners

Reading and Literacy Strategies that Help AP Teachers face the same challenges with student literacy but to an elevated degree. Several research-based strategies have proven effective with struggling readers, and this study investigated the application of these literacy strategies in the AP context. When asked what makes the difference with students who do pass the exams, Ms. E said,

I don't think that students that pass [the AP exam] are free from literacy challenges. I think that they're motivated to try despite those challenges. If a student's willing to put in the work to get around the literacy issues, there's plenty of resources out there that make the content available that have easier vocabulary. One such resource not mentioned in the literature on how to supplement reading

instruction was the use of videos. Three of the eight AP teachers at CSCS mentioned using videos on a regular basis in conjunction with difficult reading from the text or to introduce complex concepts. Teachers use virtual labs via YouTube or LabBench, particularly in Math and Science, to engage visual learners, help struggling students or those who were absent, and compensate for a lack of lab equipment.

The humanities classes, English and History, make use of guided group practice to model close reading strategies. Two teachers mentioned how beneficial it is to have students complete tasks in pairs or groups of three, before being asked to do an AP-level task independently. This has proven to help students build confidence and self-efficacy to tackle the tasks on their own prior to the AP exam.

Importance of Cognitive Questioning. The team of eight teachers felt particularly confident in questioning techniques. When ranking which of the four domains of research-based strategies they thought they needed the most support with, all eight teachers ranked this category as third or fourth. The teachers understood the urgency for better questioning techniques and expressed how the new Common Core exams are more aligned to the AP exams in the level of thinking and analysis they require. On a reflection form, teachers were asked about the purpose of questioning in the AP classroom. Seven of the eight teachers listed "to develop critical thinking skills," "to nurture insights," and "to stimulate independent learning" in the top three most important purposes. Least important reasons for questioning students included "to evaluate students' preparation," "to review previous lessons," or "to check completion of work."

All eight teachers were able to cite examples of meta-cognition as part of their regular AP class activities: Science labs, free-response questions (called FRQs), and many other opportunities for students to reflect, discuss, synthesize, justify, and simply "go deeper" than the textbook. The majority of teachers, math and science included, required students to show thought processes by explaining how they got certain answers, justify their rationale, and really focus on the process, not just the product. Overall, the team of teachers believed while there is always more work to be done, of the four domains of strategies, this is one area they are confident they

are using well to prepare students for the level of work and autonomous learning expected of them in college.

Student-centered Learning Activities that Add, not Detract from the Curriculum.

Teachers use student-centered activities such as Socratic seminars, fish bowls, inquiry-based learning, and group-guided practice to shift accountability and ownership onto the student, while also encouraging collaboration. Teachers have had success creating student study groups and guided practice such as group essays, but avoid lengthy projects they believe take too much time away from the curriculum.

Research on Project-Based Learning claims to make the curriculum more engaging for low-income and minority urban students, but this study showed that many AP teachers avoid projects like this due to time constraints with so much content to cover in a short amount of time. Mr. G reported, "The problem with doing projects is that they take so much time. They [the students] get so little out of it as far as the amount that they have to cover."

Ms. B explained a failed attempt at an innovative project in her class. Rather than analyzing a poem in the traditional sense, she had the students interpret by acting out the poem. She explained, "[The students] had to perform the poem in some way. It was funny to have someone be a tree, but it wasn't building the analytical skills that they needed to access the test." The already packed AP curriculum does not leave much room for projects. Teachers feel that unless there is an overlap with material they need to cover already, and extreme value in the learning experiences of the project, they are not worth the time they take to complete. Mr. D further explained:

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Labs are a form of project-based learning. I think that they're helpful. I just think that, with the amount of content that we have to cover, sometimes they can be a waste of time.

Can virtual labs replace in-class labs? All Science teachers on the team said "no" that they weren't necessary. Teacher D elaborated, "They can get the same information, but whether or not it sticks. I'm a firm believer in kinesthetic learning, and if they're not actually doing the lab, a lot of the material I don't think will transfer over. Because there's nothing to connect it to." Seven of the eight AP teachers report that they regularly use digital tools, such as virtual labs, to enhance the AP curriculum. Only one of the eight admitted to being "anti-technology" for the most part.

Importance of Technology and Digital Tools. While the PLC team in this study did not unanimously agree with Project-Based Learning as beneficial for raising student achievement in AP, they all supported technology as an important tool when working with urban minority and low-income students. Five of the eight teachers regularly send out homework reminders using applications such as Remind, Edmodo, or Google Voice to send text or email reminders that aid students in executive functioning skills they may be lacking. Three teachers agreed this was an effective tool for students who do not have parent support at home in teaching them skills such as organization and time management.

Technology is a great way to compensate for lack of funding that is a reality at many urban schools. Many best practices were shared by the teachers during this PLC session on technology. In fact, it was the first opportunity that a majority of the teachers had ever heard of some of the digital tools used by their colleagues. Seven of the eight team members were in favor of technology in the AP classroom as a daily tool. Only one teacher vocalized an anti-technology bias due to students misusing computer time and simply "doing things online." This teacher did not condone in-class use of computers, which require close monitoring and called it too "timeconsuming." Despite this view, the teacher did acknowledge the value of technology as a communication tool outside of the classroom, and also referred to his document camera as "indisposable." Of two teachers who mentioned trying in class group essays via Google Docs, one teacher experienced success and could monitor student engagement, while the other teacher called this strategy unsuccessful due to excess talking and off-task behavior.

History and English courses acknowledged technology and certain digital tools as valuable in leveraging group collaboration as a strategy to aid in instruction. A common best practice shared by four members of these departments was the use of Google Docs, either in class or outside of class, to collaborate on difficult tasks early in the school year, such as answering writing prompts, FRQs and DBQs. Science and Math teachers preferred technology as a way of flipping the classroom. YouTube and Khan Academy videos re-explain concepts already covered in class, or demonstrate step-by-step explanations. The science teachers in particular lamented over their inability to perform recommended AP labs due to budget or material limitations. They shared resources they have used to make up for this. LabBench, for example, demonstrates virtual labs for students to watch in class in place of labs they are unable to do themselves. Another science teacher was able to arrange for all of her students in one AP class to attend the AP Readiness program at UCLA over several Saturdays to sit in and observe, and even participate in labs they did not have the opportunity to do at their own campus. This teacher believed this served many purposes, such as the added benefit of exposing her students to other AP students from various schools and group cooperation.

The teachers shared that there are even unplanned uses of technology, such as students asking to take pictures of the board with homework or directions when they might have difficulty seeing or writing. Several teachers echoed this strategy working especially well given the school's high special education population, roughly 20% per grade level (125 students). Other students take pictures of labs or post class reminders about tests, projects, or homework on Instagram or SnapChat. These initiatives were completely student-led, unprompted and often unthought of by their teachers. Table 4 below indicates the instructional strategies that teacher report they use in their AP classes.

	Mr. A	Ms. B	Mr. C	Mr. D	Ms. E	Mr. F	Mr. G	Mr. H
Reading	X	X		X	X	X	Х	X
supplements/guides								
Guided group		X	Х	Х	X	X	Х	X
practice								
PBL			X	X	X	X	X	X
YouTube/videos			X	X	X	X	X	X
Edmodo/Remind		X	X		X		Х	X
Арр								
Snapchat/Instagram					X			
GoogleDocs		X	X		X		x	

Table 4: Instructional Strategy Use by Teacher

X=Teacher uses on regular basis and considers it an effective strategy in AP

As shown in the table above, teachers use a variety of strategies in the AP classroom that they find effective. However, there does not appear to be any correlation between strategy and passage. As you can see, Mr. A admits to having an "anti-technology bias," as do many teachers of this content area. He prefers traditional teaching methods such as lecture and direct instruction, though he does employ literacy strategies such as modeling, annotating and summarizing to support struggling readers. Though he uses the fewest strategies from the list, he had the highest passage rate in 2014 with four out of 30 passing his AP exam. Yet Mr. G, who uses every strategy on the list but two, has the second highest passage rates of the teachers at CSCS. Since we cannot conclude that using more strategies means higher passage rates on the AP exams, we assume the recipe for passing must lie with other factors.

Teachers value Professional Learning Communities as a place to share strategies and discuss challenges.

The PLC sessions were the first time this group of teachers had met to discuss their AP classes. Many mentioned not knowing what went on in the other teachers' classes, and appreciated the space to share and become informed. Teacher F explained,

I feel like I have people on my team and I didn't feel that way before... It wasn't until you [researcher] provided the space for us to talk about it that I even knew what people were doing.

A large body of research supports the claim that professional learning communities are an effective way to improve both teacher practice and student achievement. PLCs allow schools to collaborate to improve student learning. There is a clear mission and goal, and PLC members are committed to working together to achieve that goal. Knowing this research, a few of the teachers

in this study questioned why they were not a formed grouping from the start. As teacher H stated:

I think it [the PLC] was really beneficial. I sort of don't know what is going on in other people's AP classes and it was good to have. Even an informal discussion of sort of that cohort of people. We have all of these official sort of learning teams throughout the school, grade-level, subject...I feel like it's natural that that would be one.

At CSCS, teachers meet at least once a week for an hour on their own common prep periods in grade-level department meetings, and during professional development on Wednesdays they meet in content departments and sometimes again in grade-level teams. There is a definite team atmosphere among the 21 teachers and 4 administrators at this small charter school. And yet, the teachers seem perplexed as to why AP teachers had never previously been grouped together to meet. Another teacher, Mr. D explained why he found the PLC meetings beneficial:

These meetings that we've been having have been really helpful...Some of the resources they were talking about this week, I thought were really helpful. It was also helpful to see that I'm not the only person having the same problems. It was insightful to get information about our students...it was interesting hearing what other AP teachers do. I've never heard that before in other classes. It was nice to know, like I said, the problems I am experiencing are not unique.

Shared accountability. One crucial piece that made these PLC sessions effective was the buy-in from the teachers. Incentives aside, each teacher wanted to be there for his/her own professional growth and to learn how to better serve the student population. This is one ingredient that cannot be overlooked; PLCs are only as successful as the buy-in from the members. One teacher expressed the frustrations of a lack of shared accountability:

There wasn't any accountability to say what happens if students don't pass the test or how we can celebrate the students that do. There hasn't been any talk about it as a school and that makes me upset because I feel like if we offer it, it should be a huge part of our vision and mission for the school because we want to make sure that students are collegeready and that's a determiner of that.

A PLC is designed to promote shared accountability that was lacking at this site. Teachers did

not agree that offering AP courses was enough; they wanted to reflect on their practice and figure

out how to improve student outcomes given the resources the have on-site in one another.

Teacher A describes what this could look like:

I just feel that the school should offer a space for AP teachers to have a common prep or something like that or just do planning together like a department because I think we are in our own separate sphere and we are not supported in that sense.

Teacher C also reported feeling isolated and desiring a place to collaborate with other AP teachers:

I think what would make AP better is to give us training, to give us space to talk and collaborate with one another. I feel alone in my room half the time.

Ms. B described feeling reassured when hearing what other AP teachers were doing:

Just to hear... what I was doing in my classroom was similar to what other teachers were doing as well...hearing things that they were doing, that was exciting, what worked in their classroom. Strategies that I might want to try as well. The dialogue with the teachers, just in general, was helpful just to know that there were trends that were happening in different classrooms.

Improved teacher self-efficacy. A known benefit of a PLC is improving teacher self-

efficacy. Sharing difficulties with colleagues not only makes a teacher feel less alone, but also

boosts their confidence making them more likely to take that confidence back into the classroom.

A confident teacher will have a positive impact on student achievement. Ms. E related how the

PLC sessions helped her confidence as a teacher:

It was helpful because it was the first time that I've actually gotten to speak with other AP teachers. Just the collaboration...just to hear that other teachers were struggling in their classrooms made me feel more reassured as a teacher.

Renewed commitment to the mission. A major unexpected finding was how

rejuvenated and recommitted the teachers were at the end of the sessions. After requiring them to give up their Thursday lunch hour for six weeks, I expected teachers to be fatigued and full of complaints. What I observed was quite the opposite; teachers seemed equally if not more excited about continuing the process and conversations at the conclusion of the six-week program as they did in the beginning. Ms. B expressed a strong desire to keep the conversations going and continue the PLC:

I'm excited that you [researcher] offered the space for that to happen because now I know that I'm not alone and we can brainstorm or continue this conversation even though our four-week session ended I want to still continue that conversations that we started.

Ms. E agreed with Ms. B that the PLC of AP teachers should continue:

It's really nice to know the teachers do take it seriously because I feel like I have people on my team and I didn't feel that way before. I didn't even know that people felt this way or this strongly about the AP program.

Teachers were forthcoming in interviews about how they would have liked more of these face-to-face sessions as part of the traditional professional development meetings once a week, earlier and throughout the year, with increasing frequency closer to the exams in May. Most mentioned it would have been especially helpful the summer prior to the academic year, i.e. July when scores became available to revise/plan for the next AP year.

Conclusion

The part of the process I really found most impressive was when the teachers really took control of the sessions and I felt more like an observer of excited, passionate educators really brainstorming how to improve student learning. They really fed off of one another's ideas, each adding, contributing, sharing their own classroom examples which led to teachers borrowing ideas from one another to implement in their own AP content. This would not happen in more isolated department or AP trainings. Often resources are just distributed to teachers and they are "talked at" by experts in the field of their content. They don't interact with teachers from other content to share ideas across disciplines, or specific to certain challenges-below grade reading levels, language barriers, large class size, lack of parent involvement, etc. What we created with bringing together a round table of teachers, who experience similar issues as they teach the same students, is a whole different experience. One can actually watch the thinking occur as ideas flow and they inspire one another much more than if a teacher planned in isolation. This demonstrates the strength and the true genius behind a PLC and why so many more schools are starting to look inward for on-site "professional development" by utilizing a key strength much more valuable than dollars in the budget---teacher voices.

CHAPTER 5

DISCUSSION

This study explored the gap in both research and practice on how to improve student outcomes in Advanced Placement courses for low-income and minority students. The research questions set forth in this study were open-ended, exploratory, and sought to investigate what teachers say are effective strategies to improve student outcomes in the open-access AP classroom. The findings are significant in and of themselves in that they contribute to a growing body of research on how to close the achievement gap and better prepare students for college via more rigorous coursework in high school, including but not limited to advanced placement courses.

The findings of this study pointed to the barriers that prevent many low-income and minority students from passing Advanced Placement exams and what teachers suggest as needed changes to address these barriers. Consistent with the literature, significant commonalities were found across instructional strategies known to be successful with urban students and those used by AP teachers in the study. Most important, the teachers reported finding value in the formation of a PLC of AP teachers that produced shared accountability, improved self-efficacy, and a renewed commitment to their mission.

Lessons Learned

There are broader implications for these findings based on the lack of prior research on instructional strategies known to be successful in the AP classroom. The College Board has not yet developed trainings to meet the needs of teachers who have students with diverse needs such as English learners or those reading below grade-level.
Once more studies reveal key strategies to closing the achievement gap specifically with AP exam passage, trainings can be developed for high school, middle school and even further down the pipeline to elementary school teachers with pre-AP techniques to better prepare students for success in college and beyond.

Three of the eight teachers shared that they did not anticipate any students passing the AP exams this year. One teacher who had four out of 30 students pass last year expected about the same number this year. Yet another teacher who had no one pass last year was optimistic that his students did well and at least some passed. Committed to helping students succeed, often putting in several extra hours, the teachers were not deterred by these dismal passage rates. Instead, in meeting face-to-face with this generally young group of educators, five of whom were only in their second year teaching an AP course, you I could not help but feel energized by their enthusiasm. They seemed genuinely eager to participate in the PLC sessions, often staying past the 45-minute allotted sessions to finish their conversations, or continue discussing ideas with one another on their way out the door.

It is rare to see an entire group of teachers willing to do whatever is necessary, to go above and beyond, to help their students succeed. It was teachers' desire to be open to the reflective practitioner process, to carefully look at their teaching to ask themselves what is working and what isn't, and to be open to new ideas and strategies. Yet their commitment to the process alone is not enough; PLC research states that all stakeholders must be invested in and dedicated to the process if true change is to occur.

Teachers must be AP literate in the sense that they understand they must attempt to provide every opportunity for their students to have a quiet space at home, have reading expectations for them, and be part of the AP culture that the school will try to build. A final and most important change is the regular meetings of AP teachers as a Professional Learning Community. As soon as my project concluded, the site principal continued with regular Thursday lunch meetings with interested AP teachers to involve them in the process of changing the AP program. I anticipate that the inclusion of the key players, the teachers, in the decision-making will in itself have an enormous impact on student achievement. The regular meetings, if they continue through the upcoming school year and beyond, will allow teachers to better plan for that vertical alignment of courses in content tracks, and prevent them from feeling isolated.

Recommendations for Practice

One change that was conceptualized in the PLC was the idea of creating content tracks. This does not mean tracking students by ability, but rather, counseling students to focus on a particular strain of AP courses and follow that track. For example, a student strong in history could take AP World History in the 10th grade, AP US History in the 11th grade, and AP Government in the 12th grade. Teachers would work closely in vertical alignment to scaffold material to prepare students to be successful across the three-year track. Collaboration around vocabulary, expectations, and literacy could be planned for by that group of teachers more strategically. It also makes sense that while every child deserves access to rigorous coursework to prepare him/her for college, it would not make sense to put a struggling student in four AP courses in the 12th grade and set him/her up to fail.

An immediate outcome of this study was the principal's action in taking two of the AP teachers to a conference and soliciting their input for changes to the AP program. With the leadership of these two vocal teachers and the results of the PLC study, the combined result was a complete revamping of the AP program at the site. Beginning in May 2015, the teachers'

recommendation to have an application process, while not meant to limit students or track them, was adopted for all students wishing to take an AP course. The process was streamlined so that students wishing to take one or more AP courses each filled out an application packet after attending an "AP fair" one day during lunch where the AP teachers informed students about the courses they could choose from. This early exposure is aimed to better inform students and help them make an educated decision knowing the expectations and demands of taking an Advanced Placement course.

Other added initiatives included a screening process, still aimed to keep the open-access policy allowing all students the opportunity to take an AP course, but more strategically scheduling students by analyzing more data about the students' reading levels, interests, and strengths and weaknesses. This information will also be valuable to the teacher to know about their incoming class of students and plan scaffolds for student needs as early as with the summer assignment.

In addition to the application packet and closer look at student profiles in better placing students in AP courses, another suggested change is a one-on-one interview with every prospective AP student. This is viewed more as a counseling session, an opportunity to see if the student is motivated and willing to do the work, and also to decide which and how many AP courses might be the most appropriate.

In terms of teacher training, the site principal announced in May 2015 that there was money in the budget for any teachers wishing to attend professional development trainings in July this summer 2015. AP Teachers were directly encouraged to propose any training or institute, anywhere in the U.S. that they felt would enhance their teaching of AP, and the cost of the training, travel, and lodging would be paid. In addition, the teachers proposed the creation of a shared Google Doc to keep a living document on AP instructional strategies and best practices to be shared among all teachers at the site.

Recommendations for Replication of the APPLC to Other Sites

- Strong support and desire from teachers who want change and that, all teachers must be committed to the process.
- > Teachers in control of the process with administrators playing a supportive role.
- A facilitator with knowledge of the AP program but without a supervisory role so as not to intimidate PLC members from speaking freely.
- Commitment to investing sufficient time to build or change the climate of a school

No two schools are exactly the same: Every school has its own unique needs and characteristics. A prescriptive script cannot be offered as a one-size-fits-all solution to revamp an existing AP program. However, schools do not have to reinvent the wheel either. AP trainings should be available in particular areas of need to teachers serving students with similar needs (ie How to attack vocabulary in AP Science courses or Supplemental reading in AP History courses for students reading below grade level). It would be a waste of money for a teacher of a large class or urban students to sit through a training conducted by a private school educator with a class of eleven highly gifted students. The needs are simply not the same, nor should the curriculum be prescribed as the same medicine to both groups of patients.

Limitations and Suggestions for Future Studies

Logistical limitations of this study include a small sample, as well as a short amount of time working with the teachers prior to the AP exams. In order to expect an impact on student

achievement, the PLC sessions should be held over the course of the entire second semester, if not the entire academic year.

Another limitation, due to the researcher's inability to directly observe the teacher participants employing the strategies in their AP classrooms, was that there was no triangulation between what teachers say they do and what they actually do. This would make for an interesting future study in the event that teachers think they are effectively using certain instructional strategies when in actuality they are not, or conversely that they neglect to recognize instructional strategies that they do employ.

Another interesting area of future study would be to align the PLC vertically by including non-AP teachers so as to discuss Pre-AP strategies that could be started in earlier grades to prepare students to take the AP courses later on.

Similar to some of the studies discussed in chapter 2, a longitudinal study might be conducted to use student data to predict success on the AP exams. Such indicators include PSAT score, GPA, reading lexile level, to see if students can be identified for earlier interventions to better prepare them for rigorous coursework.

Finally, future studies could also attempt to address whether a teacher's participation in a PLC and other AP-related professional development trainings has a direct impact on student achievement on the AP exams. It would be interesting to do a case study on the few students who did pass the AP exams to find out what made the difference for them to succeed in order to better understand and help more students pass.

Personal Reflection and Conclusion

Was It Enough? Year One AP Improvement

The results of the 2015 AP exams did not show significant growth. Scores remained static (See Appendix F). One content area that showed some improvement worth mentioning was the AP Literature course. In 2014, 17 students took the exam and none passed. In 2015, 23 students took the exam and 5 passed, a 21.74% growth increase. Where most content areas remained static or decreased, this was a notable increase despite it not being necessarily attributed to the PLC formation. It is promising that this teacher who demonstrated growth in AP scores was one of the most interested in and committed to the PLC process, even offering to partake without the stipend as she really wanted to reflect on her strategies for student improvement on the AP exam.

Though student groups vary in ability from year to year, a longitudinal study could better show the long-term effects of a teacher's participation in a professional learning community and the effects it can have on student improvement on the AP exams. While it would be difficult to prove causation, the potential benefits of teachers coming together to take a closer look at student improvement can only be positive.

Appendix A

Questionnaire

- AP Content: _____ Average yearly passage rate: _____
 - What do you think are the most effective instructional strategies in an open-access AP classroom?
 - 2) What are the biggest hurdles in allowing your students access to the AP curriculum?
 - 3) How do you use _____ in your classroom currently?
 - 4) Which of these 4 strategies would you like to do more of/more support to implement?
 - 5) What obstacles do you believe prohibit your students from passing the AP exams?
 - 6) How are you currently using strategies in four research-based domains: literacy strategies, cognitive questioning, student-centered learning, and technology?
 - 7) What strategies do you feel are the most essential to helping urban students access AP curriculum in the open-access classroom?
 - 8) What materials/resources do you think would allow you to better support struggling learners in your AP classroom? (Please be specific)

Appendix B Interview Protocol

Suggested Interview Questions:

- What is your overall opinion of the AP program at CSCS? How could it be improved?
- What is the *most* important outcome of AP courses for you (e.g., something you learned or a way in which it changed your life or direction)? Can you summarize how or why that happened (last year's AP results? Perhaps a story about something that happened to you would help us understand what you mean.
- In your experience, why are students at CSCS not passing the AP exams? (very low passage rates)
- What would help students pass the AP exam in your content area?
- What strategies did you try last year that you feel were successful at preparing students for your AP exam?
- What strategies are you implementing this year that are new/revised?
- Can you tell me about your experience as a reflective practitioner, in the AP classroom, how do you know when a particular lesson/strategy aimed at preparing students for the AP exam worked/didn't work?
- What is the *most* frustrating part of *the current AP climate at CSCS* for you? Can you summarize how or why that happened? Perhaps a story about something that happened to you would help us understand what you mean.
- [All 4 strategies, 1 at a time] is a strategy you have used in your AP class in order to do improve student learning, passage on AP exams, etc. [specific educational purpose]. We'd like your help in understanding the strengths and weaknesses of using this strategy. What are the disadvantages of using this [strategy]? For any school? Specific to the population of students you serve? Can you tell me/us a story that illustrates what you mean? Is there anything we might do about those disadvantages or problems? Has the use of [specific strategy] in AP affected your AP results (practice test as real-time will not be available) Why or why not? Please explain.

Appendix C

PLC Timeline

January: Questionnaire on Instructional Strategies in the AP classroom January Session 1: Introduction to the Project February Session 2: Domain 1-Literacy Strategies February Session 3: Domain 2-Higher-level (Cognitive) Questioning March Session 4: Domain 3-Student-Centered Learning March Session 5: Domain 4-Technology and Digital Tools April Session 6: Final session/Wrap-up April: One-on-one Interviews with Each Participant

Appendix D

Participant Reflection Form

- 1. What did you learn in today's session that you will implement in your classroom?
- 2. What is something you would add/change about today's session?
- 3. What do you see as next steps for the team to meet the goal of improving student learning?
- 4. On a scale of 1-10, 1 being not helpful at all and 10 being very helpful, how would you rate today's session?

5. Anything else I should know?

Appendix E

Follow-up Participant Questionnaire

1) How did the PLC sessions affect you as an educator? Do you feel your pedagogy changed?

What changes did you experience, positive or negative?

2) What did you learn from participating in this PLC?

3) What did you use from our sessions in your summer AP preparation for the 2015-2016 school

year? How are you using what you learned in your classes now?

4) Discuss any obstacles that if removed would have helped you grow as an AP teacher? How

about obstacles for your students that if removed would help them improve?

Appendix F

2015 Advanced Placement Exam Results

2014-2015 AP COURSE	# of Students taking AP Exam	# of Students passing AP Exam (3 or higher)	# of Students with a score of 2
AP English	30	2	12
Language		_	
AP English	23	5	14
Literature			
AP Biology	29	2	18
AP Chemistry	16	0	1
AP Environmental	59	1	5
Science			
AP World History	32	3	7
AP US History	20	3	12
AP US Government	27	0	5
AP Calculus AB	31	1	1
AP Statistics	30	0	0
AP Spanish	16	15	1
Language			
AP Studio Art 2D	58	3	26
TOTAL	374 Exams	35 Passed	102 w/Score of 2

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