

ILLINOIS STAKEHOLDERS' PERCEPTIONS OF
ADVANCED PLACEMENT® AND
DUAL CREDIT COURSES

Glenn A. Wood

210 Pages

Advanced Placement® and dual credit coursework have been associated with positive educational attainment outcomes for students (Adelman, 2006; Allen & Dadgar, 2012; Karp et al., 2008; National Student Clearinghouse, 2013; Speroni, 2011) and yet opportunity gaps exist for children to access these programs depending on the school they attend. The many benefits of Advanced Placement® and dual credit coursework for students make it necessary that any education agenda by policymakers should include avenues to increase access to these programs for students. This study explored Advanced Placement® and dual credit coursework in Illinois through the perceptions of teachers, principals, superintendents, and school board members using a cross-sectional survey. The survey was administered to examine whether there are differences in the four groups' perceptions around early college curriculum, initiatives to improve access, and barriers to opportunity for students to take Advanced Placement® and DC courses. A one-way analysis of variance test demonstrated significant results.

The research conclusions suggested education leaders in the state of Illinois can be more intentional in their efforts to increase student access to both Advanced Placement[®] and dual credit programs and there is a need to improve how schools recruit, develop, place, support and incentivize teachers to become credentialed to teach dual credit courses. Nine recommendations are given to increase student access to both early college programs along with four areas for future study.

KEYWORDS: Access, Advanced Placement[®], Barriers, Dual Credit, Illinois

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DUAL CREDIT COURSES

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CHAPTER I

INTRODUCTION TO THE STUDY

Statement of the Problem

Opportunity gaps—the unequal distribution of resources and opportunities—exist for children to access Advanced Placement[®] (AP[®]) and Dual Credit (DC) courses depending on the school they attend (Klopfenstein, 2004; Long, Conger, & Iatarola, 2012; Taylor & Lichtenberger, 2013). Closing opportunity gaps for students can improve achievement gaps, educational attainment differences, increase individual weekly earnings, and chances for upward social mobility.

Achievement gaps, the unequal distribution of educational results or outcomes between groups of students, are primarily due to educational opportunity gaps (Boykin & Noguera, 2011; Flores, 2007). In order to have high levels of student achievement, it is necessary to have rigorous educational opportunities. Increasing student access to Advanced Placement[®] and dual credit courses is one way to close opportunity and achievement gaps between students.

Advanced Placement[®] and Dual Credit coursework have been positively associated with almost every educational outcome for students in high school and college (College Board, 2015; Dodd, Fitzpatrick, DeAyala, & Jennings, 2002; Karp, Calcagno, Hughes, Jeong, & Bailey, 2007; Morgan & Ramist, 1998; Swanson, 2008). As a part of the movement for more rigorous high school curricula, national and state leaders, along with education policymakers and organizations, have advocated for expanded access to

the Advanced Placement® Program and dual credit courses for secondary students beyond those exhibiting high academic achievement or ability (Berger, College Board, 2012, Garet, Song, Turk-Bicaki, Knudsen, Haxton, & Stephan, 2009). Typically, these programs have been reserved for students who demonstrate significantly advanced achievement compared with age-peers.

Local school decisions result in differential participation rates of students in AP® and DC courses due to curriculum programming in schools that are based on local community beliefs and goals. This quantitative study examined the differences of perceptions of teachers, principals, superintendents, and school board members in Illinois about early college curriculum, initiatives to improve student access, and barriers to opportunity for students related to Advanced Placement® and dual credit coursework.

Educational attainment expectations for students have increased over the decades as the global labor market requires a more skilled workforce in the 21st century. This was recognized by President Obama who stated, "... in a global economy where the most valuable skill you can sell is your knowledge, a good education is no longer just a pathway to opportunity—it is a prerequisite" and "... every American will need to get more than a high school diploma." (Obama, 2009). In 2015, for the first time, workers with a Bachelor's degree or higher make up a larger proportion of the workforce (36%) than workers with a high school diploma or less (34%) (Carnevale, Jayasundera, & Gulish, 2016).

The percentage among persons age 25 or over who have completed a bachelor's or higher degree has increased from 25% in 1995 to 36% in 2015. There are differences in educational attainment along ethnic lines. From 1995 to 2015, the percentage of 25-

29-year-olds who had attained a bachelor's or higher degree increased for those who were White (from 29% to 43%), Black (from 15% to 21%) and Hispanic (from 9% to 16%). Over the period from 1995 to 2015, the gap between White and Black 25- to 29-year-olds who had attained a bachelor's or higher degree widened from 13 to 22 percentage points, and the gap between White and Hispanic 25- to 29-year-olds at this level widened from 20 to 27 percentage points (U.S. Department of Commerce, 2015.)

An income gap aligns with educational attainment along ethnic lines as well. In 2014, individuals with a high school diploma earned \$668 per week, those with an associate's degree earned \$792, a bachelor's degree \$1,101, a master's degree \$1,326, and those with a doctoral degree earned on average \$1,591 (U.S. Bureau of Labor Statistics, 2015). The median household income gap between Whites and Latinos rose from \$12,406 in 2000 to \$17,246 in 2013, representing a 39% increase (Latino Policy Forum, 2015). The median household income gap between Whites and African Americans rose from \$25,053 in 2000 to \$30,076 in 2013, representing a 20% increase (Latino Policy Forum, 2015). Increasing educational attainment levels for students is a clear route to improving economic opportunity and yet there are achievement gaps that impact educational attainment.

Achievement gaps between groups of students are evident on the international Programme for International Student Assessment (PISA), United States' National Assessment of Educational Progress (NAEP), the college entrance standardized tests American College Test (ACT) and Scholastic Aptitude Test (SAT), and Advanced Placement[®] (AP) tests. As America continues to change demographically through the 21st century, resolving academic achievement gaps between different racial and

socioeconomic groups is a significant issue. In 2012, the majority of children under age 2 in America were children of color and by 2019 the majority of all children nationwide are expected to be children of color (U.S Census Bureau, 2012). In 2014, for the first time, the Illinois' public school system is made up of a majority of minority students. Hispanic, black, Asian, and other racial groups combined eclipsed the number of white students (Rado, 2014). "If current achievement gaps continue over the next several decades, an increasing proportion of the nation's citizens will be severely undereducated and ill prepared to compete in a global economy "(Howard, 2010, p. 35). Achievement gaps on standardized tests, college enrollment, educational attainment, and income are evident for students in the 21st century and have not improved significantly over time.

The most powerful predictor of college completion and likelihood of success in the job market is the academic rigor of a students' high school curricula (Adelman, 1999, 2006; Warburton, Bugarin, & Nunez, 2001). A rigorous course load in high school is positively correlated with higher standardized test scores (Attwell & Domina, 2008; Bridgeman, Pollack, & Burton, 2004; Horn & Kojaku, 2001), college enrollment rates (Attwell & Domina, 2008; Long, Conger & Iatarola, 2012), lower rates of college remediation (Adelman, Daniel, & Berkovits, 2003), and higher 4-year college graduation rates (Adelman, 1999; 2006). Through this premise then, the assumption is made that providing an equitable process in creating opportunities for students to take rigorous coursework will lead to equality in the outcomes of student achievement, post-secondary opportunities, income levels, and upward mobility.

There are gaps in the literature on how the perceptions of local stakeholders impact student access to early college programs. Currently, there are no studies that

compare the perceptions of local stakeholders around Advanced Placement[®] and dual credit coursework. This study provided research that represents steps toward equipping federal, state, and local educational agencies with guidelines for understanding how to improve student access to Advanced Placement[®] and dual credit coursework.

Conceptual Framework

The conceptual framework for this study is based on Rawls's (2003) model of social justice and was developed through a synthesis of the literature that included reviewing articles, research studies, and reports. The literature review worked through the lens of providing a democratic public education for students. The body of research on social justice (Rawls, 2003) and democratic education (Bode, 1927) influenced the conceptual framework.

“Education is the fundamental method of social progress and reform” (Dewey, 1897, p. 80). The United States' public education system has long been viewed as a means for students to move socially upward. In 1848, Horace Mann proposed a democratic educational system that would equalize the conditions of men by bringing children from all backgrounds together for a common learning experience where schools would be the primary force in social change (Groen, 2008). Through this lens, equal opportunities for children during their formal schooling would lead to equality in student achievement leading to upward social mobility.

Equality is the foundation for forming a just government and society; and the laws and institutions in the United States have been built around these concepts. Relevant institutions can include education, health care, social security, and labor rights. The main political and social institutions of a society must specify the basic rights and duties of

programs, regulate the benefits, and allot the burdens necessary to sustain equal opportunity (Rawls, 2003). The public school system, a basic structure of United States' society, plays a key focal area for applying the theory of social justice.

An education system based in social justice can break the perpetuation of any inequitable practices that can limit opportunities for students. Social justice is justice in terms of the distribution of wealth, opportunities and privileges within a society (Zajda & Rust., 2006). One of the most prominent recent theorists on social justice, John Rawls (2003), developed a theory of social justice commonly referred to as "justice as fairness." Rawls' (2003) theory of social justice assumes the protection of equal access to liberties, rights, and opportunities, as well as taking care of the least advantaged members of society.

Rawls' "equal opportunity principle" states inequalities are acceptable if every person in society has a reasonable chance of obtaining the positions that lead to the inequalities. Something is not consistent with Rawls' conception of social justice if inequalities in society are not attached to offices and positions open to all under conditions of the equal opportunity principle.

Students access' to AP[®] and Dual Credit coursework are not consistent with social justice as there are gaps under Rawls' "equal opportunity principle". The equal opportunity principal requires that all students, regardless of race, color, national origin, or culture, have comparable access to the diverse range of courses, programs, and extracurricular activities offered in America's public schools. Access to early college programs in schools is one place where deficit thinking is prevalent as evidenced by an under-representation of student groups along ethnic lines in dual credit and Advanced

Placement[®] (AP) programs (Allen, 2010; An, 2009; Karp, Calcagno, Hughes, Jeong, & Bailey, 2007; Kim, 2008; Oakes, 1995; Swanson, 2008; Taylor, 2013; Witt, Lichtenberger, Blankenberger, & Franklin, 2012). There are also gaps by location and size of school. Larger schools and those in urban areas offer less dual credit opportunities (Taylor & Lichtenberger, 2013), while smaller schools in rural areas have gaps in AP[®] programs (U.S. Department of Education, 2014).

Public education is about serving and creating the public (Barber, 1992). Schools can provide students with equitable opportunities in creating this public. Entry and participation of students in AP[®] and DC programs throughout the 20th century have usually been reserved for academically talented students seeking more challenging coursework than what was offered by their high schools.

Despite the changing global workforce demands and American population shifts over time, the inequitable structure of schools has been the same since the early 20th century. "The tracking system that was put in place at the beginning of the 20th century, during the Industrial Revolution, is still pervasive in the 21st century" (Lee, 2006, p. 1).

Access to early college programs is impacted by a number of things. Every school district has different demographics, infrastructure, and issues. Curriculum programming in schools is a result of local community beliefs and goals. Educational leaders must weigh the merits of increasing academic opportunities versus maintaining status quo. The theoretical perspective shaping this study prompts education leaders to lead for social justice in order to provide equitable opportunities for students to take rigorous coursework leading to equality in the outcomes of student achievement, educational attainment, income levels, and upward mobility.

Purpose of the Study

The purpose of this quantitative study was to examine the differences of perceptions of teachers, principals, superintendents, and school board members using a cross-sectional survey about AP[®] and dual credit courses in Illinois high schools in order to improve student access to these programs. A theory in research can be seen as the bridge explaining the relationship between the independent and dependent variables (Creswell, 2008). The independent categorical variable, role, has four levels: school board member, superintendent, principal, and teacher. The dependent variables are participants' scores on the Illinois Dual Credit P-20 Questionnaire in the areas of early college curriculum, initiatives to improve access, and barriers to opportunity.

Research Questions

This study involves the mathematical analysis of the research topic. The correlational study is non-experimental, requiring the researcher to establish relationships between the subjects of the research. The following research questions guided this study:

- RQ1: How do school board members, superintendents', principals', and teachers' perceptions differ with respect to knowledge about Advanced Placement[®] and dual credit courses?
- RQ2: How do school board members, superintendents', principals', and teachers' perceptions differ with respect to initiatives to improve student access to Advanced Placement[®] and dual credit courses?
- RQ3: How do school board members, superintendents', principals', and teachers' perceptions differ regarding barriers to the opportunity to take dual credit courses?

Significance of the Study

The literature suggests that high school students do not have equal access to dual credit and Advanced Placement[®] opportunities based on the high schools they attend. (Conger et. al, 2009; Klopfenstein, 2004; Lichtenberger, 2014; Prelow & Wathington, 2013; Thomas, Marken, Gray, & Lewis, 2013; Zarate & Pachon, 2006). There is only a small body of literature that examines the relationship between the perceptions of local school stakeholders of Advanced Placement[®] and Dual Credit coursework. The findings of this study may expand our knowledge of this and contribute to the closing of opportunity gaps that lead to improving achievement for all students while aiding educators, board members, and policy makers to make more informed decisions that improve equity and achievement for students.

Definition of Terms

The primary reason to include definitions in a research paper is to avoid misunderstanding with the audience. To clear up any subjectivity or understanding of terms used in this paper, certain terms are defined. For the purpose of this study the following terms are defined:

Academic achievement: Academic achievement is measured by student achievement on the Programme for International Student Assessment (PISA) test, National Assessment of Educational Progress (NAEP), American College Test (ACT), Scholastic Aptitude Test (SAT), and Advanced Placement[®] (AP) tests.

Achievement gap: The difference in academic performance between two groups of students.

Advanced Placement[®]: A program created by the College Board offering college-level curriculum and examinations to high school students.

Advanced Placement[®] *Equity and Excellence Score*: A metric used by College Board to track participation in the AP program on the school, state, and national level. The score represents the percentage of graduates that earned a score of 3, 4, or 5 on an AP exam.

Advanced Placement[®] *Equity Metric*: The difference between the percentage of the graduating class and the percentage of students that have taken *Advanced Placement*[®] exams.

Cultural proficiency: The way a person or an organization makes assumptions for describing, responding to, and planning for issues that arise in diverse environments.

Deficit thinking: The practice of holding lower expectations for students with demographics that do not fit the traditional context of the school system.

Democratic education: An education for students where there is equality in order to bring children from all backgrounds together for a common learning experience where schools would be the primary force in social change.

Dual credit courses: A college course taken by a high school student for credit at both the college and high school level (110 ILCS 27/5).

Dual Credit Equity Index: The difference between the percentage of the graduating class and the percentage of students that have access to Dual Credit courses.

Dual credit program: An agreement between post-secondary and local educational agencies which allow high school students to enroll in college courses offered by the post-secondary institution before graduation from high school.

Educational attainment: The highest level of education completed (e.g., a high school diploma, associate's degree, bachelor's degree, master's degree, or doctorate).

Ethnic minority students: Demographic information where families indicate their students' ethnicity as African-American or Hispanic are considered ethnic minorities for the purpose of this study.

Every Child Succeeds Act (ESSA): Federal Law that replaced No Child Left Behind Act (NCLB), ESSA takes full effect in the 2017-18 school year.

Opportunity gaps: The disparity in access to quality schools, curriculum, and resources between two groups of students.

Social justice: Justice in terms of the distribution of wealth, opportunities, and privileges within a society.

Tracking: The practice of grouping students based on perceived ability level into a set strand (track) of courses (Rubin, 2003).

Transformational leadership: Leadership in which the leader identifies the needed change, creates a vision to guide the change through inspiration, and executes the change with the commitment of the members of stakeholder groups.

Assumptions and Limitations of the Study

It is important to state the assumptions and limitations of a study so there is a foundation to develop theories influencing the development of the research process. Assumptions are things that are accepted as true even though they have not been scientifically tested. "Assumptions are so basic that, without them, the research problem itself could not exist" (Leedy & Ormrod, 2010, p. 62). The following assumptions are made in this study:

1. AP coursework affords students more rigorous curricular exposure than comparably offered courses within the same school or district.
2. Dual coursework affords students more rigorous curricula exposure than comparably offered courses within the same school or district.
3. The respondents answered the survey questions honestly and truthfully.
4. The sample respondents of the survey are representative of the populations the researcher wishes to make inferences about.

Limitations are potential weaknesses or problems with the study and could affect the study design and results (Creswell, 2009). Limitations could restrict the generalizability and credibility of the research findings. The following limitations applied to this study:

1. The researcher approached this study with a belief that students should be treated equitably and have equal access to rigorous coursework. This belief could influence the research construct development.
2. Data analyzed was from the 2015-2016 school year only.
3. Participants were self-selected to participate in the study.
4. The closed questions of the survey could introduce bias, either by forcing the respondent to choose between given alternatives or by offering alternatives that otherwise would not have come to mind.
5. Closed questions do not allow for creativity or for the respondent to develop ideas, and do not permit the respondent to qualify the chosen response or express a more complex or subtle meaning.

6. There could be bias to answering the questions as the respondent may systematically choose either the first or last category, to select what may be considered as the most socially desirable response alternative, or to answer all items in a list in the same way.

7. The number of participants in this study was not equal the four groups as the participants were self-selected.

The methods used for collecting data are rational and based upon a scientific approach to data collection and analysis that increased the reliability of the information in this study. In spite of efforts to ensure validity and reliability in this study, there might be limitations to its transferability, even though the researcher adhered to Yin's (2003) recommendation for valid and reliable study design.

Overview of the Study

This study is organized into five chapters. Chapter II contains a review of the literature that explores educational attainment, individual earnings, student achievement, and the impact early college courses play on those student outcomes. Using the premise of a democratic education for all students, opportunity is viewed through the lens of social justice in order to reduce achievement gaps. Advanced Placement[®] and dual credit programs are identified as programs that can help school districts achieve both equity and achievement that need support at the local level to be successful.

Chapter III provides the methodology for this study including research design, instrumentation, and procedures for data collection and analysis. Chapter IV follows with a presentation of the data. Chapter V gives an overview of the study, presents significant findings, implications for current practice and recommendation for further

research. The implications of the research could guide practice at all levels of the school system in order to provide a democratic education for children. Chapter II outlines the literature relating to this study.

CHAPTER II

REVIEW OF THE LITERATURE

The literature review explores educational attainment, individual earnings, student achievement, and the impact Advanced Placement[®] (AP[®]) and Dual Credit(DC) coursework can have on educational outcomes for students. Achievement and opportunity gaps for students to access AP[®] and DC are shared in addition to initiatives and barriers to improve access to these programs.

Educational Attainment

Educational attainment refers to the highest level of education that an individual has completed (United States Census Bureau, 2016). Educational attainment expectations for students have increased over the decades as the global labor market requires a more skilled workforce in the 21st century. Nearly two-thirds of jobs in 2014 required at least some college, but only 25% of students earned a bachelor's degree in 6 years (Carnevale & Knapp, 2008).

Postsecondary educational attainment rates in the United States have historically been and continue to be unequal for different groups of students. Between 1995 and 2015, educational attainment rates among 25- to 29-year-olds increased. The percentage who had completed an associate's or higher degree increased from 33% in 1995 to 46% in 2015. However, from 1995 to 2015, the percentage of 25- to 29-year-olds who had attained an associate's or higher degree increased for those who were White (from 38% to 54%), Black (from 22% to 31%), and Hispanic (from 13% to 26%). Between 1995 and

2015, the gap between White and Black 25- to 29-year-olds who had attained an associate's or higher degree widened from 16 to 23 percentage points, primarily due to an increase in the percentage of White 25- to 29-year-olds who had attained this level of education. The White-Hispanic gap at this education level did not change measurably over this period; in 2015, the gap was 28 percentage points. The data is presented in Figure 1.

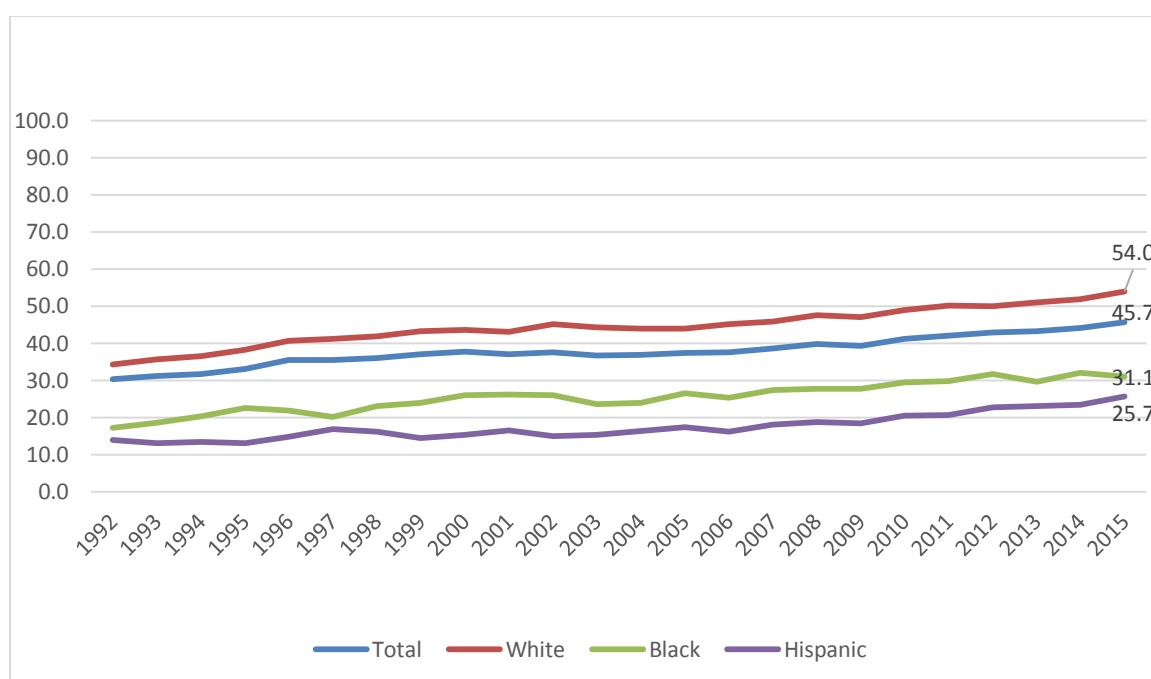


Figure 1. Percent U.S. rates of associates degree attainment or higher among persons age 25 and over, by race/ethnicity. Adapted from “Annual Social and Economic Supplement” by U.S. Department of Commerce, Census Bureau, 2015.

The percentage among persons age 25 or over who had completed a bachelor's or higher degree increased from 25% in 1995 to 36% in 2015. From 1995 to 2015, the percentage of 25- to 29-year-olds who had attained a bachelor's or higher degree increased for those who were White (from 29% to 43%), Black (from 15% to 21%), and Hispanic (from 9% to 16%). Over the period from 1995 to 2015, the gap between White

and Black 25- to 29-year-olds who had attained a bachelor's or higher degree widened from 13 to 22 percentage points, and the gap between White and Hispanic 25- to 29-year-olds at this level widened from 20 to 27 percentage points. Figure 2 displays the data.

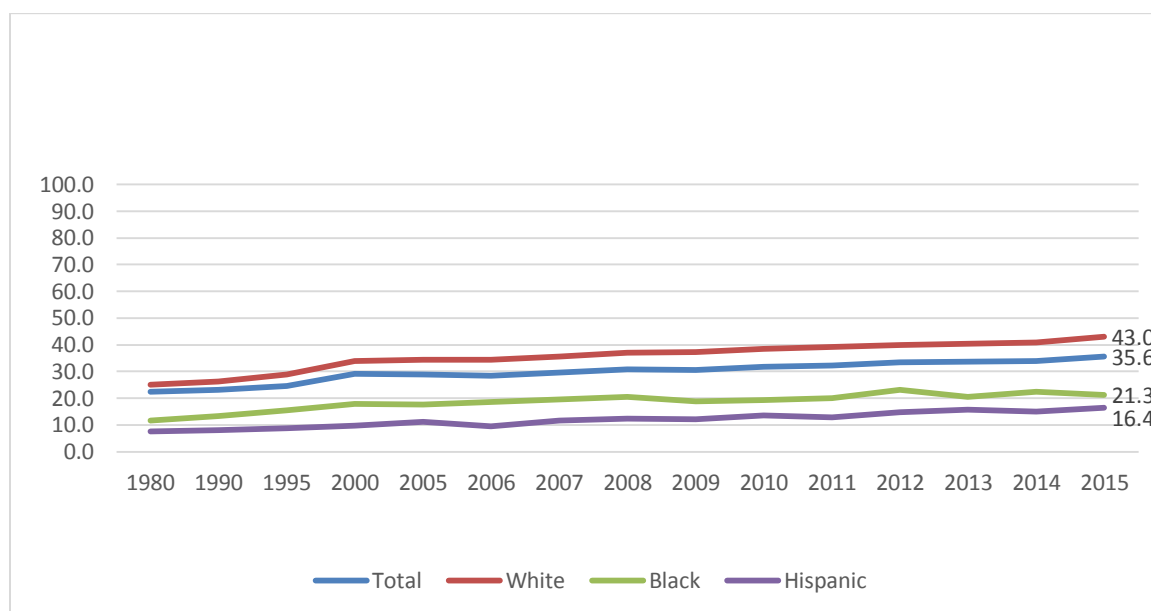


Figure 2. Percent U.S. rates of bachelor's degree attainment among persons age 25 and over, by race/ethnicity. Adapted from “Annual Social and Economic Supplement” by U.S. Department of Commerce. Census Bureau, 2015.

In Illinois, gaps between ethnic groups and percentage of the population are highlighted. In 2015, Illinois public universities had 65% of the bachelor degrees conferred were attained by White students, 11% Black, and 9% Hispanic. In Illinois, in 2015 the white population was 77%, the Hispanic population was 17% and the black population was 15%. These numbers show the distinct gap between population percentage and degrees conferred percentage at public universities. The data is represented in Figure 3.

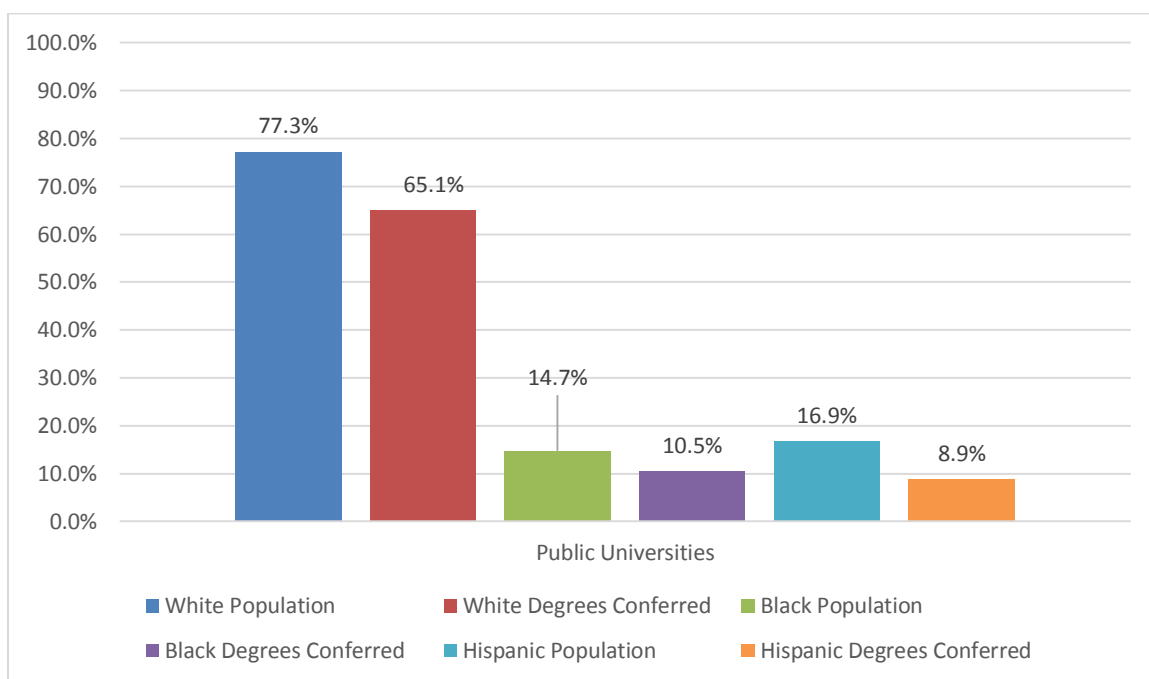


Figure 3. Percent 2015 bachelor degrees conferred by race at Illinois colleges. Adapted from IBHE Enrollment Degrees. Illinois Board of Higher Education website, 2016.

Post-secondary education is a pressing need. The job growth in America over the past third of a century has been generated by positions that require at least some post-secondary education as 85% of current jobs and 90% of the fastest-growing and best-paying jobs require postsecondary education (Wagner, 2008). In 2015, for the first time, workers with a Bachelor's degree or higher made up a larger proportion of the workforce (36%) than workers with a high school diploma or less (34%) (Carnevale et al., 2016). The wage difference among individuals with a high school diploma, associate's degree, bachelor's degree, master's degree, and doctoral degree is significant.

Degree Attainment and Income Level

In 2014, individuals with a high school diploma earned \$668 per week, those with and associate's degree earned \$792, a bachelor's degree \$1,101, a master's degree

\$1,326, and those with a doctoral degree earned on average \$1,591 (U.S. Bureau of Labor Statistics, 2015). The data is displayed in Figure 4.

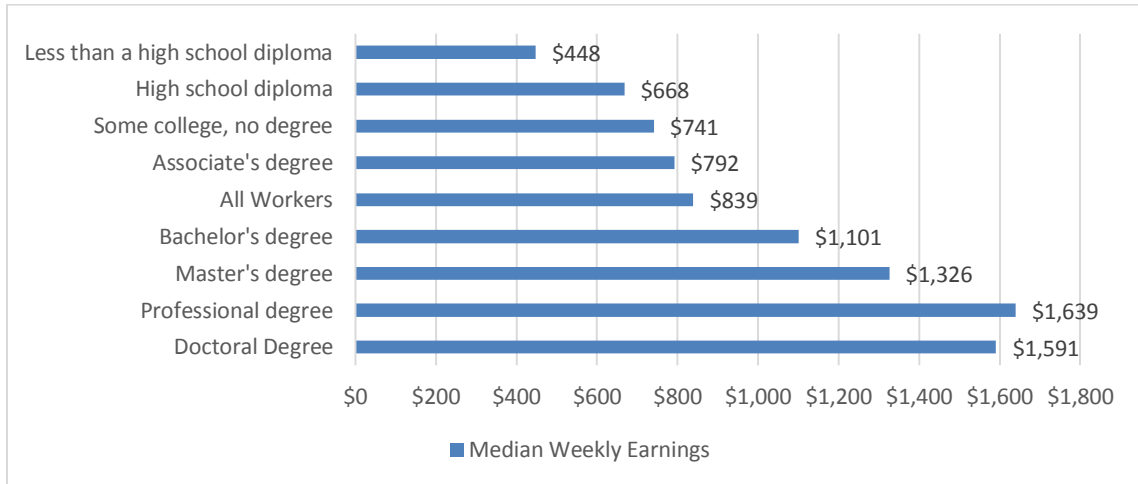


Figure 4. 2014 United States' median weekly earnings by educational attainment. Adapted from "Current Population Survey, U.S. Department of Labor" by U.S. Bureau of Labor Statistics, 2015.

In Illinois, the educational attainment gap is in alignment with a widening income gap between different ethnic groups. In 2013, the median household income for Whites was \$62,320, Hispanics \$45,074, and Blacks \$32,244. The median household income gap between Whites and Latinos rose from \$12,406 in 2000 to \$17,246 in 2013, representing a 39% increase (Latino Policy Forum, 2015). The median household income gap between Whites and African Americans rose from \$25,053 in 2000 to \$30,076 in 2013, representing a 20% increase (Latino Policy Forum, 2015). The data is presented in Figure 5.

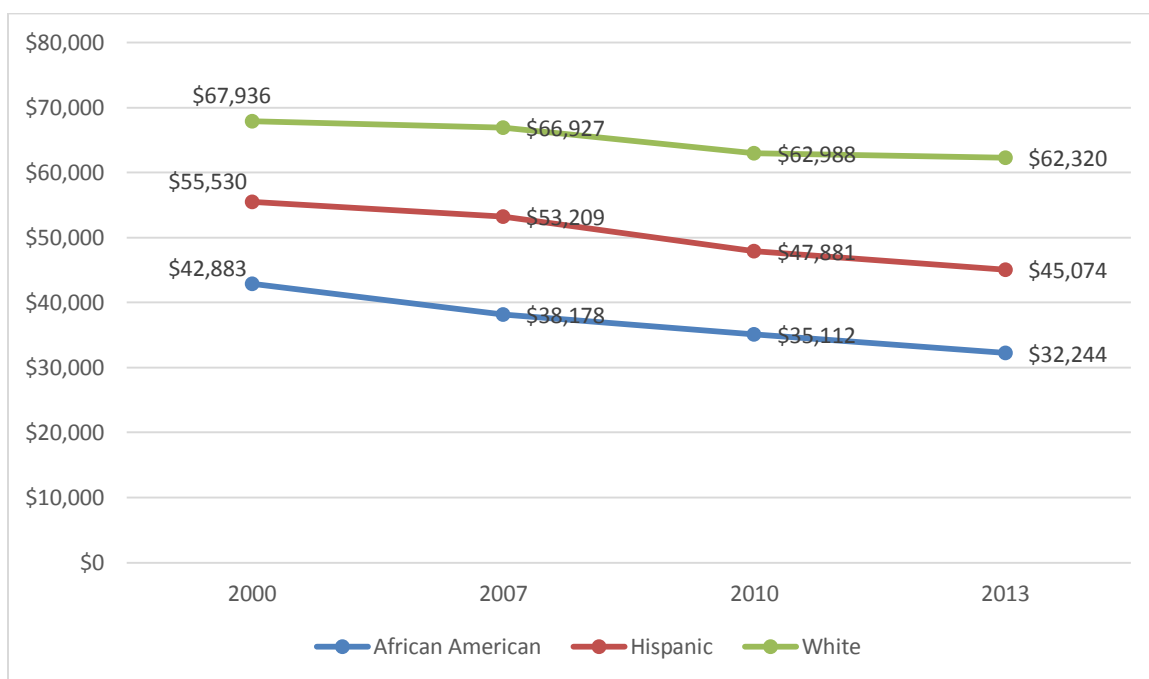


Figure 5. Median household income, by race/ethnicity, Illinois: 2000, 2010, 2013. Adapted from “Median Household Income, by Race/Ethnicity, Illinois” by Latino Policy Forum, 2015.

Improving student educational attainment is a clear route to expanding opportunity and yet achievement results on global, national, and college-readiness assessments show unequal educational outcomes for students based on ethnicity that mirror educational attainment and income differences.

Student Achievement Gaps

The Program for International Student Assessment (PISA), coordinated by the Organization for Economic Cooperation and Development (OECD), has measured the performance of 15-year-old students in reading, mathematics, and science literacy every 3 years since 2000. The OECD is an international economic organization comprised of 34 countries to stimulate economic progress and world trade. The OECD publishes the (PISA) to assesses the extent to which 15-year-old students have acquired key knowledge

and skills that are essential for full participation in modern societies. Around 510,000 students completed the assessment in 2012, representing about 28 million 15-year-olds in the schools of the 65 participating countries and economies (OECD, 2013).

The 2012 results for the Program for International Student Assessment (PISA) show the standing of U.S. students changed little since the last time the test was given in 2009. The United States ranked 26th in math, 21st in science, and 17th in reading (OECD, 2012). The results and attention to PISA scores in recent years have some leading public officials to believe the U.S. is losing its competitive edge. Arne Duncan, U.S. Secretary of Education, summed up United States students' performance,

The big picture of U.S. performance on the 2012 Program for International Student Assessment (PISA) is straightforward and stark: It is a picture of educational stagnation.... This is a reality at odds with our aspiration to have the best-educated, most competitive workforce in the world. Fifteen-year olds in the U.S. today are average in science and reading literacy, and below average in mathematics, compared to their counterparts in other industrialized countries. (Hanushek, 2014, p. 1)

The 2012 results have the United States scoring 497 on science compared to the OECD average of 501, 481 on mathematics compared to a 494 OECD average, and 498 on reading compared to a 496 OECD average. The results are shown in Figure 6.

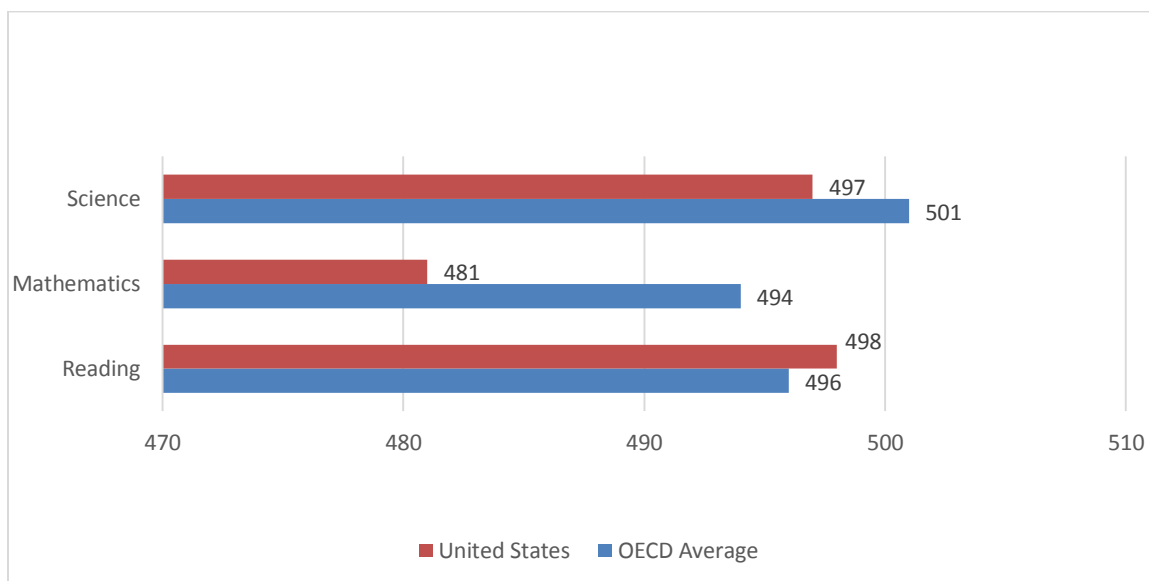


Figure 6. PISA average reading, mathematics, and science scale scores of 15-year-old students by OECD average and United States. Adapted from “Organization for Economic Cooperation and Development (OECD) PISA scores” by Program for International Student Assessment (PISA), 2013.

Ethnicity is not available for other countries but the achievement gaps are evident for different student subgroups in the United States. The 2012 PISA mathematics results show that the OECD average was 494, the United States student average was 481, United States white students averaged 506, United States Black students averaged 421, and United States Hispanic students averaged 455. The achievement gaps have not changed significantly over time. The data is presented in Figure 7.

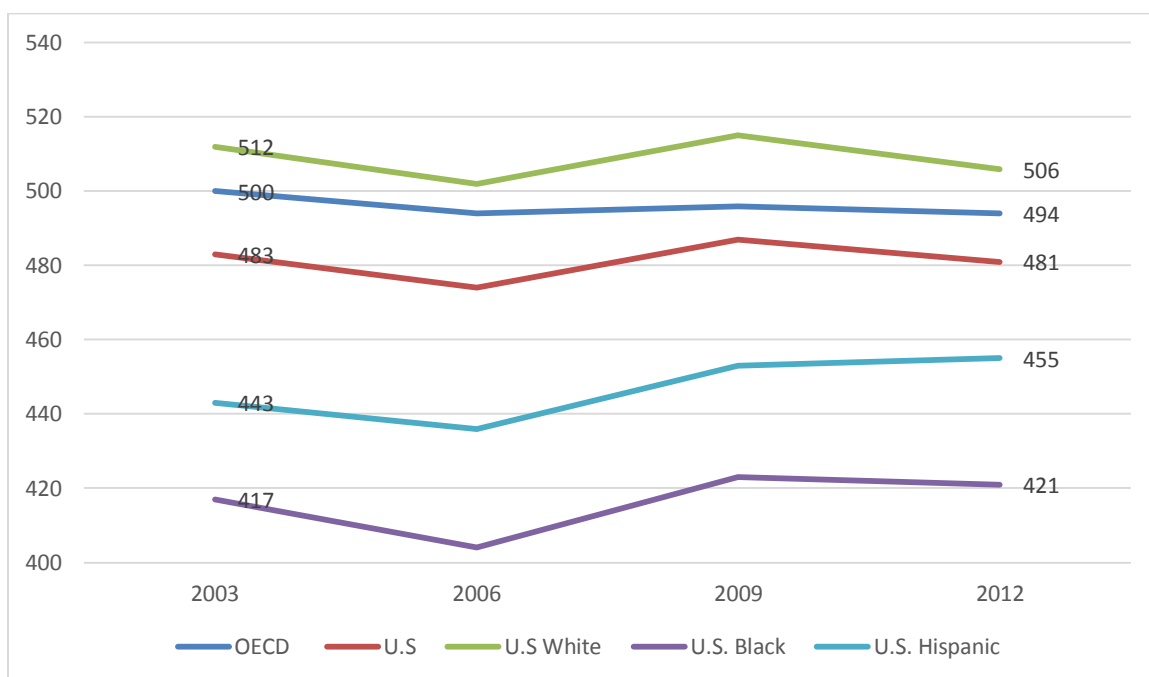


Figure 7. PISA averages for mathematics, age 15 years by race/ethnicity: 2012, 2009, 2006, 2003. Adapted from “Organization for Economic Cooperation and Development (OECD), Program for International Student Assessment (PISA), 2000, 2003, 2006, 2009 and 2012 Mathematics Assessments” by PISA 2013.

Reading results show similar gaps in achievement among ethnic lines. The 2012 PISA reading results show that the OECD average was 498, the United States student average was 498, United States white students scored 519, United States Black students averaged 443, and United States Hispanic students averaged 478. The data is presented in Figure 8.

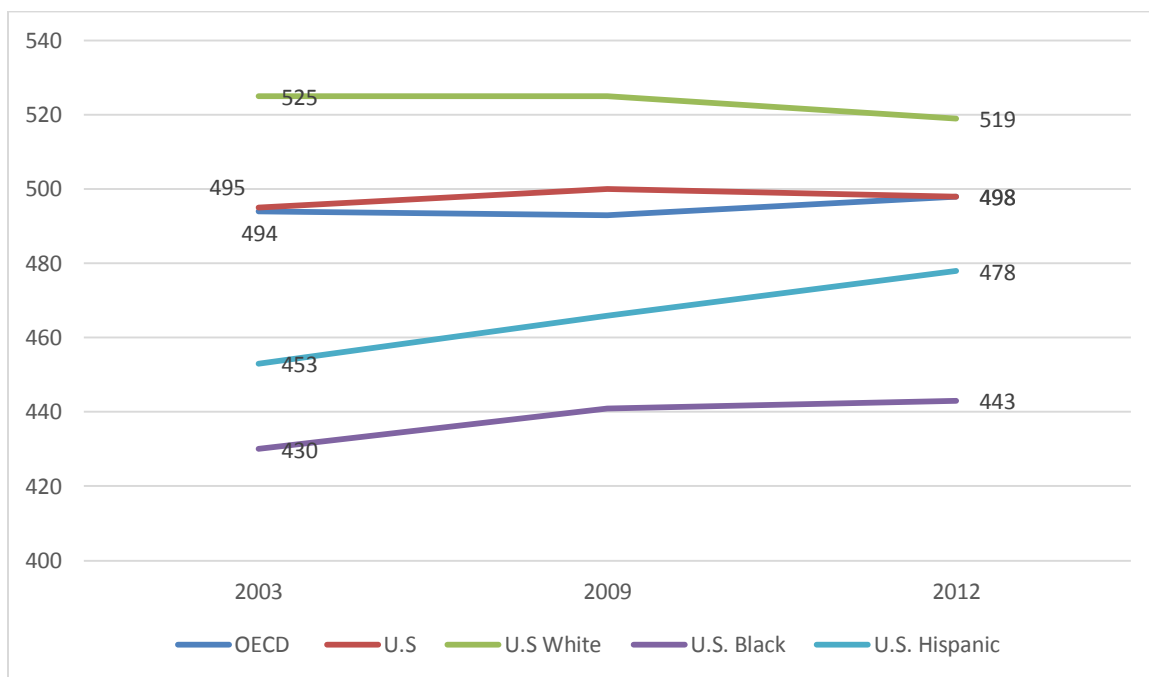


Figure 8. PISA averages for reading, age 15 years by ethnicity: 2012, 2009, 2003. Adapted from “Organization for Economic Cooperation and Development (OECD), Program for International Student Assessment (PISA), 2003, 2009 and 2012 Mathematics Assessments” by PISA 2013.

United States achievement test results show similar achievement gaps for students. The National Assessment of Educational Progress (NAEP) is the largest ongoing assessment of American students given nationally. The assessment has been given to students every 2 years since 1969 in 4th, 8th, and 12th grades across the country, and is called the “Nation’s Report Card” (NCES, 2013). Assessments are given in mathematics, reading, science, writing, the arts, civics, economics, geography, and U.S. history. The average of 4th, 8th and 12th grade NAEP results are very steady over time. For example, looking at the NAEP long-term trend results, in 1971, 17 year olds on average scored 285 on the NAEP reading test, and in 2015 they scored an average of 287. The same pattern holds true for math, in 1971 the average was 304, in 2012 it was 306.

For all 12th-grade students, the average reading score in 2015 (287) was not measurably different from the scores in 2013 (287), 2009 (286), or 2005 (286). Twelfth-grade students were not assessed in 2011. At grade 12 the achievement gap remains on the 2015 average reading scores for White (295), Hispanic (276), and Black (266). The data is presented in Figure 9.

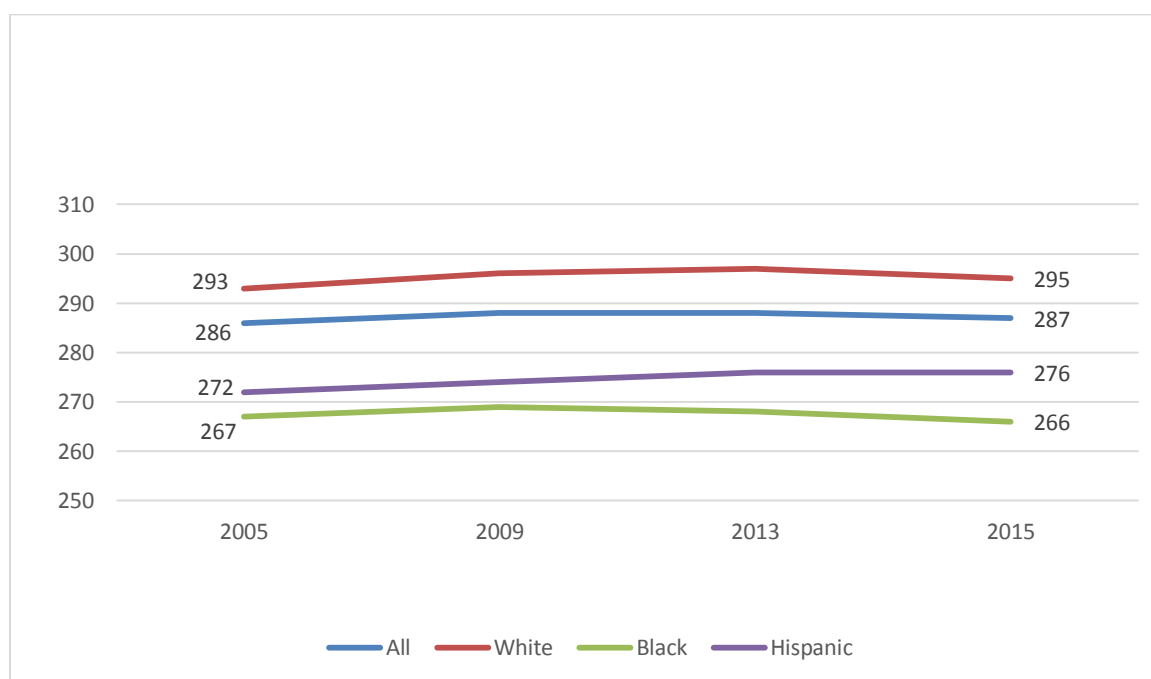


Figure 9. Average grade national assessment of educational progress (NAEP) 12th grade reading scale score, by race/ethnicity. Adapted from NAEP Data Explorer National Assessment of Educational Progress from NAEP, 2015.

The achievement gap on NAEP 12th grade reading has increased between Black and White students over a 10-year period from 2005 to 2015 and has decreased between Hispanic and White students over the same time. The reading scale score difference between White and Black students was 26 in 2005 and 29 in 2015. The reading gap scale score difference between White and Hispanic students was 21 in 2005 and 19 in 2015. The data is presented in Figure 10.

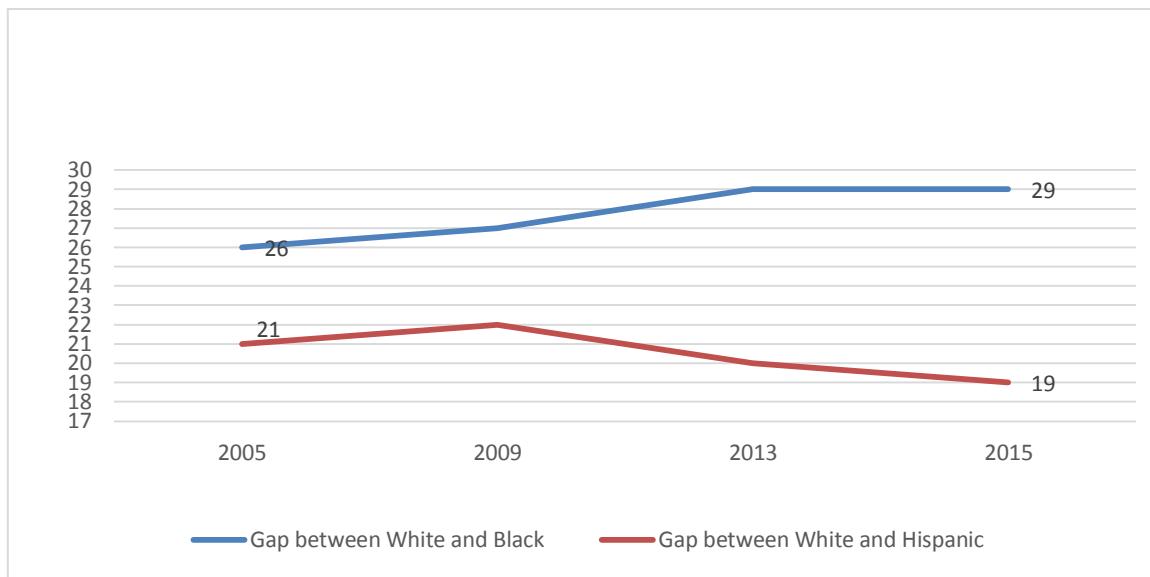


Figure 10. Average grade national assessment of educational progress (NAEP) 12th grade reading scale score gap by race/ethnicity. Adapted from NAEP Data Explorer National Assessment of Educational Progress from NAEP, 2015.

NAEP mathematics results show similar patterns. Due to changes in the 12th-grade mathematics assessment framework, a new trend line started in 2005, with data reported on a scale of 0 to 300. For all 12th-grade students, the average mathematics score in 2015 (152) was not measurably different from the scores in 2013 (153), 2009 (153), or 2005 (150). Twelfth-grade students were not assessed in 2011. At grade 12 the achievement gap remains on the 2015 average mathematics scores for White (160), Hispanic (139), and Black (130). The data is presented in Figure 11.

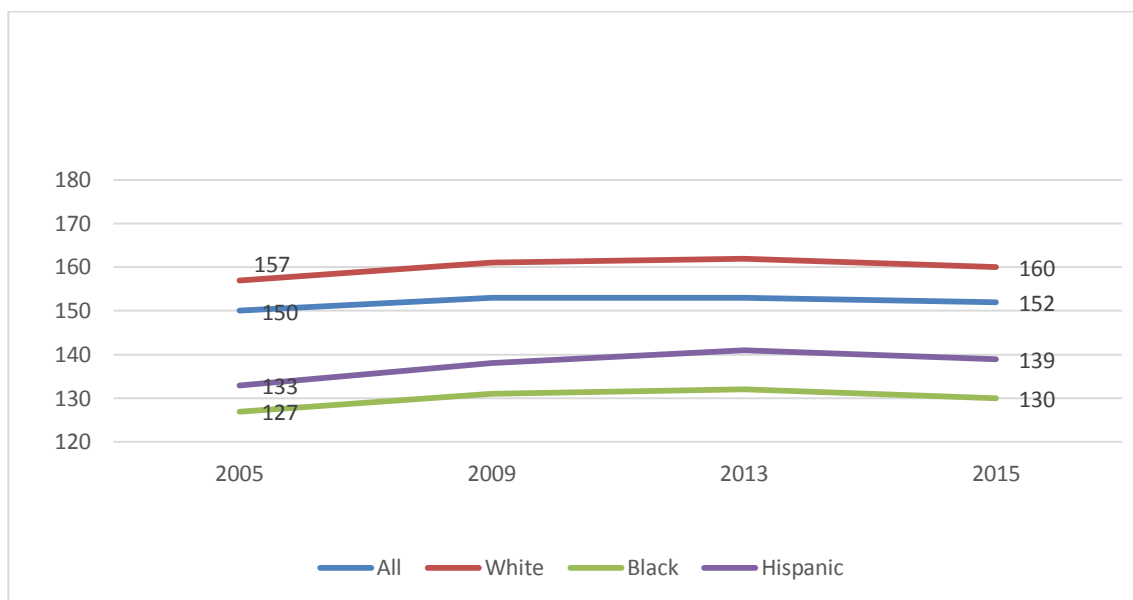


Figure 11. Average grade national assessment of educational progress (NAEP) 12th grade mathematics scale score, by race/ethnicity. Adapted from NAEP Data Explorer National Assessment of Educational Progress from NAEP, 2015.

The achievement gaps on NAEP 12th grade mathematics between White, Black, and Hispanic students has increased over time. The mathematics scale score difference between White and Black students was 24 in 2005 and 30 in 2015. The mathematics gap scale score difference between White and Hispanic students was 19 in 2005 and 21 in 2015. The data is presented in Figure 12.

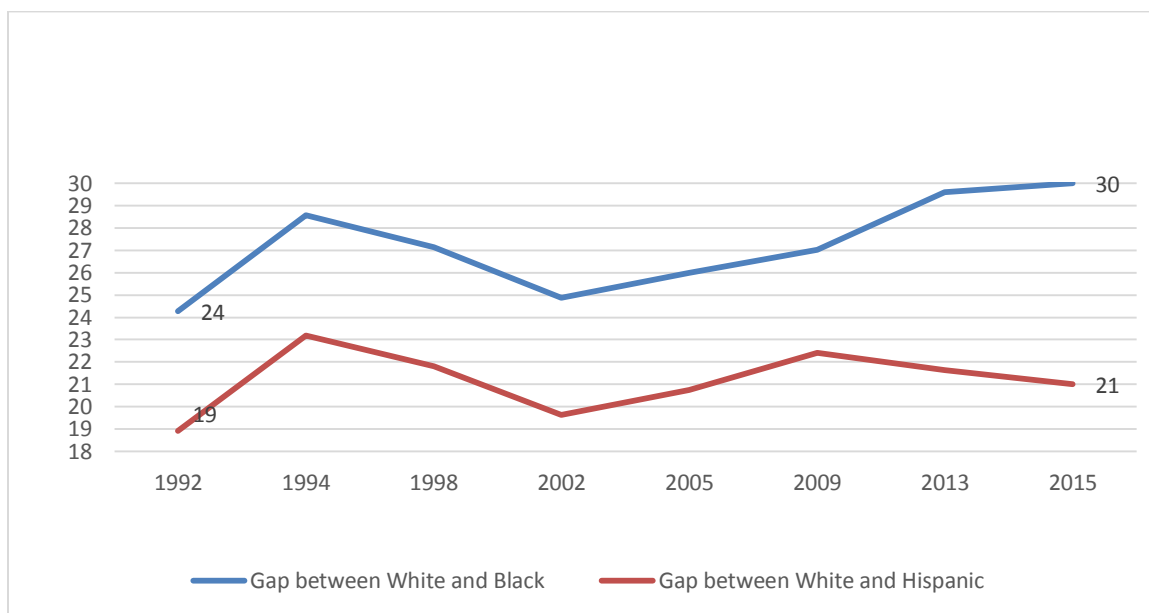


Figure 12. Average grade national assessment of educational progress (NAEP) 12th grade mathematics scale score gap by race/ethnicity. Adapted from NAEP Data Explorer National Assessment of Educational Progress by NAEP, 2015.

The NAEP data suggests that Black/White, and Latino/White achievement gaps have remained stagnant for more than 20 years in the areas of reading, mathematics, science, and citizenship (Boykin & Noguera, 2011; Howard, 2010). Also, NAEP has a college prepared level on its 12th-grade assessments that can be used as an indicator of academic preparedness for first-year, credit-bearing college coursework (NCES, 2013). “College-prepared” is equivalent to “proficient” on the NAEP assessment. Figure 13 below shows the percentage of 12th grade students who are college prepared for reading by ethnicity. In 2015, the average was 46%, white students averaged 37%, Hispanic students 25%, and Black students 17%. This data has been relatively stagnant since 1992. NAEP mathematics data for college preparedness is not released. NAEP provides significant data related to achievement gaps as do America’s college readiness assessments, ACT and SAT.

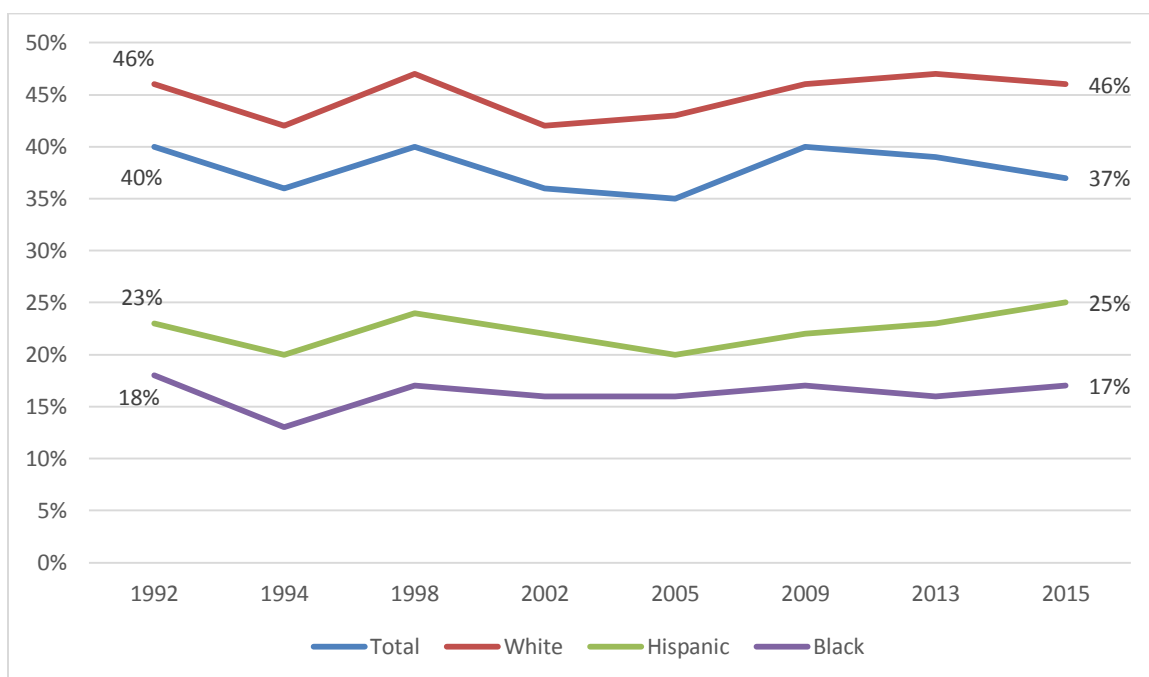


Figure 13. NAEP college readiness percent reading: 1992-2015. Adapted from NAEP Data Explorer National Assessment of Educational Progress. NAEP, 2015.

The ACT is a curriculum-based measure of college readiness. Originally, “ACT” stood for American College Testing, yet the official name was shortened in 1996 to ACT. ACT components include tests of academic achievement in English, math, reading, science, and an optional writing portion. The national composite average on the 2013 ACT assessment was 20.9 for all students, 16.9 for African-American students, 18.8 for Hispanic students, and 22.2 for White students (ACT, 2014).

ACT uses the term “College Readiness Benchmarks” in which the benchmarks are scores on the ACT subject-area tests that represent the level of achievement required for students to have a 50% chance of obtaining a B or higher or about a 75% chance of obtaining a C or higher in corresponding credit-bearing first-year college courses. These college courses include English composition, college algebra, introductory social science

courses, and biology. Based on a sample of 214 institutions and more than 230,000 students from across the United States, the benchmarks are median course placement values for these institutions and as such represent a typical set of expectations. The ACT College Readiness Benchmarks are: English 18, Mathematics 22, Reading 22, and Science 23 (ACT, 2016).

There are achievement gaps in meeting ACT college-readiness benchmarks since 2011. In 2015, 50% of White students, 25% of Hispanic students, and 12% of Black students met three or more college-readiness benchmarks. The data is presented in Figure 14.

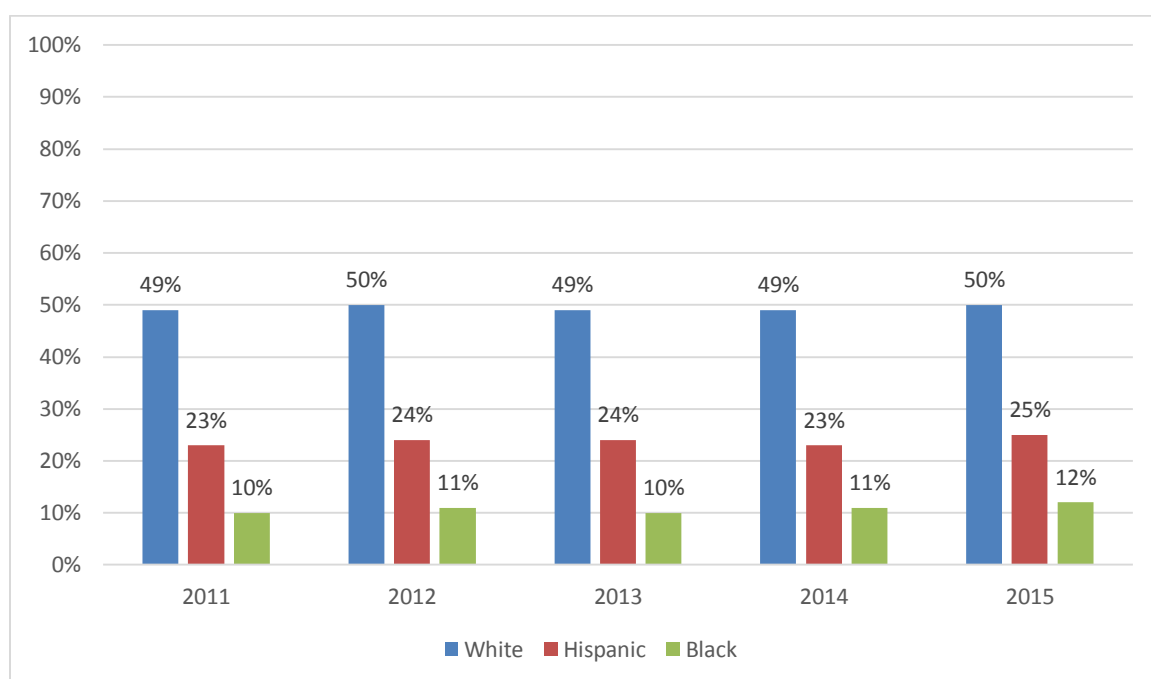


Figure 14. Percent of 2011-2015 ACT-tested high school graduates meeting three or more benchmarks by race/ethnicity. Adapted from “College Readiness Benchmarks” by ACT, 2016.

These achievement gaps have also been virtually unchanged since 2008 and are reflected in another college admission exam, the Scholastic Aptitude Test (SAT). The SAT from the College Board is a standardized test that is used for admission to most

colleges in the United States. Data on SAT performance from the College Board reveals gaps in academic achievement based on race and socioeconomic status as well (Howard, 2010). More than 712,000 students (41.9% of SAT takers in the class of 2015) met the SAT College and Career Readiness Benchmark.

College readiness benchmarks were recently established based on SAT performance, using a sample of approximately 68,000 students across 110 four-year institutions. The college readiness benchmark was calculated as the SAT score associated with a 65% probability of earning a first-year GPA of 2.67 (B-) or higher. The SAT benchmark determined in this study was 1550 for the composite score. There are achievement gaps in meeting SAT college-readiness benchmarks in 2015, as 53% of white students, 23% of Hispanic students, and 16% of black students met the benchmark. The data is presented in Figure 15.

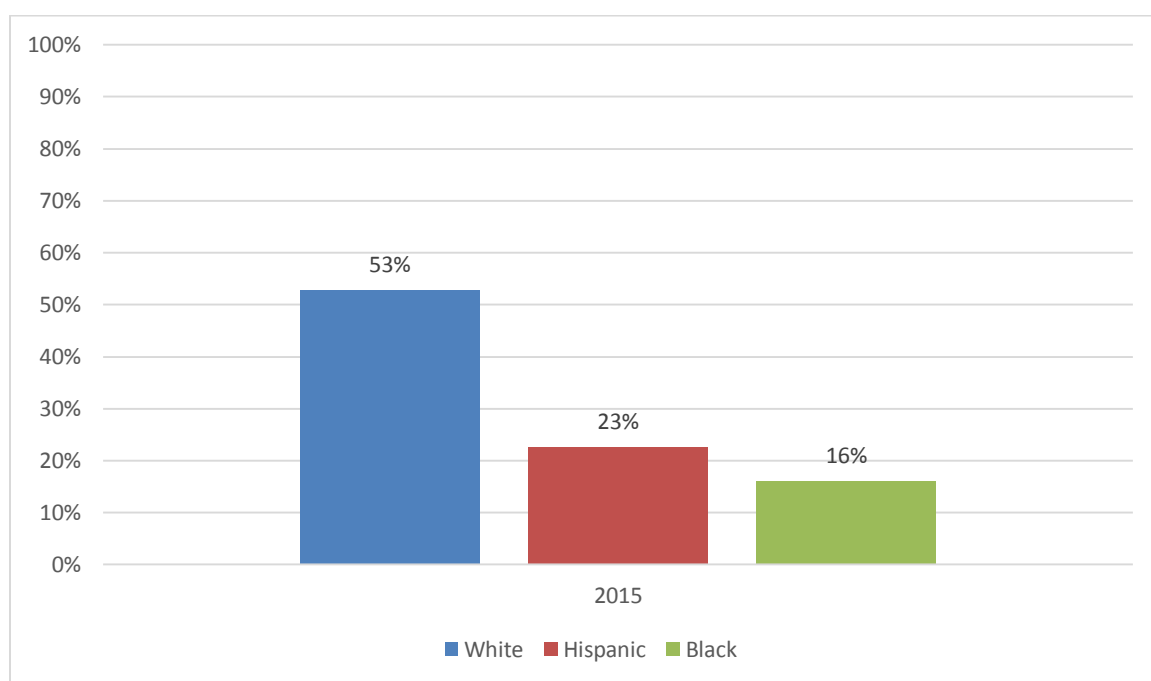


Figure 15. Percent of 2015 SAT-tested high school graduates meeting college readiness benchmark by race/ethnicity. Adapted from “College Readiness Benchmarks” by SAT, 2016.

Educational outcomes on standardized tests, educational attainment, and income are evident in the 21st century and have not improved over time. Given the clear literature on the achievement gap that separate students by race it is necessary to look for solutions that improve outcomes for students. Research has shown that the most powerful predictor of college completion and likelihood of success in the job market is the academic rigor of a students' high school curricula (Adelman, 1999, 2006; Warburton, Bugarin, & Nunez, 2001).

Role of Early College Curriculum

A rigorous course load in high school is positively correlated with standardized test scores (Attwell & Domina, 2008; Bridgeman, Pollack, & Burton, 2004; Horn & Kojaku, 2001), college enrollment rates (Attwell & Domina, 2008; Long, Conger & Iatarola, 2012), lower rates of college remediation (Adelman, Daniel, & Berkovits, 2003), and higher 4-year college graduation rates (Adelman, 1999; 2006).

College-level learning experiences in high school can increase the academic quality and rigor of high school classes, lower the need for postsecondary remediation, reduce the high school dropout rate, reduce student costs of attending postsecondary institutions, and prepare young people to succeed in college (Adelman, 2006; Allen & Dadgar, 2012; Karp et al., 2008, National Student Clearinghouse, 2013; Speroni, 2011). Early college options for students include dual credit (DC), Advanced Placement[®] (AP[®]), and the International Baccalaureate Diploma (IB) Programme. These programs allow students to begin earning college credits while still enrolled in high school. Similar programs include the Advanced International Certificate of Education (AICE), and the Credit by Examination Program (CLEP). This study focused on AP[®] and DC programs.

Completion of AP[®] classes provides one of the best predictors of academic success in post-high school academics and the acquisition of skills that are important to many employers (Dougherty et al., 2006). AP[®] students perform as well or better than their non-AP[®] counterparts when placed directly into intermediate college courses (Dodd et al., 2002; Morgan & Ramist, 1998). The benefits of taking the AP[®] courses are significant and an important part of the AP[®] program is for students to take the AP[®] examination upon completion of the course.

Studies following students into college found that students who took one or more AP[®] exam were more likely than students who did not take any AP[®] exams to maintain a B average in college, and graduate with honors (Morgan & Ramist, 1998; Willingham & Morris, 1986). Even students achieving an AP[®] exam score of 2, which is not high enough to earn college credit, are likely to have better college performance and higher 4-year college graduation rates than are students who did not take an AP[®] course (Hargrove, Godin, & Dodd, 2007). U.S. students who “failed” the AP calculus exam still outperformed students from all other industrialized countries on the Trends in Mathematics and Science Study (TIMSS) (Center for Public Education, 2015).

High school students that score a 3 or higher on AP[®] exams have distinct advantages compared to their other students who are not as successful on the exams. These students receive college credit and therefore reduce tuition costs and shorten the time necessary to graduate from college (Klopfenstein, 2005; Solórzano & Ornelas, 2002). Also, when compared to their matched peers, research consistently shows that students who score a 3 or higher on an AP[®] exam earn higher GPAs in college, have more course work in the subject area of their AP[®] exam, often take more upper-level

offerings, and are more likely to graduate college within 5 years (College Board, 2014; Dodd et al., 2002).

Students in AP[®] courses have advantages in the college admission process over students not involved in the AP[®] program. "...almost all selective colleges and universities give special consideration to AP and honors courses in admissions decisions, although the manner in which this information is used varies from institution to institution" (Geiser & Santelices, ,2004, p. 3). Students in AP[®] courses have increased grade weighting of these courses in most schools which gives a grade point average (GPA) advantage in college admissions eligibility compared to students who did not have the opportunity to obtain a higher GPA by taking AP[®] classes (Taliaferro & DeCuir-Gunby, 2007). Also, students that take AP[®] courses in high school demonstrate to college admission officers they have sought out the most rigorous curriculum available, which leads to higher acceptance rates at more selective universities (College Board, 2014). The many benefits of AP[®] classes to students are also shared by another early college strategy, dual credit courses.

The literature on the benefits of dual credit programs is extensive. Previous empirical research has found dual credit participation for students to be positively associated with nearly every educational outcome studied in high school and college (Karp, Calcagno, Hughes, Jeong, & Bailey, 2007; Kim, 2006; Swanson, 2008). Dual credit provides high school students with an early college experience that has the potential to improve academic and nonacademic skills, help students transition into college, and encourage future college attendance by showing that students are capable of doing college-level work (Karp, 2006).

Dual credit students are more likely to enroll in a 2- or 4-year college, persist beyond the first year of college, earn more credits, less likely to need remedial classes in college, attend college full-time, exhibit a higher GPA in college and obtain a college degree compared to traditional high school students who do not complete dual credit courses (Adelman, 2006; Allen & Dadgar, 2012; Karp et al., 2008, National Student Clearinghouse, 2013; Speroni, 2011). Additionally, dual credit may save students both time to college degree and money while also providing a seamless transition from high school to college (Smith, 2007).

Dual credit appears to foster “academic momentum” (Adelman, 2006), along with enhancing student aspirations where the participants have demonstrated strong self-concept, emotional well-being, and social adjustment (Cornell, Callahan, & Loyd, 1991; Noble & Childers, 2008; Shepherd, Nicpon, & Doobay, 2009). Academic momentum was a term used by Adelman (2006) to reflect the concept of forward movement toward a degree. The number of credits accumulated in the first year of college contributes to academic momentum towards a bachelor’s degree (Adelman, 2006). Both AP and dual credit courses facilitate the transition between high school and college, can reduce the cost of a college education, reduce the time needed to complete a degree program, reduce high school drop-out rates, prepare students for college work, reduce remediation, raise student motivation and aspiration, offer greater advanced credit opportunities in rural areas, and increase post-secondary enrollment and graduation (Adelman, 2006; Bailey & Karp, 2003; Speroni, 2011). Due to the benefits to students, both AP® and DC courses have grown significantly over time.

Advanced Placement®

The Advanced Placement® Program (AP®) consists of rigorous coursework for high school students based on the premise that students can be successful with college-level material. AP® is sponsored by the College Board, a not-for-profit membership association founded in 1900, composed of more than 5,400 schools, colleges, universities, and other educational organizations. Its best-known programs are the SAT®, the PSAT/NMSQT®, and the Advanced Placement® Program (College Board, 2014).

The AP concept was developed in the early 1950s based on the recommendations of two committees: the Kenyon Committee and a joint committee led by Andover English teacher Alan R. Blackmer. The Kenyon committee called for developing college-level curricula and standards that could be instituted at the high school level (College Board, 2014). The committee led by Blackmer examined how to best use the later years of high school and the early years of college and published a final report, which encouraged colleges and secondary schools to work together as a “common enterprise” and recommended achievement exams for seniors engaged in college-level work to earn advanced standing in college (College Board, 2014). Based on the recommendations from both committees, the AP program was piloted in 1952 with funding from the Ford Foundation’s Fund for the Advancement of Education. The resulting pilot program began with 7 partner high schools and 11 subject areas (College Board, 2014). Since 1955, the AP® Program has enabled millions of students to take college-level courses and exams, and to earn college credit or placement while still in high school.

To obtain college credits for the courses taken, AP students are required to take and pass an optional exam where each postsecondary institution sets their own policies

for granting college credits or Advanced Placement[®] into higher level courses. AP[®] exam scores range from 1 to 5. Except for the AP[®] Studio Art Exams, which consist of portfolio assessments, the exams follow a common format of a multiple-choice section and a free response section. The American Council on Education recommends that colleges and universities grant credit and/or placement into higher-level courses to entrants with AP[®] exam grades of 3, 4, and 5. However, colleges and universities set their own AP[®] policies concerning both placement and credit. In a 2013 survey by the College Board of 1,380 colleges, 68% of college policies gave college credit for a AP courses for a score of 3 or better on a scale of 1 to 5 on the end of course examination; another 30% gave credit for a score of 4; and 2% require a score of 5. In 2013, 689,652 U.S. public high school graduates reported AP[®] scores to colleges and universities with a total of 607,505 students scoring a 3 or higher on an AP[®] exam during high school (College Board, 2014).

The AP[®] program has grown steadily from 104 participating high schools at its inception in 1955 to over 2,500 by the mid-1960s, and about 3,500 in the mid-1970s. Participation doubled to about 7,000 by the mid-1980s, and then by more than 50% to over 11,000 by the mid-1990s. In 2015, over 21,000 schools world-wide and 60% of high schools in the United States participate in the AP[®] Program (College Board *AP[®] Fact Sheet*, 2015). Figure 16 depicts the data.

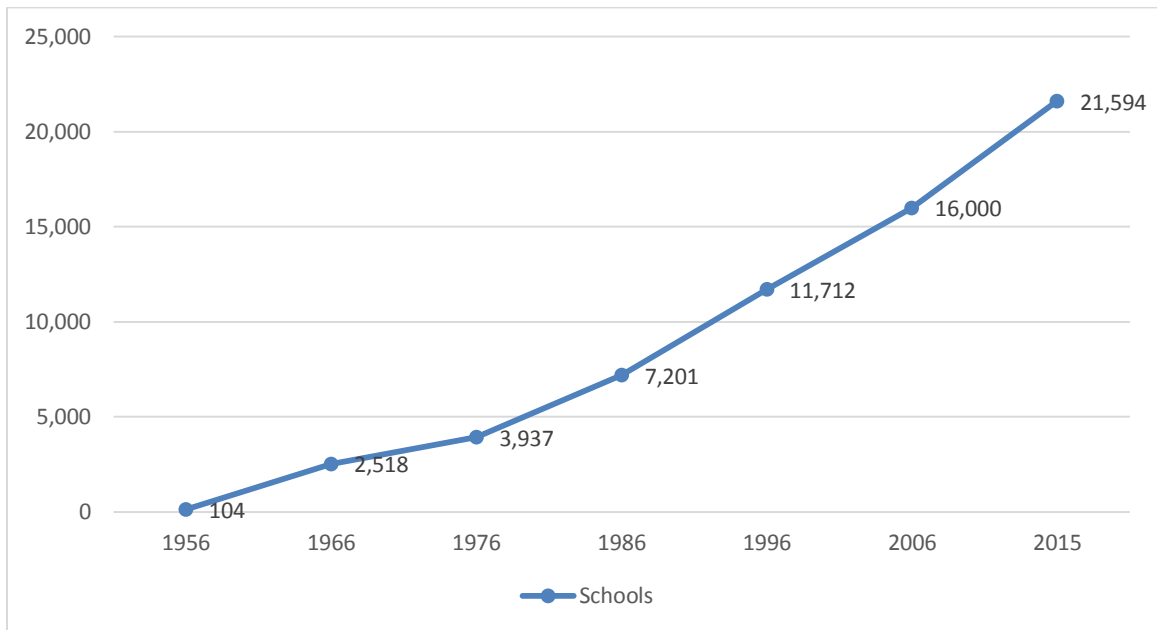


Figure 16. Nationwide annual AP program participation number of high schools: 1956-2015. Adapted from AP Participation by College Board, 2015.

The AP® program in Illinois has grown from 200 participating high schools in 1978 to 685 in 2015 (2015 AP College Board Report to the Nation). The data is presented in Figure 17.

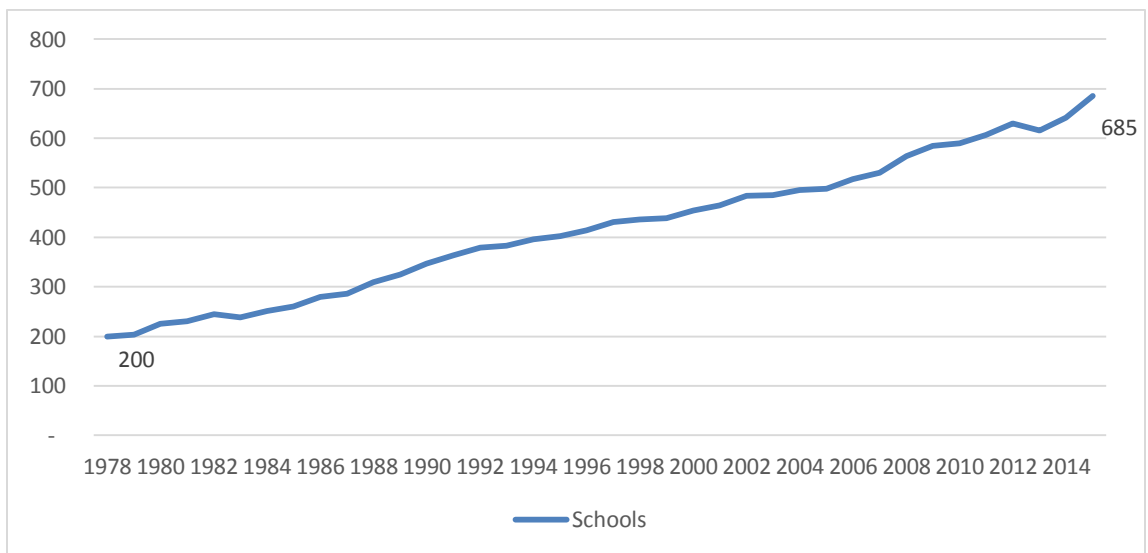


Figure 17. Illinois annual AP program participation number of high schools: 1978-2015. Adapted from “2015 AP College Board Report to the Nation” by College Board, 2015.

In 2015, more than two million students in the United States took an Advanced Placement[®] course at some point in their high school career (College Board, 2015).

Figure 18 shows the significant increase in the number of students who have participated in the program from its inception in 1956.

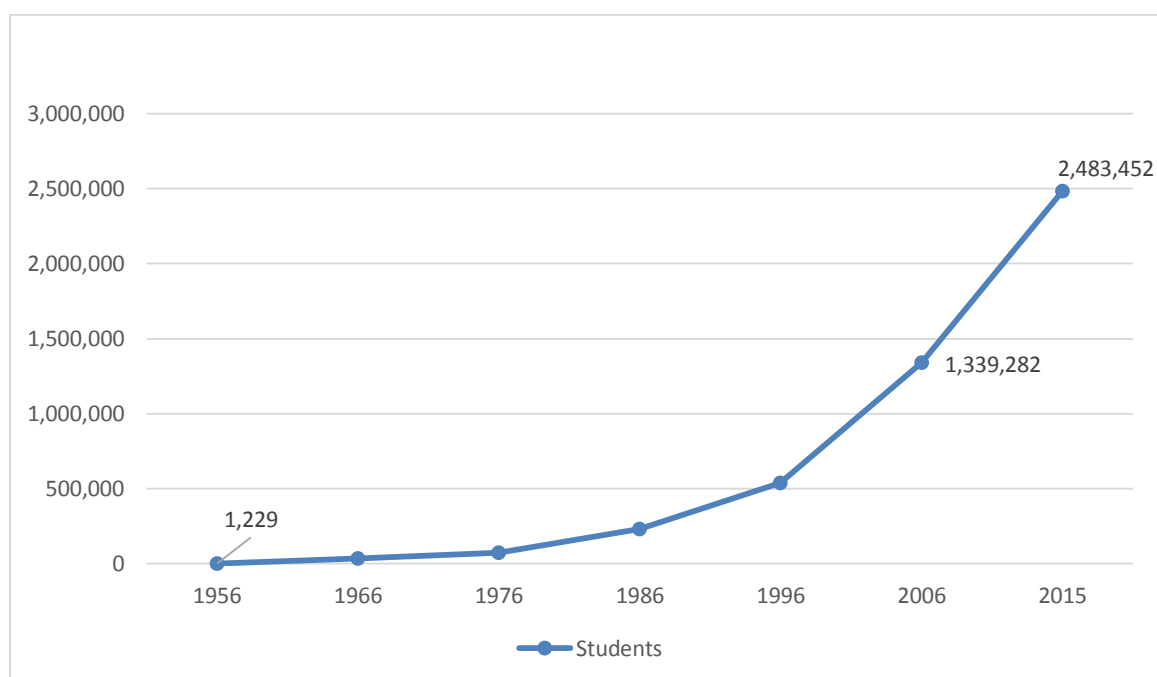


Figure 18. Nationwide AP program participation number of students: 1956-2015. Adapted from “2015 AP College Board Report to the Nation” by College Board, 2015.

In 2015, more than 100,000 students in Illinois took an Advanced Placement[®] course at some point in their high school career (College Board, 2015). Figure 19 shows the significant increase in the number of students who have participated in the program since 1978.

In 2016, there are 38 available AP[®] courses spanning 22 disciplines. Each AP[®] course is modeled upon a comparable college course. The courses are listed in Table 1.

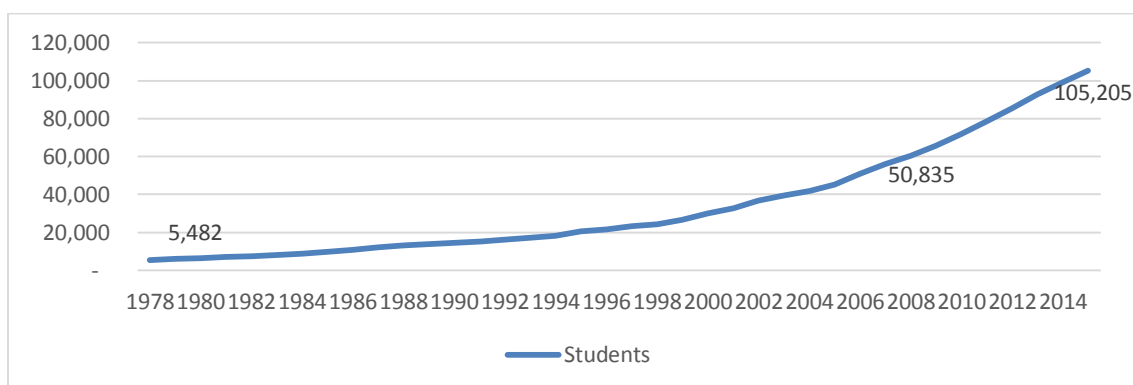


Figure 19. Illinois annual AP program participation number of students: 1978-2015. Adapted from “2015 AP College Board Report to the Nation” by College Board, 2015.

Table 1

2016 AP Courses

AP Capstone

AP Research
AP Seminar

Arts

AP Art History
AP Music Theory
AP Studio Art: 2-D Design
AP Studio Art: 3-D Design
AP Studio Art Drawing

English

AP English Language and Composition
AP English Literature and Composition

History & Social Science

AP Comparative Government and Politics
AP European History
AP Human Geography
AP Macroeconomics
AP Microeconomics
AP Psychology
AP United States Government and Politics
AP United States History
AP World History

Math & Computer Science

AP Calculus AB
AP Calculus BC
AP Computer Science A
AP Computer Science Principles
AP Statistics

Sciences

AP Biology
AP Chemistry
AP Environmental Science
AP Physics C: Electricity and Magnetism
AP Physics C: Mechanics
AP Physics 1: Algebra-Based
AP Physics 2: Algebra-Based

World Languages & Cultures

AP Chinese Language and Culture
AP French Language and Culture
AP German Language and Culture
AP Italian Language and Culture
AP Japanese Language and Culture
AP Latin
AP Spanish Language and Culture
AP Spanish Literature and Culture

Note. Adapted from AP 2016 College Courses, College Board, 2016, retrieved from <https://apstudent.collegeboard.org/apcourse>

In 2015, the courses in Illinois where students have taken the most exams were: English Language (514,390), U.S History (458,719), English Literature (393,448), Calculus AB (296,956), and Government (276,326). The top nine courses are listed in Figure 20.

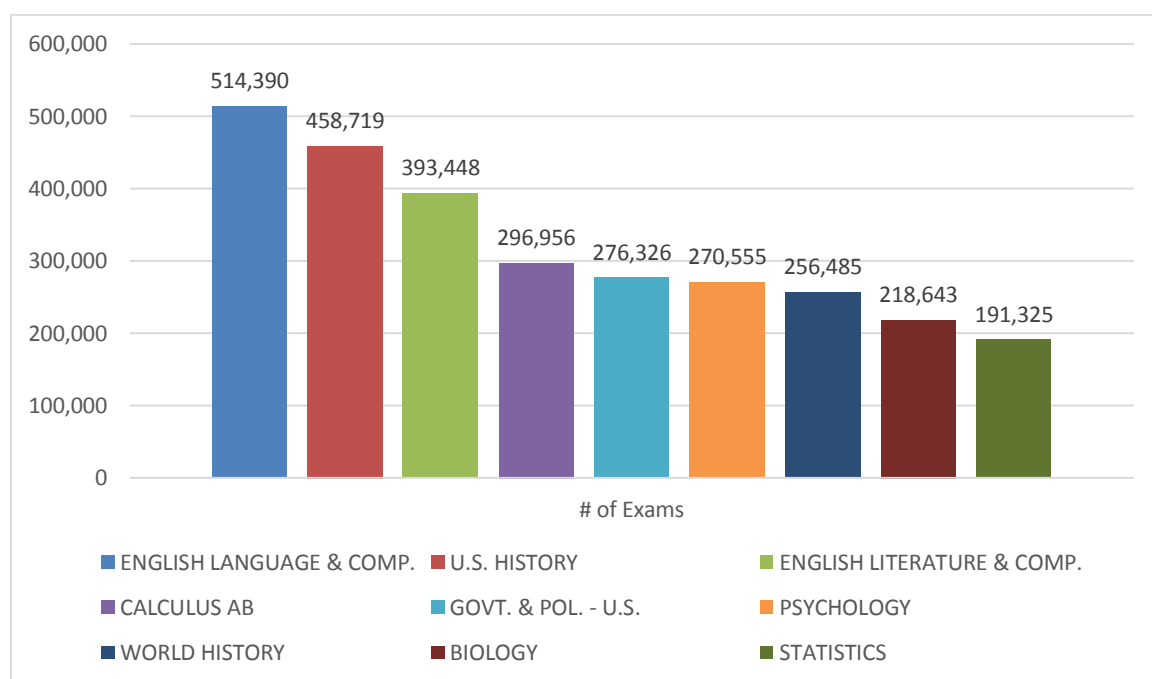


Figure 20. 2015 Illinois AP number of exams taken by course. Adapted from “2015 AP College Board Report to the Nation” by College Board, 2015.

AP[®] courses and exams are developed by a committee of college and high school faculty. College and university faculty ensure that AP[®] courses align with college-level standards by defining the curricular expectations of each course and reviewing all high school AP[®] teachers’ syllabi (College Board, 2011). The process is called the AP[®] audit.

In 2007, the AP[®] Audit was implemented by the College Board to ensure reliability and validity for high rigor and quality of each AP[®] course. Each year, AP teachers must submit an electronic copy of their course syllabi, providing evidence that

they have met the curricular and resource expectations established by college and university faculty for college-level courses. The result of the AP[®] Audit has ensured for college admission committees and reassured students, parents, and administrators the integrity of the AP[®] designation on students' transcripts (College Board, 2014). In 2013, 5,283 college faculty participated in reviewing the syllabi of AP[®] teachers, developing curricula, or scoring AP[®] Exams (College Board, 2014). The benefits of AP has prompted state lawmakers to pass laws requiring public colleges and universities to set uniform policies for recognizing AP courses that students take in high school.

Seventeen states now award college credit state-wide or system-wide to students earning scores of 3 or higher on AP Exams (College Board, 2016). Beginning with the 2016-17 school year, Illinois Public Act 99-0358 requires all Illinois public universities and colleges to give college credit to students who receive scores of 3 or better on 34 of the Advanced Placement[®] course examinations administered at the end of their AP classes. The law leaves it up to college officials to determine whether the exam credit should be applied to electives, general education requirements, or major requirements when it is implemented in the 2016-17 school year.

The score of 3 is typically used as a benchmark for success on the AP exam. AP results from 2003-2013 demonstrate achievement gaps between white, black and Hispanic students on the AP assessments. In 2013, the percentage of white students who scored 3 or greater was around 62%, for black students around 5%, and for Hispanic students around 16% (10th Annual AP Report, 2014). Achievement gaps have narrowed over time as less White students are scoring 3 or better and more Black and Hispanic students are scoring at a higher percentage. Figure 21 represents the data.

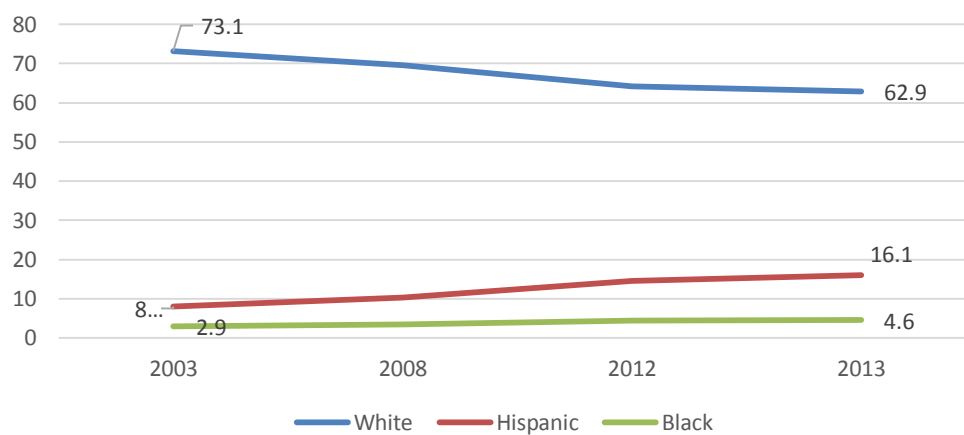


Figure 21. Illinois graduates white, black, Hispanic, percent 3 or greater: 2003-2013. Adapted from “10th Annual AP College Board Report to the Nation” by College Board, 2014.

The 2015 Illinois mean AP exam scores by ethnicity show the same gaps. The average score for all Illinois students was 3.01, White students 3.27, Hispanic students 2.44, and Black students 1.99 (College Board, 2015). The data is displayed in Figure 22.

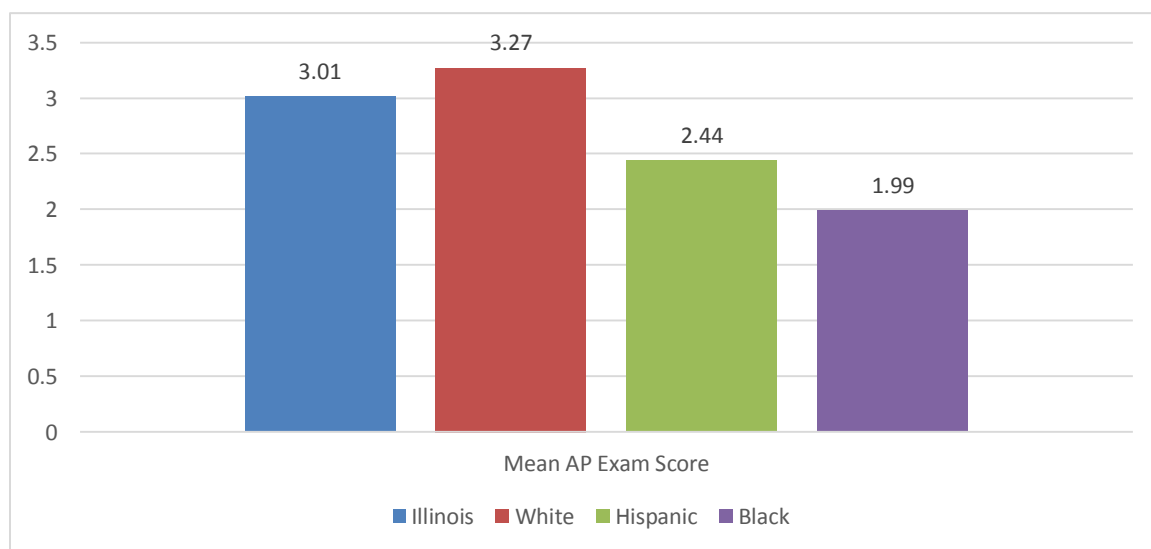


Figure 22. 2015 Illinois mean AP exam score by ethnicity. Adapted from “2015 AP College Board Report to the Nation” by College Board, 2015.

AP[®] and DC schools serve the vast majority of American high school students and yet there are schools that are underserved. The schools without an AP[®] program tend to be small, higher poverty, and more often rural. In 2012, 74% of U.S. schools offered AP[®] courses, while 51% of schools with fewer than 500 students and up to 96% for schools with more than 1,500 students offered AP[®]. This data is presented in Figure 23.

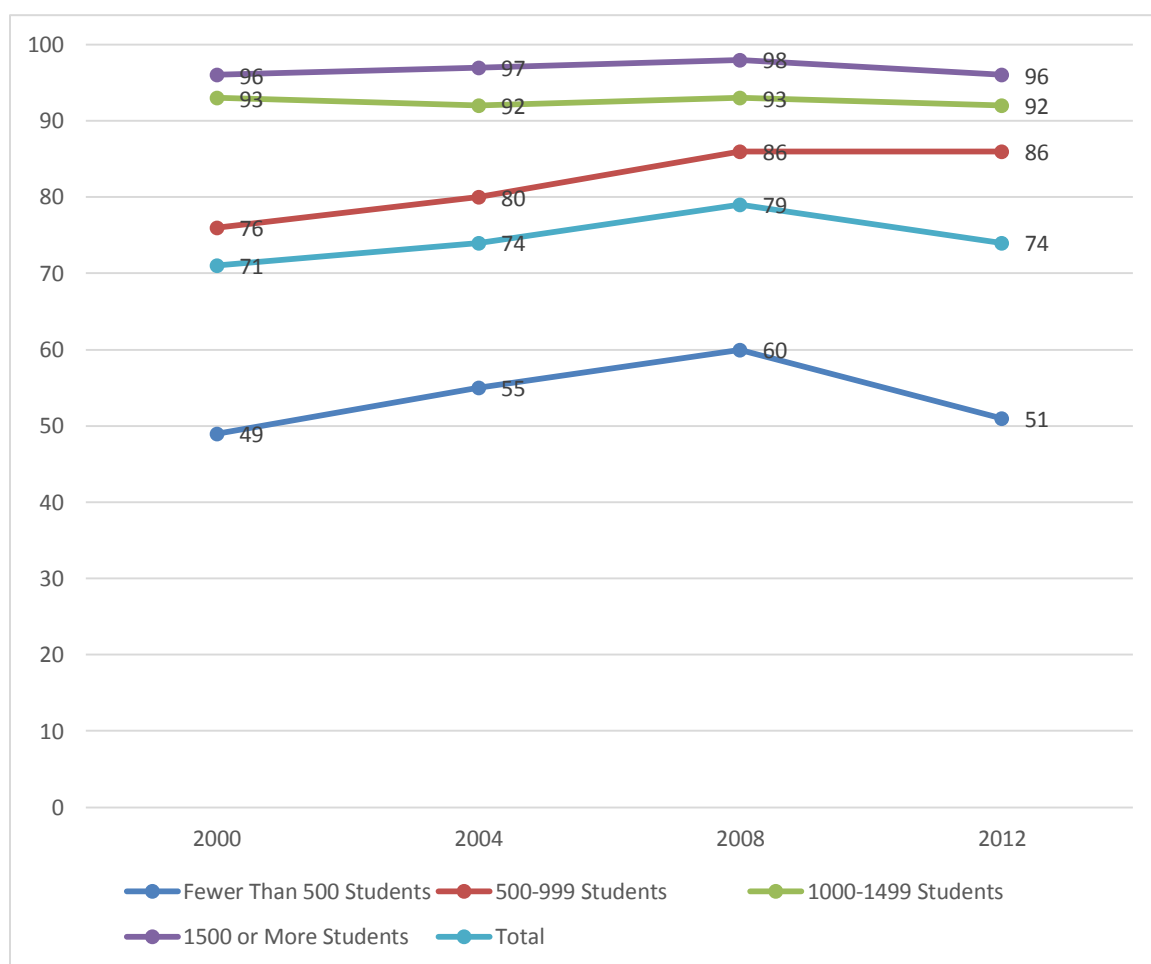


Figure 23. Percentage of schools offering AP[®] coursework by size: 2000-12. Adapted from “Schools and Staffing Survey, 1999-2000, 2003-04, 2007-08, and 2011-12” by U.S. Department of Education, National Center for Education Statistics, 2014.

The location of a school also impacts student opportunity. In 2012, 74% of all schools had an AP[®] program compared to 64% of rural schools up to 91% of suburban schools. The data is presented in Figure 24.

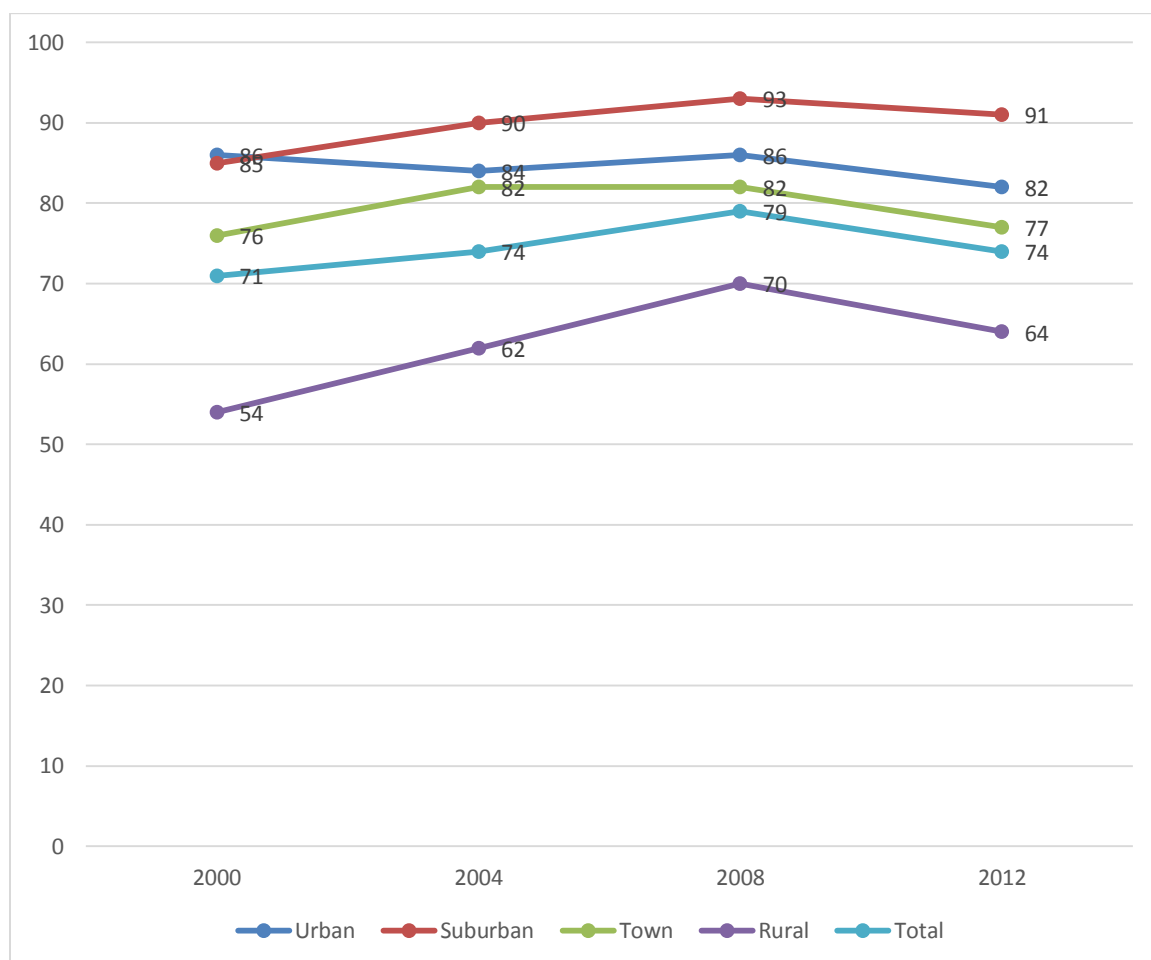


Figure 24. Percentage of schools offering AP[®] courses by locale: 2000-12. Adapted from “Schools and Staffing Survey, 1999-2000, 2003-04, 2007-08, and 2011-12” by U.S. Department of Education, National Center for Education Statistics, 2014.

Even though there have been initiatives leading to increasing numbers of low-income, African American, and Hispanic students participating in AP[®] course work, these groups of students remain underserved. Middle- and high-income students are three times as likely to enroll in an AP[®] course as are low-income students. Black students

participate at about half the rate of the national average, while Hispanic students sign up around the national average (College Board, 2015).

The AP program has recognized the disparities between graduating class percentage and participation rates. In 2002 the College Board posted its *Equity Policy Statement*, which addressed the need for greater AP[®] access and encouraged schools that offer AP[®] courses to ensure access for students who reflect the racial and ethnic diversity of their student population (College Board, 2002). To measure equity, the AP[®] Equity metric was created that can be calculated where one can take the ethnic percentage of students enrolled in AP[®] courses and compare to students graduating to highlight opportunity gaps.

In 2013, the percentage of Illinois Hispanic graduates was 18.4% and the percent that took the AP[®] test was 18.4%. The opportunity gap for Hispanic students disappeared in 2013 (College Board, 2014). The data is displayed in Figure 25.

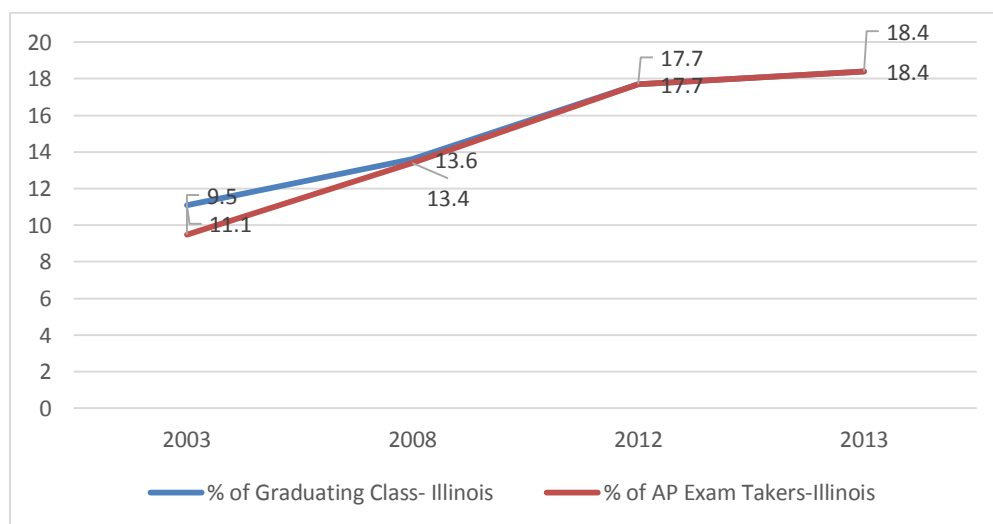


Figure 25. Illinois Hispanic graduates opportunity gaps: percent graduating class, AP[®] participation, 2003-2013. Adapted from “10th Annual AP[®] College Board Report to the Nation” by College Board, 2014.

Black students represent 14.4% of the public school graduating class of 2013 and 11.1% of the AP[®] examinee population (College Board, 2014). Illinois Black students have a significant gap that remains between those taking the college prep courses. The data is represented in Figure 26.

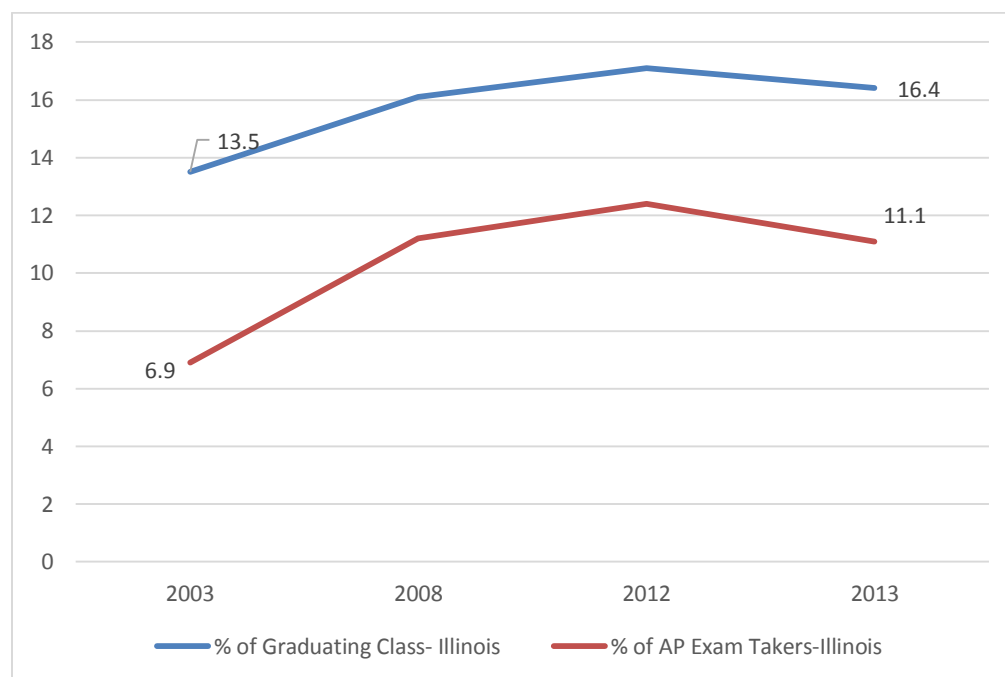


Figure 26. Illinois black graduates opportunity gap percent graduating class, AP[®] participation, 2003-2013. Adapted from “10th Annual AP College Board Report to the Nation” by College Board, 2014.

White students represent 58.7% of the public school graduating class of 2013, and 54% of the AP[®] examinee population (College Board, 2014). Illinois white students have a small gap between those taking the college prep courses and the total proportion of graduates. The data is presented in Figure 27.

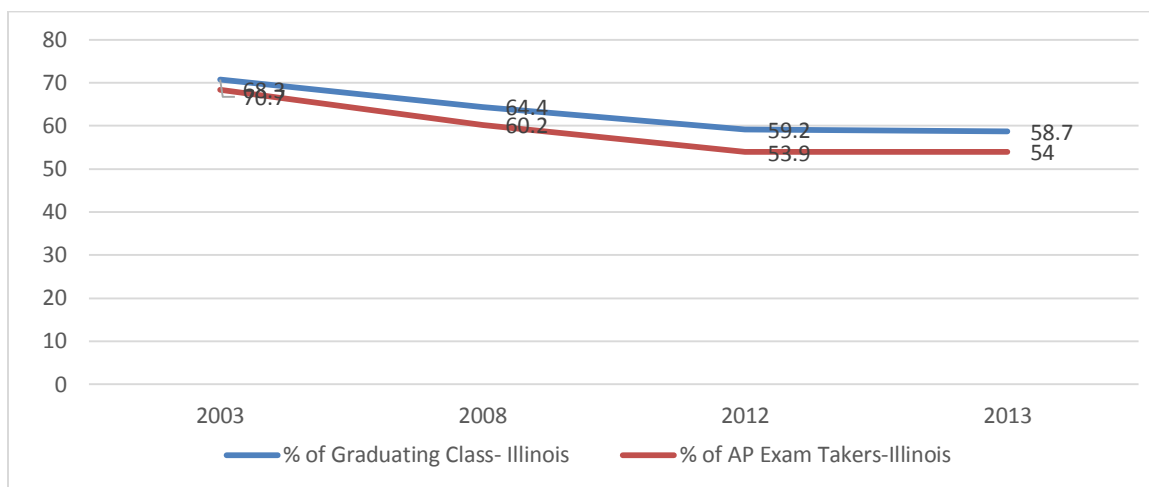


Figure 27. Illinois white graduates opportunity gap percent graduating class—AP[®] participation, 2003-2013. Adapted from “10th Annual AP[®] College Board Report to the Nation” by College Board, 2014.

In Illinois, from 2003 to 2013, there are noticeable opportunity gaps using the AP[®] Equity metric for White and Black students, while there is no gap for Hispanic students. In 2003, there was a gap of 6.6% for White students and in 2013 the gap was 5.3%, for Black students in 2003 the gap was 2.4% and 4.7% in 2013, for Hispanic students in 2003 the gap was 1.6% and in 2013 the gap was 0%. The data is presented in Figure 28.

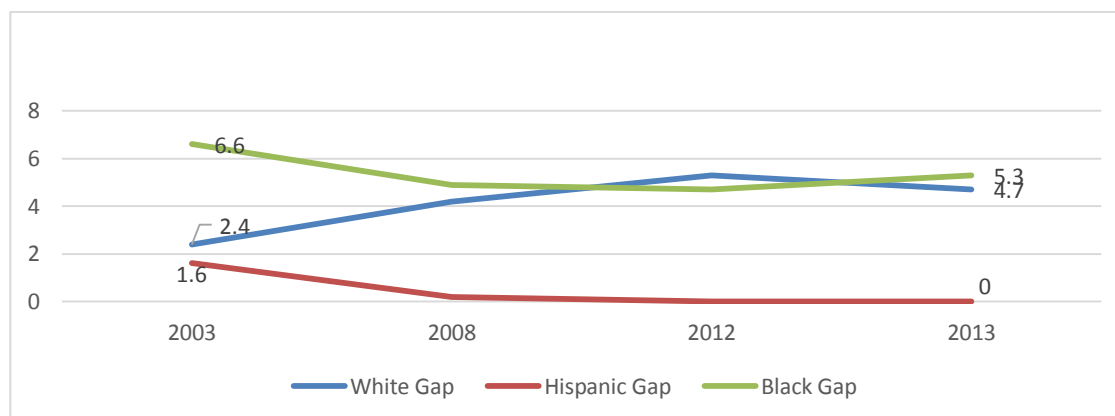


Figure 28. Illinois graduates, AP[®] opportunity gaps, percent graduating class—AP[®] exam takers, 2003-2013. Adapted from “10th Annual AP College Board Report to the Nation” by College Board, 2014.

Educational attainment, weekly earnings, and achievement gaps are aligned with gaps in AP[®] achievement and opportunity. The growth and policy initiatives of AP[®] has been mirrored by another early college initiative, dual credit programs.

Dual Credit

“Dual-credit enrollment programs provide a continuum of education and training that complement the standard high school curriculum with dual-credit college coursework, thus providing dual high school and college credits” (Smith, 2007, p. 371). In Illinois, a dual credit course is a college course taken by a high school student for credit at both the college and high school level (110 ILCS 27/5). The terms dual credit, concurrent enrollment, and dual credit are often used interchangeably in the literature to describe programs in which high school students enroll in college credit-bearing courses (Lowe, 2010). Dual enrollment is the enrollment of a student in high school and college simultaneously, while dual credit is the securing of credit in both high school and college after completing the course (Bragg, 2006). Dual enrollment are courses where college credit is earned and high school credit is not necessarily awarded. Dual credit programs require a partnership and agreement between a college and a school system. The primary distinguishing features of dual credit programs are the location of the delivery (college campus or high school campus) and the instructor’s affiliation (college faculty or high school teacher).

Dual credit courses are usually grouped into one of three categories: (a) college level courses taught on high school campuses, (b) college-level courses taught on college campuses, and (c) college level courses taught via distance learning modes. Dual credit courses can be taught by high school instructors or college faculty either on the high

school or college campus (Bragg, 2006).

In the results from a nationwide survey, the National Center for Education Statistics (2013) reported on the prevalence of these different delivery models. Among institutions across the 50 states with a dual credit programs “83% reported courses within the program were taught at the college campus, 64% reported courses were taught at the high school campus, and 48% reported courses were taught through distance education” (Marken, Gray, & Lewis, 2013).

Some dual credit courses are taught on the high school campus during regular school hours and are recognized by the college as meeting college requirements. Other courses are taught on the college campus by regular college faculty and are recognized by the high school district as meeting high school requirements (Speroni, 2011). Other unique arrangements occur where the college instructor teaches at the high school or the high school instructor teaches at the college.

In April 2005, the first national studies of the prevalence of dual credit programs across the nation were conducted by the National Center for Education Statistics (NCES). Results of NCES surveys and focus groups representing 2- and 4-year public and private universities of varying sizes showed that of the over 4,000 postsecondary institutions responding, 57% reported enrolling high school students in courses both within and/or outside of formalized dual credit programs (Kleiner & Lewis, 2005; Waits, Setzer, & Lewis, 2005).

The most recent nationwide data on dual credit courses is from the 2010-2011 academic year; where 82% of high schools across the country had a comprehensive dual enrollment program with approximately 1,277,100 high school students taking courses

for college credit compared to the last national collection of dual credit data in 2001-2002 where 71% of high schools reporting participating in dual credit (Marken et al., 2013).

The data is presented in Figure 29.

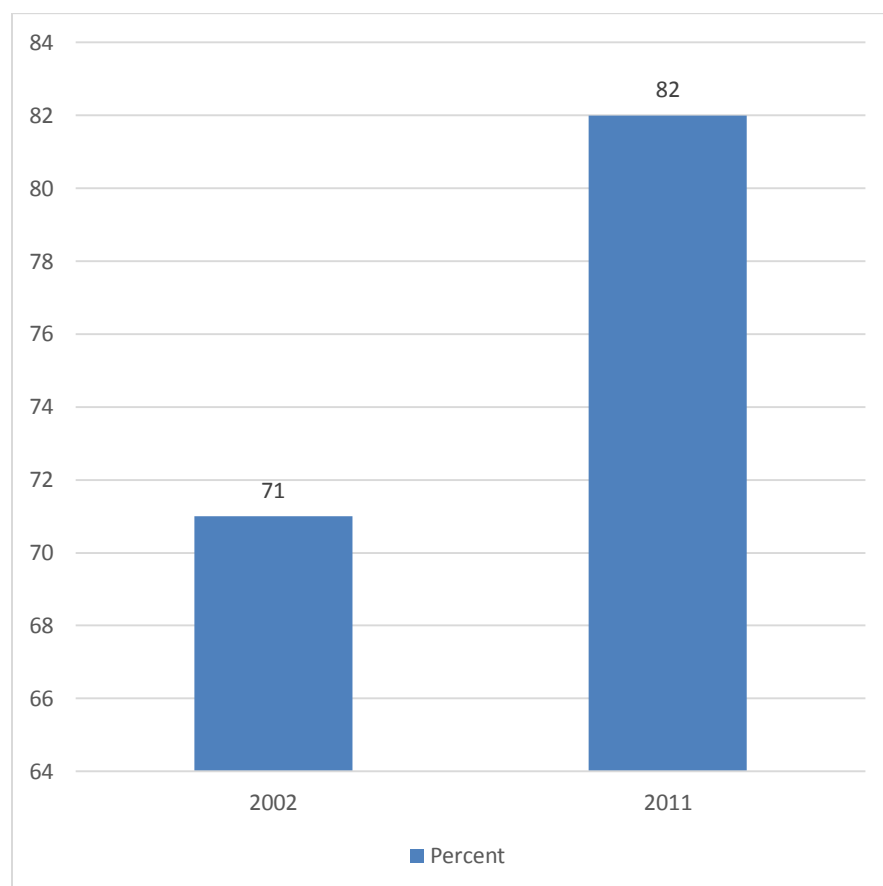


Figure 29. Percent of U.S. high schools who participate in dual credit: 2002 vs. 2011. Adapted from “Dual credit Programs and Courses for High School Students at Postsecondary Institutions 2010–11” by Marken, Gray, Lewis, & Ralph, 2013.

As seen in Figure 29, duplicated Illinois dual credit course enrollments totaled 99,153 students in fiscal year 2015, which was an increase of 4.7% compared to 2014 (N = 94,689), an increase of 19.6% compared to 2011 (N = 82,895), and an increase of 74.1% compared to 10 years before (N = 56,963).

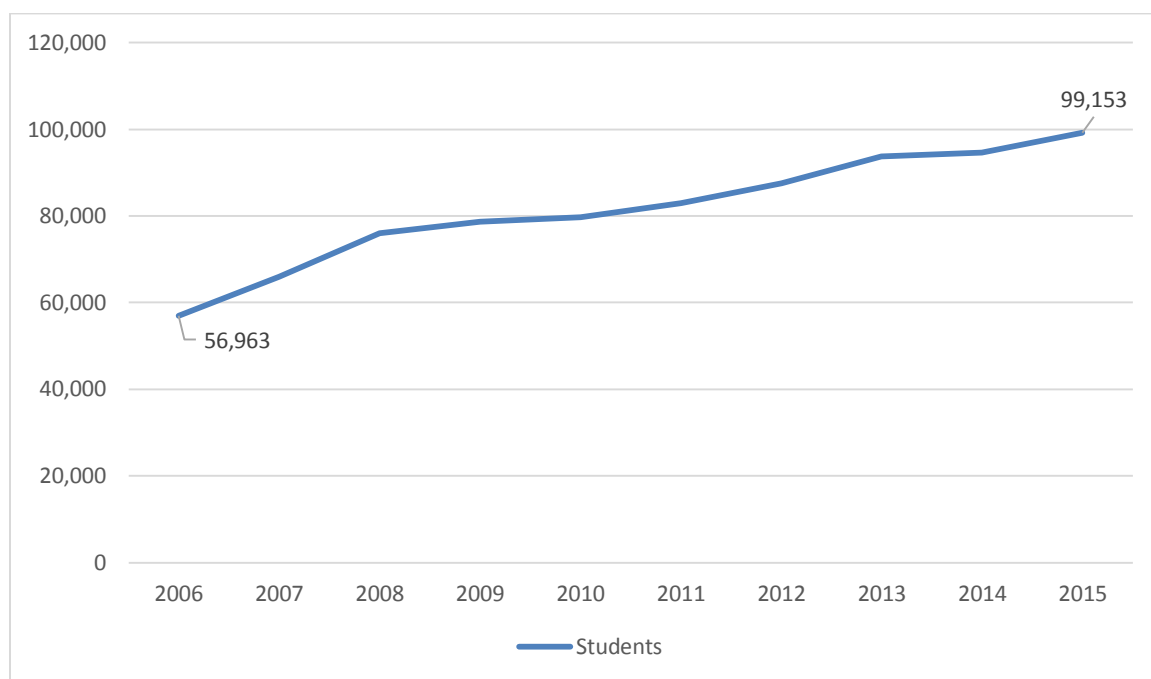


Figure 30. Illinois dual credit student enrollment (duplicated) 2006-2015. Adapted from “Illinois Dual Credit from ICCB SU/SR Records,” 2016

Community colleges in Illinois have historically offered more college credit to high school students when compared to 4-year institutions. Outside of community colleges, in 2016 Illinois had 29 private 4-year institutions, 8 out of state, and 5 public universities that offered dual credit (IBHE, 2016).

In Illinois, current dual credit courses are offered through cooperative agreements with Illinois community colleges generally that fall into two broad categories: Career and Technical Education (CTE) or General Education (GE). General Education courses must be approved for credit under the Illinois Articulation Initiative (IAI). Such courses are accepted for credit by all IAI participating schools, which includes all Illinois public universities and some 94 other Illinois colleges and universities (IAI, 2015). Examples of Baccalaureate/Transfer courses are Writing-General, Mathematics-General, Spanish

Language and Literature, Psychology-General, and Rhetoric and Composition.

Enrollments in these five courses accounted for 33.3% of all dual credit enrollments in fiscal year 2015 (ICCB SU/SR Records, 2015). Examples of CTE courses are Welding Technology/Welder, Business/Office Automation/Technology/Data, Nurse/Nursing Assistant/Aide and Patient Care Assistant, General Office Occupations and Clerical Services, and Computer Systems Networking and Telecommunications. Enrollments in these five courses accounted for 11.8% of all dual credit enrollments in fiscal year 2015 (ICCB SU/SR Records, 2015).

Enrollments in the 10 largest Illinois dual credit programs accounted for 46.4% (N = 46,036) of all dual credit enrollments in fiscal year 2015. As depicted in Figure 31, the 10 highest dual credit enrollments in fiscal year 2015 were in Writing, General (N = 15,518); Mathematics , General (N = 5,417); Spanish Language and Literature (N = 4,647); Psychology, General (N = 3,880); Rhetoric and Composition, which was formerly reported under Speech and Rhetorical Studies (N = 3,538); American History (United States) (N = 2,929); Welding Technology/Welder (N = 2,766); Business/Office Automation/Technology/Data Entry (N = 2,720); Nursing Assistant/Aide and Patient Care Assistant/Aide (N = 2,343; and Health and Physical Education (N = 2,278). The data is presented in Figure 31.

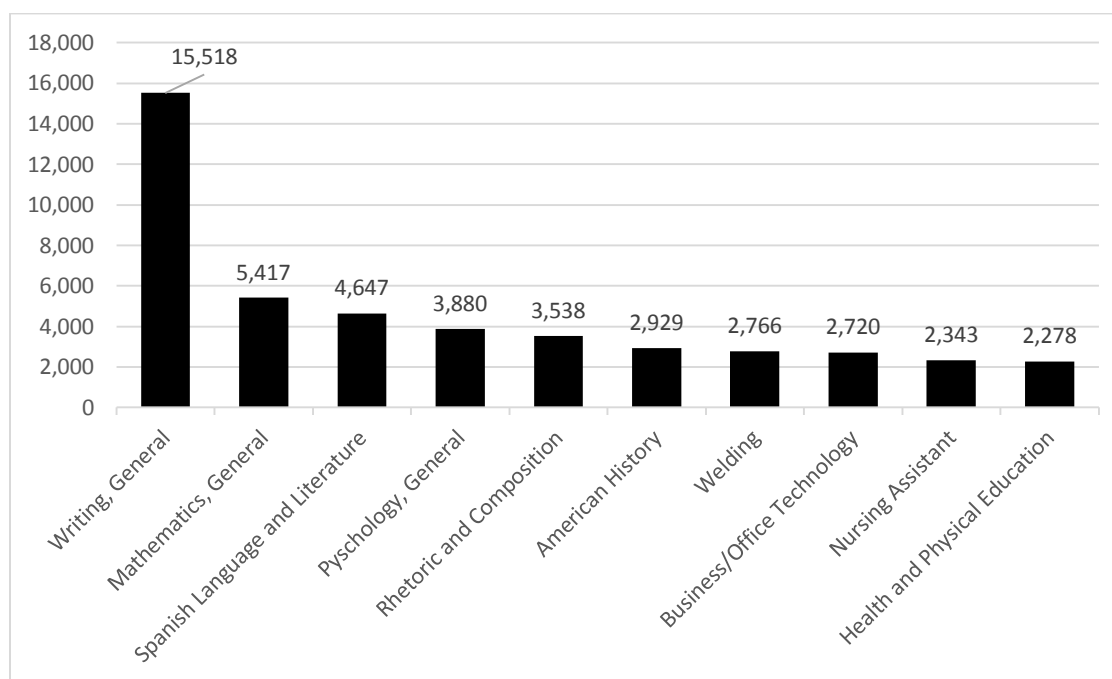


Figure 31. Illinois FY15 top ten dual credit course enrollment. Adapted from “Illinois Dual Credit Enrollment” from ICCB SU/SR Records, 2016.

As seen in Figure 32 below, Baccalaureate/Transfer dual credit enrollments accounted for 61.9% of all dual credit enrollments in fiscal year 2015. Enrollments in this area increased to 61,374 in fiscal year 2015, an increase of 6.6% from 2014 (N = 57,564), 30.7% from 2011 (N = 46,964), and more than double what it was 10 years ago (N = 30,214). Dual credit enrollments were nearly evenly split between Baccalaureate/Transfer Education and Career and Technical Education in fiscal year 2006 as Baccalaureate/Transfer dual credit enrollments accounted for 53.0% of all dual credit enrolments. The proportion of Baccalaureate/Transfer dual credit enrollments has increased in the last 10 years to 61.9%.

Also shown in Figure 32 is the Career and Technical Education dual credit course enrollment. Ten years ago and 5 years ago Career and Technical Education dual credit courses accounted for 44.7% and 43.9% of all dual credit courses, respectively. Dual

credit enrollments in Career and Technical Education increased to 37,779 in fiscal year 2015, which is a 1.8% increase over 2014 (N = 37,125), a 5.1% increase over 2011 (N = 35,931), and a 41.3% increase over 2006 (N = 26,749).

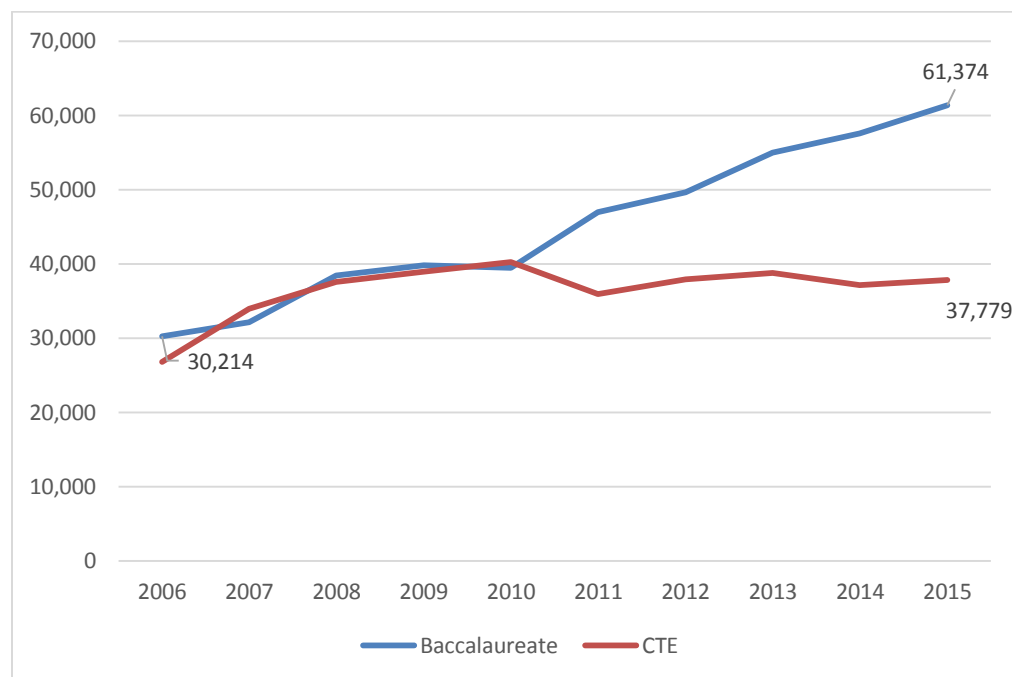


Figure 32. Illinois dual credit student enrollment (duplicated) for baccalaureate/transfer & CTE Courses 2006-2015. Adapted from Illinois Dual Credit Student Enrollment from ICCB SU/SR Records, 2016.

Similar to AP[®], dual credit coursework originally began as a way to challenge high school students. One of the first instances of the collaboration of secondary and post-secondary education occurred in 1928 when Pasadena Junior College and Pasadena High School merged into a single building with grades 11-14 and allowed students to enroll in college credit courses while maintaining their status at the local high school (Wechsler, 2001). Two concurrent enrollment programs began in the 1950s: the University of Connecticut's High School Cooperative Program (started in 1955) and the Saint Louis University Advanced College Credit Program (started in 1959). Dual credit

programs developed and grew continuously from the late 1950s, and started to gain momentum in the 1980s following the release of *A Nation at Risk*, which called into question the effectiveness of secondary education and identified the need for a strengthened high school curriculum (Fincher-Ford, 1997).

One of the largest dual credit programs in the United States is the Syracuse University Project Advance (SUPA). SUPA is an educational program that provides high school students with the opportunity to take Syracuse University courses in their own schools during the regularly scheduled school day. SUPA was formed in 1972 to provide more challenging options to college-bound junior and senior level students in local Syracuse high schools in nine schools. After successful completion of the course(s), they can request to transfer the credits they earn into the colleges/universities they attend after high school (Kravitz, 1994). Today, SUPA serves more than 200 high schools in New York, New Jersey, Maine, Massachusetts, Michigan, and Rhode Island, with the largest concentration in New York State. Approximately 8,000 students enroll annually in Syracuse University courses taught by more than 750 high school faculty members with Syracuse adjunct instructor appointments (SUPA, 2016).

Additional dual credit programs were established in the 1970s as a means to challenge advanced high school students and were started by community colleges in partnership with local high schools (Kim, Kirby, & Bragg, 2006). Florida was the first state to offer a state-sponsored accelerated mechanism for dual credit. The Accelerated Mechanism Program, established in 1979, was influenced by the publication, *Less Time, More Options* by the Carnegie Commission on Higher Education (1971). Florida's original dual credit legislation intent was to allow students to earn a bachelor's degree in a

shorter amount of time (Bickel, 1986). In decades to follow, Florida policymakers have passed dual credit legislation to meet the interests of different stakeholders: strengthen high school curriculum (1980s), increase student participation (1990s), increase dual credit coursework student access to marginalized students, and reduce state education costs (2000s) (Hunt & Carroll, 2006).

Nationally, dual credit programs gradually increased through the 1980s, with greater expansion through the 1990s due to state policies and initiatives that mandated the establishment of dual credit opportunities for high school students. (Kim et al., 2006; Karp, 2007). In 1985, Minnesota instituted a state-level program offering to pay high school students to take college courses (Clark, 2001). In 1990, the state of Washington implemented the Running Start program, a program that expands postsecondary opportunities for public school students.

The National Alliance of Concurrent Enrollment Partnerships (NACEP) is the optional national accrediting body for concurrent enrollment partnerships in the United States. NACEP accreditation serves to guarantee to students, policy-makers, and other postsecondary institutions that the accredited partnership between secondary schools and colleges meets rigorous national standards (NACEP, 2016). Accreditation is awarded to programs that implements NACEP's 17 national standards for program quality in the areas of curriculum, faculty, students, assessment, and program evaluation (NACEP, 2016). In essence, NACEP works to ensure that college courses taught by high school teachers are as rigorous as courses offered on the sponsoring college campus.

Currently, all 50 states have some policy in place regarding dual credit (Center for Public Education, 2012) and yet have different characteristics (Bragg, 2006). Dual

credit policies are primarily concerned with program eligibility, how credit is awarded, who pays, requirements for counseling, information sharing, and implementation of institutional accountability.

Illinois' dual credit policy does not mandate high schools and colleges offer dual credit (Borden et al., 2013). A House Joint Resolution was adopted on May 28, 2008, to establish a task force to study issues related to dual credit. The work of the Dual Credit Task Force led to the passage of the Illinois Dual Credit Quality Act of 2009 (Illinois Dual Credit Quality Act, 2009). The Act requires the Illinois Community College Board (ICCB) and the Board of Higher Education (IBHE) to develop policies regarding dual credit.

ICCB and IBHE have aligned administrative rules that regulate the provision of dual credit. The rules provide a framework for delivering dual credit related to quality standards, placement and testing, instructor qualifications, and course offerings. Dual credit instructors teaching credit; college-level courses must meet the same requirements as on-campus faculty, and dual credit instructors teaching career and technical education courses must have appropriate credentials and teaching competencies. According to ICCB Administrative Rules: "Course prerequisites, descriptions, outlines, requirements, learning outcomes, and methods of evaluating students shall be the same as for on-campus offerings" (ICCB, 2016).

Longitudinal achievement data around dual credit programs, the number of credits and courses completed by ethnicity, is just beginning to be collected nationally and in Illinois and not available for this study. However, there are opportunity gaps depending on school size, location and ethnicity of the students for access to dual credit that are

aligned with all other achievement measures.

Like AP[®] courses, opportunity gaps by high school characteristics and ethnicity are evident for dual credit courses. A recent study (Taylor & Lichtenberger, 2013) examined the relationship between high school characteristics and access to dual credit courses in high school. The study used data from the Illinois public high school graduating class of 2003 to determine dual credit participation from 644 high schools and was obtained under data sharing agreements with ACT, the Illinois Board of Higher Education, and the National Student Clearinghouse (NSC). The researchers used the same methodology as the AP[®] Equity Metric to calculate equity for dual credit. The rate of dual credit participation for each of the 644 Illinois public high schools was calculated by dividing the number of students in the 2003 graduating class who participated in dual credit by the total number of students in the 2003 graduating class. High schools were categorized into quartiles by the proportion of the 2003 graduating class participating in dual credit. The quartiles were then used to exam the relationship between high school characteristics and high school's dual credit participation rates. The study found that access to dual credit for Illinois high school students is partially due to the size of the school and location.

Figure 33 suggests that highs schools in towns and rural areas have a larger proportion of students participating in dual credit relative to Chicago and urban environments (Taylor & Lichtenberger, 2013).

Figure 34 suggests that high schools in small or medium sized school districts enrolled have larger proportions of students in dual credit relative to larger high schools (Taylor & Lichtenberger, 2013).

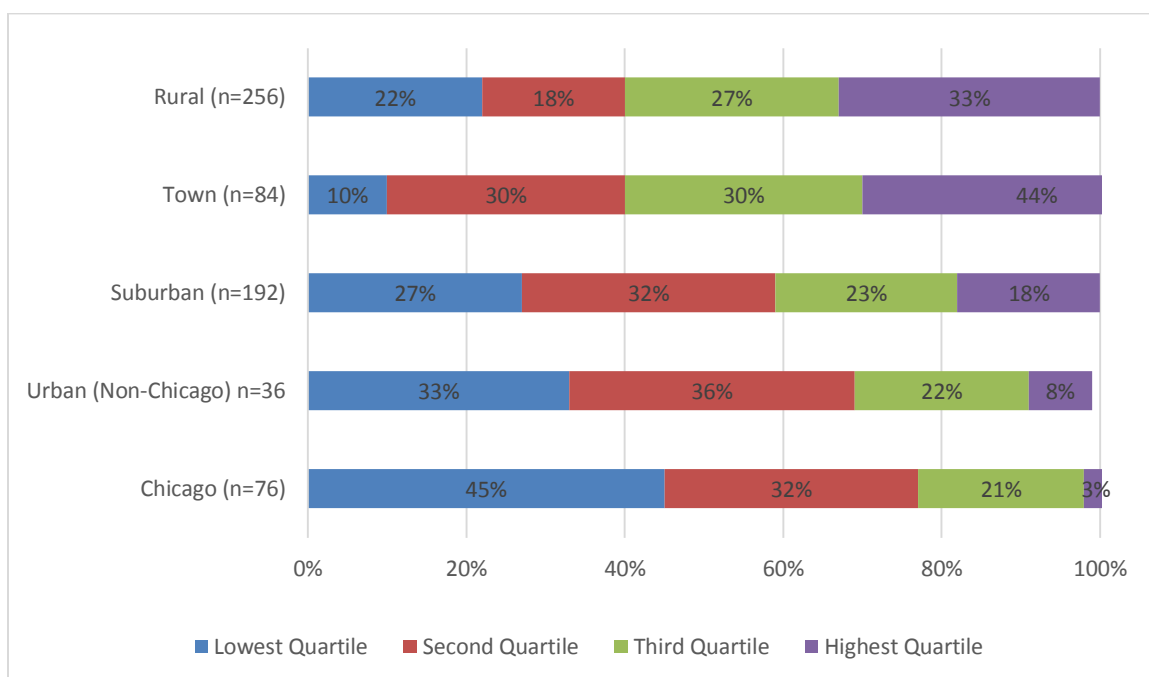


Figure 33. 2003 Illinois high school dual credit participation quartile by location (n=644). Adapted from “Who has access to Dual Credit in Illinois? Examining high school characteristics and Dual Credit participation rates (IERC 2013-4)” by Taylor & Lichtenberger, 2013.

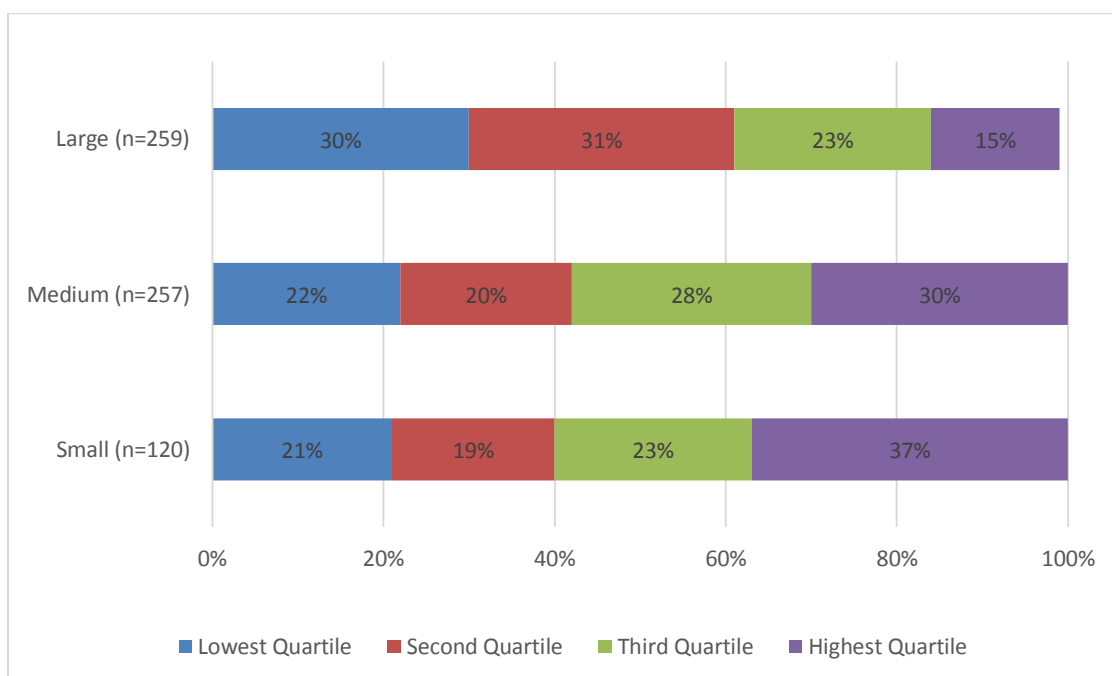


Figure 34. 2003 Illinois high school dual credit participation quartile by high school district size (n=636). Adapted from “Who has access to Dual Credit in Illinois? Examining high school characteristics and Dual Credit participation rates (IERC 2013-4)” by Taylor & Lichtenberger, 2013.

Another significant finding from the Taylor and Lichtenberger study (2013) is the inverse relationship between the proportion of racial/ethnic minorities within a school and the high school's participation quartile. High schools in the lowest dual credit participation quartile have the highest proportion of racial/ethnic minorities and lowest proportion of White students; high schools in the highest quartile of participation have the lowest proportion of racial/ethnic minorities and highest proportion of White students (Taylor & Lichtenberger, 2013).

Data obtained from ICCB depicted in Figure 35 shows the race/ethnicity of high school students taking community college dual credit courses in fiscal year 2015. In general, minority high school students were less likely to pursue dual credit than White students. Seven in 10 dual credit students were White (71.1%). Hispanic dual credit students accounted for 11.8%, African American students 7.0%, Asian 3.4%, Native American 0.6%, and Pacific Islander 0.2% in fiscal year 2015.

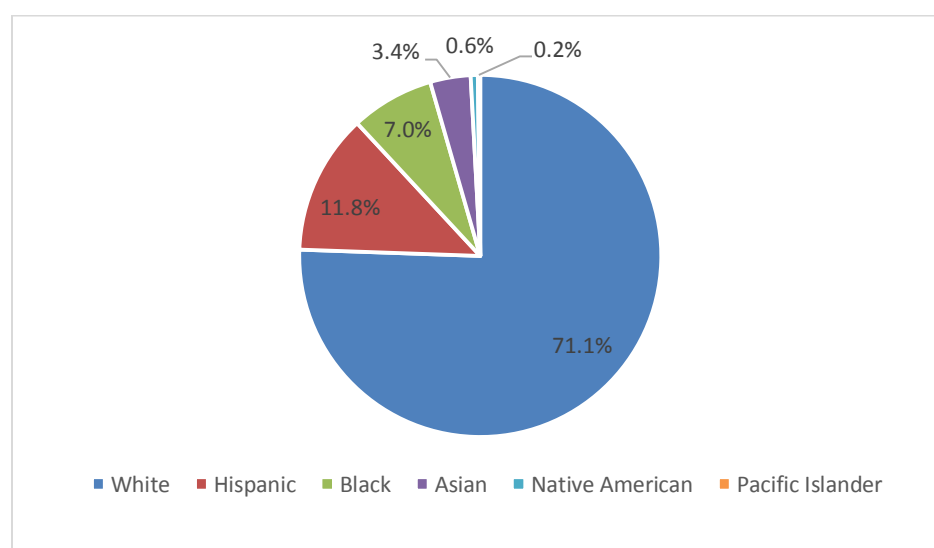


Figure 35. Race/ethnicity of Illinois high school students taking dual credit courses fiscal year 2015. Adapted from “ICCB Enrollment and Completion Data” from ICCB Annual Enrollment and Completion Data, 2015.

Using the AP Equity metric as a model, one can take the ethnic percentage of students enrolled in dual credit courses and compare to students graduating to highlight opportunity gaps. For example, using fiscal year 2015 data, White students made up around 49% of the graduating class and 71% of dual credit enrollees, Hispanic students made up approximately 25% of the graduating class but only 12% of dual credit enrollees, and Black graduates made up 18% of the graduating class but only 7% of dual credit enrollees. The data is presented in Figure 36.

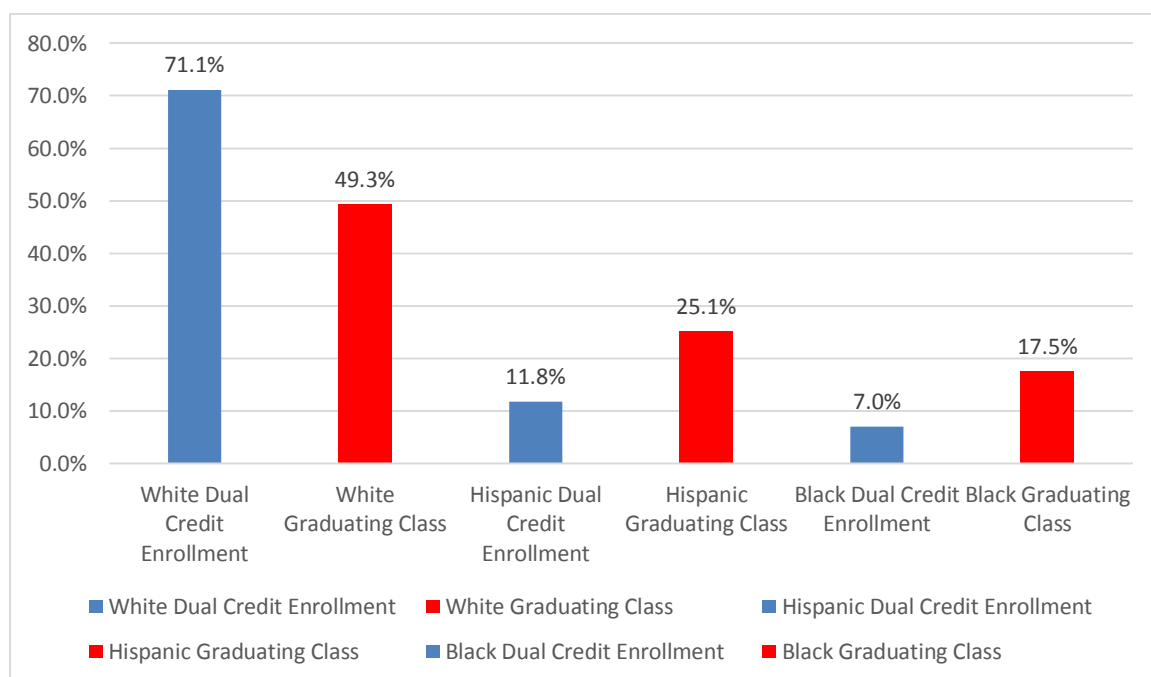


Figure 36. Illinois dual credit opportunity gaps percentage 2015 dual credit enrollment vs. 2015 graduating class. Adapted from “ICCB Annual Enrollment and Completion Data.” https://iirc.niu.edu/Classic/State.aspx?source=About_Students&source2=Race%20Ethnicity

The above data is consistent with the results from the Taylor and Lichtenberger study (2013) and suggests differential access to dual credit courses in Illinois based on ethnicity.

There are achievement and opportunity gaps in Illinois based on ethnicity and location of a student's school. AP achievement gaps are evident for students by ethnicity. Data is not available for dual credit achievement at this time. However, both AP and dual credit courses have significant gaps for students to access these early college programs in Illinois. Both programs have equity gaps by ethnicity and location. White and Black students both come up short using the AP Equity Metric for AP and dual credit, while Hispanic students also have an opportunity gap to access dual credit programs. The opportunity gap by location is different depending on the early college program. In Illinois, students who are in larger schools and those in urban areas have different opportunities to access dual credit courses, while AP courses are limited for students who are in smaller schools and rural areas. Table 2 provides a snapshot of the similarities and differences between AP and DC programs.

The benefits of early college programs have prompted policy makers and education reformers to recommend targeting students for Advanced Placement[®] or dual credit programs whose characteristics differ from those of the students for whom such options originally were designed (e.g., Hoffman, 2005; Le & Frankford, 2011; Venezia, Kirst, & Antonio, 2003).

Table 2

Comparison of Dual Credit and Advanced Placement[®] Programs

Criteria	Dual Credit	Advanced Placement [®]
Who can enroll	Primarily juniors or seniors; to a lesser extent sophomores and freshmen.	No restrictions by the College Board but primarily juniors and seniors; to a lesser extent sophomores and freshmen.
Teacher	Led by a high school or college teacher. Coursework and teacher's credentials approved by the transcript-granting institution. Minimum of Master's degree usually required.	Led by a high school teacher. Certified teacher in area of AP curriculum. Instructors encouraged to attend AP workshops.
Earning college credit	Students are graded on their coursework over a semester. They receive a college transcript after completing the course. Usually not transferable if less than a "C" grade. Exact conditions for transference are set forth by the accepting post-secondary institution.	A passing score on an exam is a 3 out of 5, but the required minimum score for college credits differs among colleges. Many require at least a 4.
Class rank/GPA	Varies. Some high schools weight grades, others do not.	Varies. Some high schools weight grades, others do not.
Cost to student	Depends on local arrangement between college and high school.	If the student desires to take the AP exam, there is currently an \$86 fee.
Rigor of instruction	College level as determined by the transcript-granting institution. Curriculum is submitted and approved by transcript-granting institution. Optional NACEP Accreditation for participating high schools and colleges.	College level that is nationally standardized by the College Board. Curriculum is periodically "audited" by the College Board to ensure compliance with standards.
Location	High school, online, college campus	High school, online, college campus

(Table continues)

Criteria	Dual Credit	Advanced Placement®
Pre-requisites	<p>Test scores on standardized assessment</p> <p>Grades in prior classes</p> <p>Teacher recommendation</p> <p>Grade Point Average</p> <p>College Placement Test</p>	<p>Test scores on standardized assessment</p> <p>Grades in prior classes</p> <p>Teacher recommendation</p> <p>Grade Pont Average</p>
Policy	<p>50 states have some form of dual credit policy</p> <p>Illinois does not mandate that schools offer dual credit courses.</p>	<p>17 states, including Illinois, have policy regarding Advanced Placement®</p> <p>Public Illinois universities must accept scores of 3 or greater for credit. It is up to the university what type of credit is granted.</p>
Benefits	<p>Improves high school dropout rate.</p> <p>Students experience a college curriculum while still having the support mechanisms typically found in high school.</p> <p>Improves academic momentum.</p> <p>Students more likely to enroll in college.</p> <p>Advantage in college admission process.</p> <p>Predicator of success in post-secondary academics.</p> <p>Receive college credit.</p> <p>Reduce post-secondary tuition costs.</p> <p>Decrease college remediation.</p> <p>Improves student persistence in post-secondary experience.</p> <p>Higher grade point average in college.</p> <p>Reduced post-secondary time to degree.</p> <p>More likely to graduate from college.</p>	<p>Improves high school dropout rate.</p> <p>Students experience a college curriculum while still having the support mechanisms typically found in high school.</p> <p>Improves academic momentum.</p> <p>Students more likely to enroll in college.</p> <p>Advantage in college admission process.</p> <p>Predicator of success in post-secondary academics.</p> <p>Receive college credit.</p> <p>Reduce post-secondary tuition costs.</p> <p>Decrease college remediation.</p> <p>Improves student persistence in post-secondary experience.</p> <p>Higher grade point average in college.</p> <p>Reduced post-secondary time to degree.</p> <p>More likely to graduate from college.</p>

(Table continues)

Criteria	Dual Credit	Advanced Placement [®]
Illinois Achievement Gaps	Difficult to quantify.	Mean score of 3 or better on AP exams by ethnicity. 2015 Mean AP [®] scores: White 3.27, Hispanic 2.44, Black 1.99
Illinois Opportunity Gaps	Larger schools Urban areas	Smaller schools Rural Areas
Opportunity Metric—2015 (Graduation Rate— Participation Rate)	White 21.8%, Hispanic 13.3%, Black 10.5%	White 4.7%, Hispanic 0%, Black 5.3%

Initiatives to Improve Access to AP[®] and DC

There has been a shift from a focus on gifted and advanced students to an inclusion of educational opportunities for all students and access to high school based programs by students from underrepresented groups or under-funded districts. AP[®] and dual credit courses are now available to a wider range of high school students with some programs specifically targeting lower achievers and special population students as a means of offering accelerated learning opportunities to any high school student preparing to go to college (Bailey et al., 2002; McMannon, 2000; Rothschild, 1999). States vary in their eligibility requirements for students, but most now open up early college programs to students with moderate levels of ability or achievement, not just those who exhibit very high academic achievement or ability (ECS, 2012; Hoffman, 2005).

The U.S federal government's attempt to improve classroom inequality has intensified in recent years. Federal law provides money to help states expand their AP[®]

programs and cover test fees for low-income students, and the Department of Education's Office for Civil Rights collects data to monitor participation and success rates by race/ethnicity of students (U.S. Department of Education, 2009). The United States Office of Civil Rights (OCR) has recognized the disparities that persist in access to educational resources and aims to help schools address those disparities and comply with the legal obligation to provide students with equal access to these resources without regard to race, color, or national origin (OCR, 2009). Therefore, OCR assesses the types, quantity, and quality of programs available to students across a school district to determine whether students of all races have equal access to comparable programs both among schools and among students within the same school and considers a range of specialized programs, such as Advanced Placement[®], gifted and talented programs, career and technical education programs, and dual credit courses. The agency has identified unequal racial representation in Advanced Placement[®] courses and dual credit courses to contribute to achievement disparities between groups of children. Many states have policies in place that expand financial incentives to districts to offer the programs and provide fee subsidies for students to take the AP test.

In 2000, 12 states had policies in place that awarded financial incentives to districts and schools offering AP courses. Nine states had legislation offering fee subsidies to low-income students who take AP tests (ECS, 2000). Additionally, dozens of states have sponsored AP distance learning programs to reach students in schools that do not offer AP courses, and many have invested state dollars to encourage and reward successful participation.

In an effort to expand access to AP[®] courses, the National Governors Association piloted an AP[®] Expansion Project in six states. Alabama, Georgia, Kentucky, Maine, Nevada, and Wisconsin received funding to expand Advanced Placement[®] (AP) courses to minority and low-income students at 51 pilot high schools in rural and urban school districts. The 51 schools involved in the pilot saw promising results as schools increased their AP[®] offerings by 27%, the number of students taking AP[®] courses rose 65% over 2 years, AP[®] course enrollment increased 62% for minority students and 57% for low-income students, while the number of minority and low-income students taking AP exams more than doubled (McNeil, 2007). The Advanced Placement[®] Expansion project gave states three strategies: how to expand access to AP courses, build teacher and student capacity, and create incentives for schools and students.

Another initiative to improve access, called AdvanceKentucky, occurred in Kentucky where the schools in the program have contributed to impressive gains in AP[®] and college readiness statewide. The primary focus of AdvanceKentucky is to work with local, state and national partners to expand access to and participation and success in rigorous college-level work in high school, particularly among student populations traditionally underrepresented in these courses (AdvanceKentucky, 2016). To participate, schools have to show they are committed to opening AP[®] classes to historically underrepresented groups.

From 2008 to 2013, students enrolled in high schools that partner with AdvanceKentucky earned significantly higher scores on (AP) exams compared to the national average for five consecutive years, and do better in college than their peers (AdvanceKentucky, 2016). Since AdvanceKentucky began operating in 2008, the number

of individual students taking AP[®] exams statewide increased 92% to over 28,000, according to data from the College Board, which operates the AP[®] program. The total number of exams taken is up 95% and the number of scores of 3 or better is up 100 percent (AdvanceKentucky, 2016). The results also indicated that the combined components of the program significantly decreases the need for college remediation, increases the likelihood students are able to persist beyond the first semester of college and students from AdvanceKentucky classrooms maintain higher GPAs in college (AdvanceKentucky, 2016).

In Illinois, Evanston Township High School has taken specific actions to improve student access to AP[®]. Evanston Township High School at one time had the typical highly selective Advanced Placement[®] program seen throughout the country where students had to have the prerequisite grades in prior course work, certain test scores, or an invitation to certain AP[®] courses. Evanston was one of seven high schools selected as a beta site for AP[®] courses in 1952. However, through recent deliberate action of the school board, restructuring of the curriculum, and mobilization of students, Evanston Township High School has transformed its AP[®] program to one of expanded access and success (Bavis, Arey, & Leibforth, 2015).

In 2011, the Evanston board of education adopted an equity and excellence statement to guide the district's work: "Embracing its diversity, Evanston Township High School dedicates itself to educating all students to their fullest potential." The board established that two of the measures to determine progress would be AP enrollment and success on AP[®] exams. Having a guiding principle articulated by the school board was essential in expanding Evanston's Advanced Placement[®] program.

Prior to the initiative to improve achievement and eliminate achievement gaps the percentage of AP[®] students who succeeded was high, but participation and diversity in AP[®] courses were low. The makeup of these courses did not match the school's diverse student population, which was 30% Black, 16% Latino, 43% White, and 11% other ethnicities (Bavis, Arey, & Leibforth, 2015).

In 2014, Advanced Placement[®] enrollments, success rates, and diversity at Evanston Township High School have risen dramatically. The following numbers show the progress made from 2011 to 2014: the percentage of all Evanston Township students who took at least one AP[®] course by graduation rose from 65% to 73%, the number of Advanced Placement[®] exams taken increased from 1,551 to 2,086, the total number of AP[®] students increased from 681 to 888, the percentage of Black 11th and 12th graders enrolled in AP courses rose from 29% to 38%, the percentage of Latino 11th and 12th graders enrolled in AP[®] courses rose from 28% to 51%. The example from Evanston demonstrates that school districts can improve student access to AP[®] with a unified leadership focus.

Recently, initiatives to improve dual credit access have gained momentum as well. The Every Student Succeeds Act (ESSA) is a federal law passed in December 2015 that governs United States K-12 public education policy. The law replaced the No Child Left Behind Act (NCLB). Under ESSA, increasing importance has been placed on dual credit, as any school district seeking Title I funding will now have to submit a list of strategies to increase dual enrollment, including at the individual school level, to the Department of Education as part of its application. There are more funding opportunities for dual credit under ESSA as dual credit can be covered by Title I grants for schools

serving low income students, Title II professional development grants, Title III grants for ELL and immigrant students, and Title IV grants for student support and academic enrichment (ESSA, 2015). Also in 2016, the U.S. Education Department instituted a program, Dual Enrollment Pell Experiment, that will allow high school students from low-income backgrounds in 23 states to access up to \$20 million in federal Pell Grants to pay for a up to a semester of college (U.S. Department of Education, 2016).

In July of 2016, as part of his education agenda, Chicago Mayor Rahm Emanuel announced a goal for Chicago Public Schools that by 2019 he wants to see half of all high school students earning college credit while in they are high school. Mayor Emanuel's agenda supports the Illinois the Illinois Dual Credit Quality Task Forces' goals to improve access of dual credit programs.

Despite efforts by a policy makers to improve access for students to AP[®] and Dual credit courses, differences still remain; and in some cases the opportunity gaps have actually increased, rather than decreased. A study by Klopfenstein (2004) shared California's efforts to improve access to students to AP[®] courses and the results showed that while schools with a high presence of low-income students dramatically increased their AP[®] offerings, inequalities by school socioeconomic composition actually grew from 1994 to 2000; and schools with a small low-income presence managed to increase their AP offerings even more over the time period. Another study by Conger et al. (2009) examined student enrollments in AP[®] course in Florida in 2002 to 2005 and found that disparities by student race and poverty status worsened over time, with advantaged students' likelihood of enrollment increasing at a faster rate than disadvantaged students.

As the number of students participating in dual credit has increased nationally, the literature suggests that dual credit is also more likely to be accessed by White, middle and upper-income, and higher-achieving students compared to students who are historically underrepresented in higher education, such as students of color, low-income, and low-to-middle income achieving students (Allen, 2010; An, 2009; Karp, Calcagno, Hughes, Jeong, & Bailey, 2007; Kim, 2008; Prelow & Wathington, 2013; Thomas et al., 2013; Swanson, 2008; Witt, Lichtenberger, Blankenberger, & Franklin, 2012). In Illinois, a 2013 study by Taylor and Lichtenberger (2013) have given similar results that are consistent with other national studies and suggest that state and local dual credit policies do not equally benefit students (Taylor & Lichtenberger, 2013). Results from a Taylor and Lichtenberger (2013) study share that dual credit policy has had a positive effect for underrepresented students, but the effect size for underrepresented students is smaller than the average effect. The achievement and opportunity gaps still prevalent suggest that state and local dual credit policies do not equally benefit students, and states' AP[®] and dual credit policy will likely have little impact on reducing continued educational inequities in college access and completion.

Barriers to AP[®] and DC Courses

Accessibility to AP[®] and dual credit courses is impacted by locally defined prerequisite requirements and teacher credentials. AP[®] enrollment is often regulated by criteria such as test scores, grades in previous or pre-requisite courses, and teacher recommendations (National Research Council, 2002). In order for students to be placed in dual credit courses, the criteria for enrollment is similar to that for Advanced Placement[®] courses.

Sixty percent of colleges reported that a minimum high school grade point average (GPA) was required in order to participate in a dual credit program (Kleiner & Lewis, 2005). Other academic eligibility requirements reported by institutions included passing a college placement test (45%), a minimum score on a standardized test (43%), or a letter of recommendation (41%). Forty-six percent of the institutions with a dual credit program reported that the academic eligibility requirements to participate in the dual credit program were the same as the admission standards for regular college students (Kleiner & Lewis 2005). Additionally, teacher credentials plays a larger role than prerequisites in accessing dual credit courses for students than do AP[®] courses.

The Midwestern Higher Education Compact (2016) analyzed 50 states' and regional accreditation agencies' Dual Enrollment and Dual Credit policies to identify common approaches to regulating instructor qualifications. The results from the content analysis found that 12 states did not have a policy. Four policy themes were identified in the national analysis of states who do have dual enrollment or dual credit policies:

1. Accreditor-Approved Qualifications: Instructor qualifications should align with the relevant accreditation agencies (10 states).
2. Equivalent Faculty Qualifications: Instructors must meet the same requirements as faculty at the postsecondary institution (35 states).
3. Master's Degree: Instructors must possess a master's degree or higher (9 states), and
4. Graduate Credit Requirement: Dual enrollment instructors must possess a certain number of graduate credit hours in the field in which they are teaching: 18 credits (6 states) and 15 credits (South Dakota).

Illinois is one of five states that regulates teachers in all four domains, but the requirement for instructors to have a master's degree and 18 graduate credits in the subject area is only required for courses intended to transfer to higher education institutions (Midwestern Higher Education Compact, 2016).

Six regional agencies accredit colleges and universities. All organizations have policies that generally note that institutions should employ faculty with appropriate qualifications. The Higher Learning Commission (HLC) is the assigned regional accrediting organization for Illinois and specifically states faculty qualifications in relation to the specific number of graduate credits in a relevant discipline. The HLC states,

...faculty teaching general education courses, or other non-occupational courses hold a master's degree or higher in the discipline subfield. If a faculty member holds a master's degree or higher in a discipline or subfield other than that in which he or she is teaching, that faculty member should have completed a minimum of 18 graduate credit hours in the discipline or subfield in which they teach. (Higher Learning Commission, 2016)

These guidelines must be implemented by September 1, 2017, and high school teachers of dual-credit courses in Illinois will be required to have a master's degree in the subject they are teaching in order to teach the class. If teachers have an advanced degree, but not in the subject they are teaching, they must have earned 18 graduate credits in that subject. The ruling does not allow for any grandfathering for teachers with lesser qualifications. ICCB and IBHE have the same requirements as HLC. Education leaders in Illinois recognize the challenge these guidelines presents school districts and the impact on students' educational attainment opportunities.

The Illinois P-20 Council has the goal of increasing the proportion of adults in Illinois with high quality degrees and credentials to 60% by the year 2025. (P-20, 2016). The purpose of the group is to make recommendations to the Governor and Illinois General Assembly for education initiatives. Established by the Illinois legislature in 2009, the 30-member Council is appointed by the Governor, and includes business leaders, teachers, union leaders, faculty, school board members, parents, and representatives of private colleges, universities, community colleges, foundations, and state education and workforce agencies.

In November 2015, the Illinois P-20 School College and Career Readiness Committee (SCCR) requested that the Illinois P-20 Teacher and Leader Effectiveness (TLE) Committee assist with making recommendations regarding how to incentivize more high school teachers to receive their certification or credential requirements in order to teach dual credit courses in high school.

The researcher became involved with the TLE Committee in the fall of 2015 and participated in six meetings with representatives from the Higher Learning Commission, Illinois Community College Board (ICCB), Illinois Board of Higher Education (IBHE) and Northern Illinois University around dual credit quality and teacher credentialing. The purpose of these meetings was learn about the state of dual credit in Illinois and to recommend actions that can be taken by the state of Illinois and school districts to get more teachers to obtain the qualifications necessary to teach dual credit courses. The P-20 TLE committee contributed to the development and dissemination of the cross sectional surveys for teachers, principals, school board members, and superintendents used in this study.

Through the collection of local perception data, the researcher aims to gain a better understanding of the perceptions that guide local decisions in an effort to guide state and local policies that are a deterrent to access for students. Perception surveys are critical in that they can get to the heart of what drives decision making at the local level. “Because students’ learning experiences and outcomes are deeply affected by many factors that are outside schools’ immediate control, schools must become part of a larger effort to address unequal opportunities if they are ever to become Mann’s great equalizers” (Carter & Welner, 2013, p. 5). AP[®] and DC have grown steadily, but inequalities have persisted. Solutions need to occur at the local level to ensure higher achievement and opportunity rates for students based on the location of their school and ethnicity.

Students, community members, schools, and policymakers do not have all the information they need to make an educated decision because few independent studies compare college-credit attainment programs and the perceptions around them. There is a need to further examine how local stakeholders perceptions impact course offerings at schools.

Chapter Summary

Chapter II examined the impact opportunity gaps, achievement gaps and educational attainment have on an individual’s earnings leading to chances for upward social mobility. Using the premise of a democratic education for all students, opportunity is viewed through the lens of social justice in order to reduce opportunity gaps. Advanced Placement[®] and dual credit programs are identified as programs that can help school districts achieve both equity and achievement.

... the biggest issue related to closing the achievement gap is that we have the wrong mindset. If we can change the mindset, perhaps the strategies, structures, policies and resources allocated for creating equality in schools have a fighting chance to work. (Muhammad, 2015, p. 15)

Research supports the need for student participation in a rigorous curriculum, taking college preparatory classes, and participating in student support programs that promote college readiness and academic achievement for all students.(Adelman, 1999; Conley, 2007). A gap in the literature exists regarding local stakeholders perceptions around Advanced Placement[®] and dual credit coursework, which is a real void as decisions regarding access to dual credit or AP[®] courses are made at the local level. This study examined the perceptions of current local stakeholders in Illinois high schools related to Advanced Placement[®] and dual credit courses. The methodology used to complete the study is discussed in Chapter III.

CHAPTER III

METHODOLOGY

This chapter describes the methods that were used in conducting the research study. The research design and procedures will be discussed. The population, sample, and variables are identified. Information is provided regarding instrumentation along with efforts to insure reliability and validity. This chapter concludes by presenting information about the steps involved in data analysis and interpretation.

Local school decisions result in differential participation rates of students for Advanced Placement[®] and dual credit courses. Very few studies have explored the perceptions of local school stakeholders related to Advanced Placement[®] and dual credit coursework. The findings of this study expand our knowledge of this, and could be used to help influence policy and procedures that improve access to students for dual credit and AP[®] courses contributing to the closing of opportunity gaps leading to improved achievement for all students.

Research Design

The research design is used to structure the research and show how all of the major parts of the research project: the sample, measures, and methods of assignment work together to address the research questions in the study. The purpose of this quantitative study is to examine the differences of perceptions of teachers, principals, superintendents, and school board members about AP[®] and dual credit courses in Illinois.

A cross-sectional survey of teachers, principals, superintendents, and school board members in Illinois was conducted using an online software, Survey Monkey. A web link to the survey was distributed via email to all members of the Illinois Education Association, Illinois Principal Association, Large Unit District Association, Illinois Association of School Administrators, Illinois Federation of Teachers, Chicago Teachers Union, and Illinois School Board Association through representatives of each organization and Illinois State Superintendent Tony Smith. A cover letter accompanied each survey that provided an explanation and description of the project (see Appendix B). A reminder was sent out 2 weeks after the initial distribution date.

Research Questions

This quantitative study is a mathematical analysis of the research topic. The correlational study is non-experimental, requiring the researcher to establish relationships between the subjects of the research. Three research questions guided this study:

RQ1: How do school board members', superintendents', principals', and teachers' perceptions differ with respect to knowledge about Advanced Placement[®] and dual credit courses?

RQ2: How do school board members', superintendents', principals', and teachers' perceptions differ with respect to initiatives to improve student access to Advanced Placement[®] and dual credit courses?

RQ3: How do school board members', superintendents', principals', and teachers' perceptions differ regarding barriers to the opportunity to take dual credit courses?

Population and Sample Procedures

“A survey design provides a quantitative or numeric description of trends...of a population by studying a sample of that population” (Creswell, 2009, p. 145). The population for this research is secondary teachers, principals, superintendents and school board members in the state of Illinois. In 2014, there were 32,421 secondary teachers, 3,613 principals, and 736 superintendents (Teacher Service Record, 2015). There were 843 school boards that were members of the Illinois Association of School Boards (IASB, 2015). The target population was teachers who are members of the Illinois Education Association, the Illinois Federation of Teachers, and Chicago Teachers Union, along with principals who are members of the Illinois Principal Association, superintendents who are members of the Large Unit District Association and Illinois Association of School Administrators, and school board members who belong to the Illinois School Board Association. The sample were the individuals who completed the survey from the targeted population. Each potential participant was assigned a pseudo-random identifier number.

Institutional Review Board and Ethical Conduct in Research

Federal regulations and Illinois State University policy require that all research involving humans as subjects be reviewed and approved by the University Institutional Review Board (IRB) prior to conducting the research. The researcher completed the mandatory CITI training and submitted the IRB protocol, survey, and Chapters I-III of the dissertation proposal to the Institutional Review Board prior to beginning the research. After a few revisions to the survey questions, the study was approved by the Illinois State University Institutional Review Board.

Instrumentation

The survey was designed specifically for this study. It was constructed after thorough examination of the literature related to Advanced Placement[®], dual credit, and social justice. The draft questions for the survey were developed by the researcher and a staff member of the Illinois P-20 Council Teacher Leader Effectiveness (TLE) Committee. The researcher met with a sample representation from the TLE committee, School, College, and Career Readiness Committee (SCCR), ICCB, and IBHE to review and refine the surveys. The composition and selection of questions for the questionnaire include survey questions obtained through three sources: general demographic information developed through the P-20 Council, a survey of administrators about dual credit in Texas (Friedman et al., 2011), and a survey assessing perceptions about equality (Muhammad, 2015). The survey consists of 31 questions for superintendents and principals, 23 for teachers, and 20 for school board members. The questions encompassed general categories including: participant demographics, early college program awareness, initiatives to improve access, and barriers to opportunity. The closed questions of the survey asked the respondent to choose, among a possible set of answers, the response that most closely represents his/her viewpoint. The respondent was asked to select the chosen answer on the computer.

The main advantage of closed questions are: the respondent is restricted to a finite set of responses, they are easy and quick to answer, they have response categories that are easy to code and they permit the inclusion of more variables in a research study because the format enables the respondent to answer more questions in the same time required to answer fewer open ended questions. (Sinalsco, 2009, p. 23)

Two open-ended questions included an opportunity to provide comments on dual credit barriers and an email address if the participant wanted to be part of a focus group. A

stratification of the survey questions is presented in Table 3.

Table 3

Stratification of Survey Questions

	School Board Demographics	Superintendent/ Principal Demographics	Teacher Demographics
	2	4	4
	3	5	5
	4	6	6
	Early College Curriculum	Early College Curriculum	Early College Curriculum
	7	8	8
	8	9	9
	9	10	10
	10	18	11
	11	19	12
	18	28	20
	Barriers to Opportunity	Barriers to Opportunity	Barriers to Opportunity
	12	21	13
	13	23	16
		24	19
		25	
	Initiatives to Improve Access	Initiatives to Improve Access	Initiatives to Improve Access
	14	26	17
	15	27	18
	17	29	21
	19	30	22
	20	31	23

Pilot studies are a crucial element of a good study design. Conducting a pilot study does not guarantee success in the main study, but it does increase the likelihood. A pilot study can also be the pre-testing or “trying out” of a particular research instrument

(Baker, 1994). One of the advantages of conducting a pilot study is that it might give advance warning about where the main research project could fail, where research protocols may not be followed, or whether proposed methods or instruments are inappropriate or too complicated. A small pilot sample of 10 teachers, 4 principals, 4 superintendents, and 3 school board members reviewed the survey for content, flow, and content validity prior to dissemination. Content validity of the survey was assessed and then modified for clarity and pertinence to this study. The pilot test provided an initial baseline data of the research, data collection and to sample the test instrument. The question sequence to the survey was based on feedback from the pilot sample. The funnel question sequence in questionnaire design was used for the survey where each question is related to the previous question and has a progressively narrower scope (Cobanoglu, Warde, & Morco, 2001).

After adjusting the question sequence, the surveys were then validated by representatives of the Illinois Principals Association (IPA), the Illinois Association of School Administrators (IASA), the Illinois Association of School Boards (IASB), the Illinois Education Association (IEA), the Illinois Federation of Teachers (IFT), Illinois Community College Board (ICCB), Illinois Board of Higher Education (IBHE) and the Illinois State Board of Education (ISBE) before distributing the surveys to their members.

Variables in the Study

A theory in research can be seen as the bridge explaining the relationship between the independent and dependent variables (Creswell, 2008). The researcher looked at certain characteristics, behaviors, and perceptions and attempted to show how the variables are linked and distributed within different participating groups. The research

design suggests that an independent variable leads to the dependent variable. The independent variable (role) has four levels: school board member, superintendent, principal, and teacher. The dependent variables are the participants' scores on the P-20 Questionnaire in three areas: early college curriculum, initiatives to improve access, and barriers to opportunity.

Data Analysis and Interpretation

The research data was used to explore participant demographics along with differences between participant perceptions. The data was analyzed using the Statistical Package for the Social Sciences (SPSS). This study completed a number of statistical techniques, including descriptive statistics with frequencies, means, percentages, variance, and standard deviations. Additionally, ANOVA was used to describe differences and relationships between nine variables within the three areas.

A codebook was prepared in order to enter the data into a computer. The codebook is a computer-based structure file designed to guide data entry. It contains a field for information which is to be extracted from the questionnaire. Each question/variable was identified by a name and was defined by a number of acceptable codes. The coding scheme is a set of numerical codes which represent all response categories. Appendix A displays the codebook used for the survey.

The first classification of data to be analyzed was descriptive in nature. Demographic information of the survey presented included gender, ethnicity, and experience. Each of the questions was organized into separate dependent variables. For each group studied—school board members, superintendents, principals, and teachers—the number of persons responding to each numerical choice was recorded. The study's

dependent variables were derived from the participants' perceptions about dual credit and AP. The percentage choosing each of the responses was calculated and the total number of responses on each variable within each group was calculated (number = N). The relationships between the dependent and independent variables were then explored.

After the descriptive analysis, a one-way between-groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of nine dependent variables as measured by the Illinois P-20 Council dual credit survey. Participants were divided into four groups according to their role (Group 1: teachers; Group 2: principals, Group 3: superintendents; Group 4: school board members). The variables were: early college knowledge (DCA, DCC, DCYear, APYear); initiatives to improve access (DCinc, APinc, DCopp, APopp), and barriers to opportunity (ADCTQ).

ANOVA was the hypothesis-testing procedure used to analyze the differences between the group means on the dependent variables and was useful in comparing three or more means of variables for statistical significance. The data was screened to ensure that assumptions of factorial ANOVA were fulfilled. A univariate ANOVA was conducted for each area studied. Variance is used to measure how big the differences should be if there is no treatment effect. When the differences between group means are significantly greater than can be explained by chance alone, a treatment effect exists.

A research hypothesis is a tentative answer to a research problem expressed in the form of a clearly stated relation between independent and dependent variables. The research questions could be reformatted to include the null hypotheses so that the main effects for each factor and the possible interaction between factors could be investigated. This information is summarized below.

Research Question One (RQ1): How do school board members, superintendents', principals', and teachers' perceptions differ with respect to knowledge about Advanced Placement[®] and dual credit early college curriculum programs?

Null hypothesis one (H_{01}): There is not a statistically significant difference in the perceptions of school board members', superintendents', principals', and teachers' perceptions with respect to early college curriculum programs, Advanced Placement[®] and dual credit.

Alternate hypothesis one (H_1): There are statistically significant differences in the perceptions of school board members', superintendents', principals', and teachers' perceptions with respect to early college curriculum programs, Advanced Placement[®] and dual credit.

Research question two (RQ2): How do school board members, superintendents', principals', and teachers' perceptions differ with respect to initiatives to improve student access Advanced Placement[®] and dual credit early college programs?

Null hypothesis two (H_{02}): There is not a statistically significant difference in the perceptions of school board members', superintendents', principals', and teachers' perceptions to initiatives to improve student access to early college programs.

Alternate hypothesis two (H_2): There is a statistically significant difference in the perceptions of school board members', superintendents', principals', and teachers' perceptions to initiatives to improve student access to early college programs.

Research question three (RQ3): How do school board members, superintendents', principals', and teachers' perceptions differ regarding barriers to the opportunity to take dual credit courses?

Null hypothesis three (H_{03}): There is not a statistically significant difference in the perceptions of school board members', superintendents', principals', and teachers' perceptions regarding barriers to the opportunity to take dual credit courses.

Alternate hypothesis three (H_{03}): There is a statistically significant difference in the perceptions of school board members', superintendents', principals', and teachers' perceptions regarding barriers to the opportunity to take dual credit courses.

In ANOVA, the null hypothesis is that all groups are simply random samples of the same population. A test result calculated from the null hypothesis and the sample is statistically significant if it is deemed unlikely to have occurred by chance, assuming the truth of the null hypothesis. A statistically significant result, when a probability, p-value, is less than .05 significance level, justifies the rejection of the null hypothesis, but only if the a priori probability of the null hypothesis is not high. Rejecting the null hypothesis implies that different treatments result in altered effects.

Internal and External Validity

Validity is the criteria for how effective the research design is in employing the methods of measurement that will capture the data to address the research questions. Internal validity refers to the study's ability to determine cause and effect. Threats to internal validity are procedures, factors, or experiences of the participants that threaten the researcher's ability to draw correct inferences from the data (Creswell, 2009). Threats to internal validity in this study include selection and experimental mortality.

Selection refers to the selection of participants for the various groups in the study. The sample of participants were self-selected from the population to participate in the study and therefore there were not equal number of participants in each sample or equal

number of percentage of the population. Experimental mortality is the differential loss of participants across the groups during the experiment. The total number of participants who started the survey was 1,657 and different than the number who answered every question: 1,098 teachers completed portions of the survey and 907 teachers answered every question; 281 board members completed portions of the survey and 232 completed every question; 193 superintendents completed portions of the survey and 149 answered every question; and 85 principals completed the survey with 59 answering every question.

External validity is the extent to which the results of the study can reflect similar outcomes elsewhere and can be generalized to other populations or situations. Threats to external validity arise when researchers draw incorrect inferences from the sample data to other persons, other settings, or past or future situations (Creswell, 2009). A threat to external validity in this study was the reactive effects of the experimental arrangement where the subjects may answer questions to enhance the perception of themselves and their schools when responding the survey questions.

Both the internal and external threats to validity are related to the participants' level of interest in the topic of dual credit and Advanced Placement[®]. The threats to reliability are listed as limitations to the study as the findings from Illinois' local stakeholders are used to make inferences about other similar settings across the nation.

Chapter Summary

The purpose of this quantitative study was to examine the differences of perceptions of teachers, principals, superintendents, and school board members about AP and dual credit courses in Illinois high schools in order to improve student access to AP

and dual credit courses. A cross-sectional survey design was used.

Descriptive statistics along with the inferential statistical test, analysis of variance, was used to examine the relationship and group differences between local stakeholders around their perceptions of AP and dual credit courses. The statistical procedures employed and specific findings are discussed further in Chapter IV.

CHAPTER IV

RESULTS

This chapter provides an analysis of the data in relation to the research questions using the procedures described in Chapter III. Descriptive statistics of the sample population data are displayed. The dependent variables of the study are the participants scores on the survey in three areas: early college curriculum, initiatives to improve access, and barriers to opportunity. Each area had a minimum number of shared questions: the early college curriculum portion had six questions, barriers to opportunity had two questions, and initiatives to improve access had five questions. Superintendents, principals, and teachers had two additional questions for research question three.

The participant scores are described descriptively and then the research questions are explored using the statistical technique known as analysis of variance (ANOVA) to measure the amount of variability and explain where it comes from on nine of the dependent variables. Data were screened to ensure that assumptions of factorial ANOVA were fulfilled. A univariate ANOVA was conducted for each area studied. Findings are then presented as they relate to each of the research questions in the following three areas: early college curriculum, initiatives to improve student access, and barriers to opportunity.

The following research questions were explored to examine the differences in perceptions between school board members, superintendents, principals, and teachers about Advanced Placement[®] and dual credit early college programs:

RQ1: How do school board members, superintendents', principals', and teachers' perceptions differ with respect to knowledge about Advanced Placement[®] and dual credit courses?

RQ2: How do school board members, superintendents', principals', and teachers' perceptions differ with respect to initiatives to improve student access to Advanced Placement[®] and dual credit courses?

RQ3: How do school board members, superintendents', principals', and teachers' perceptions differ regarding barriers to the opportunity to take dual credit courses?

Descriptive Statistics

To answer the research questions, the study examined data obtained by respondents who completed a cross sectional survey from February 2016 to March 2016 in Illinois. The Statistical Package for the Social Sciences (SPSS) computer program was used to analyze the data. The total sample was 1,657 and included 1,098 teachers, 85 principals, 193 superintendents, and 281 school board members. The independent variable (role) had four levels: school board member, superintendent, principal, and teacher. The dependent variables were the participants responses to the Illinois P-20 Dual Credit survey.

Demographic information for the participants included gender, ethnicity, and experience. Generally, the population of the survey was female (52.34%) and White (86.59%), with varied levels of experience. There was a percentage difference among groups for gender. The largest percentages by group for gender were: school board members (Male 52.21%), superintendents (Male 74.00%), principals (Male 64.06%) and

teachers (Female 52.34%). The largest percentages by group for ethnicity were: school board members (White 87.82%), superintendents (White 90.60%), principals (White 90.63%) and teachers (White 85.27%). The largest percentages by group for experience were: school board members (1-5 years 47.62%), superintendents (6-10 years 40.14%), principals (1-5 years 51.56%) and teachers (11-15 years 23.19%). Table 4 displays the data.

In addition to descriptive statistics for each variable, a one-way between-groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of perception as measured by the Illinois P-20 Council Dual Credit survey for nine dependent variables. Participants were divided into four groups according to their role (Group 1: teachers; Group 2: principals, Group 3: superintendents; Group 4: school board members). Data was screened to identify missing data and outliers and to evaluate the fulfillment of test assumptions. An ANOVA was conducted on the following dependent variables (early college knowledge: DCA, DCC, DCYear, APYear; initiatives to improve access: DCinc, APinc, DCopp, APopp; barriers to opportunity: ADCTQ).

Table 4

Survey Participant Demographic Information

	<u>School Board Members</u>		<u>Superintendents</u>		<u>Principals</u>		<u>Teachers</u>		<u>Total</u>	
	N	%	N	%	N	%	N	%	N	%
Gender:										
Male	142	<u>52.21</u>	111	<u>74.00</u>	41	<u>64.06</u>	328	36.62	622	44.78
Female	127	46.69	38	25.33	20	31.25	542	<u>60.02</u>	727	<u>52.34</u>
Prefer not to answer	3	1.10	1	.67	3	4.69	33	3.65	38	2.88
Skipped question	9		43		21		195			
Total	281	100.00	193	100.00	85	100.00	1,098	100.00	1,657	100.00
Ethnicity:										
African American	14	5.17	4	2.68	2	3.13	15	1.66	35	2.52
Asian	1	.37	0	0.00	0	0.00	2	.22	3	.22
Caucasian	239	<u>87.82</u>	135	<u>90.60</u>	58	<u>90.63</u>	770	<u>85.27</u>	1,210	<u>86.59</u>
Multiracial	0	0.00	0	0.00	0	0.00	7	.78	7	.5
Other	0	0.00	4	2.01	0	0.00	9	.78	13	.94
Hispanic	7	2.58	2	1.34	2	3.1	18	1.99	29	2.09
Prefer not to answer	11	4.06	4	2.68	2	3.13	82	9.08	99	7.14
Skipped question	10		44		21		195			
Total	281	100.00	193	100.00	85	100.0	1,098	100.00	1,657	100.00
Experience:										
1-5 years	130	<u>47.62</u>	56	38.10	33	<u>51.56</u>	111	12.37	330	<u>23.90</u>
6-10 years	69	25.27	59	<u>40.14</u>	12	18.75	152	16.95	292	21.14
11-15 years	40	14/65	25	17.01	15	23.44	208	<u>23.19</u>	288	20.85
16-20 years	15	5.49	5	3.40	1	1.56	160	17.84	181	13.11
21-25 years	7	2.56	1	.68	3	4.69	128	14.27	139	10.01
26+ years	7	2.56	1	.68	0	0.00	138	15.39	146	10.57
Prefer not to answer	5	1.83	0	.00	0	0.00	0	0.00	5	.36
Skipped question	8		46		21		201			
Total	281	100.0	193	100.0	85	100.0	1,098	100.00	1,657	100.00

Research Question 1: Early College Knowledge

The first research question examined the early college curriculum knowledge of the participants and had six questions. The first two variables measured the participants' awareness of dual credit coursework prior to taking the survey. The data suggests the population of the survey was aware of dual credit programs and yet there were discrepancies between the groups related to their knowledge of the two different types of dual credit courses. The dependent variable, DCA, measured general awareness about dual credit coursework in which school board (51.79%), superintendents (49.34%), principals (67.19%), and teachers (56.19%) all had "More Aware" as the highest rated category. Table 5 displays the data for general awareness of dual credit coursework.

Table 5

DCA: Were You Aware of Dual Credit Coursework Before Taking This Survey?

	No		Very Little		Somewhat		More Aware		Very Aware		Total
	0		1		2		3		4		N
	N	%	N	%	N	%	N	%	N	%	N
School Board Members	4	1.79	6	2.68	68	30.36	116	<u>51.79</u>	30	13.39	224
Superintendents	0	0.00	2	1.32	16	10.53	75	<u>49.34</u>	59	38.82	152
Principals	0	0.00	0	0.00	3	4.69	43	<u>67.19</u>	18	28.13	64
Teachers	13	1.40	10	1.10	209	23.04	509	<u>56.12</u>	166	18.30	907

In addition to the descriptive statistics, a one-way between-groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Dual Credit Awareness (DCA) as measured by the Illinois P-20 Council dual credit survey.

Participants were divided into four groups according to their role (Group 1: teachers; Group 2: principals, Group 3: superintendents; Group 4: school board members). Data was screened to identify missing data and outliers and to evaluate the fulfillment of test assumptions. All missing data and outliers were removed leaving 1,331 total responses: 907 teachers, 216 school board members, 149 superintendents, and 59 principals.

There was a statistically significant difference at the $p < .05$ level in Dual Credit Awareness scores for the four groups: $F(3,1327)=18.176$, $P < .001$. The effect size, calculated using eta squared, was .039, indicating a smaller effect size. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for teachers ($M=2.88$, $SD=.760$) was significantly different from principals ($M=3.27$, $SD=.520$) and superintendents, ($M=3.24$, $SD=.694$). School board members ($M=2.75$, $SD=.755$) had significant differences between principals ($M=3.27$, $SD=.520$) and superintendents ($M=3.24$, $SD=.694$).

The means, standard deviations (Table 6) along with ANOVA (Table 7), Tukey Post-Hoc Results (Table 8), and means plot of DCA (Figure 37) are presented in the following tables and figure.

Table 6

Means and Standard Deviations of Dual Credit Awareness Scores

Role	N	Mean	SD
Teacher	907	2.88	.760
Principal	59	3.27	.520
Superintendent	149	3.24	.694
School Board	216	2.75	.755
Total Role	1,331	2.92	.757

Table 7

Analysis of Variance for Dual Credit Awareness Scores

DCA	SS	Df	MS	F	P	ES
Between	30.091	3	10.030	18.176	<.001	.039
Within	732.308	1327	.552			
Total	762.398	1330				

Table 8

Tukey Post Hoc Results and Effect Size of Dual Credit Awareness Scores by Role

Role	Mean	Mean Differences ($X_1 - X_k$)			
		1	2	3	4
Teacher	2.88	0.00			
Principal	3.27	.387**	0.00		
Superintendent	3.24	.357**	.030	0.00	
School Board	2.75	.134	.521**	.482**	0.00

**P<.5

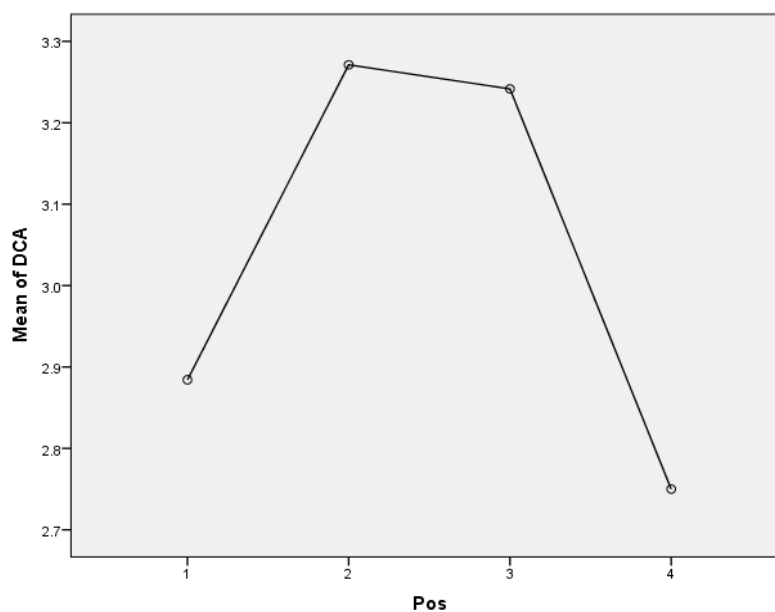


Figure 37. Means plot of dual credit awareness.

In the State of Illinois, dual credit courses are offered through cooperative agreements with Illinois colleges generally that fall into two broad categories: Career and Technical Education (CTE) or General Education (GE). The dependent variable, DCC, measured the participants knowledge of the difference between the two categories. The highest percentage response answer by group was: school board (32.89%, Somewhat), superintendents(46.05%, More Aware), principals (50.0%, More Aware), and teachers (33.74%, No). Table 9 displays the data.

Table 9

DCC: Were You Aware of These Two Different Categories of Dual Credit Courses Before Taking This Survey?

	<u>No</u>		<u>Very Little</u>		<u>Somewhat</u>		<u>More Aware</u>		<u>Very Aware</u>	
	0		1		2		3		4	
	N	%	N	%	N	%	N	%	N	%
School Board Members	67	29.78	14	6.22	74	<u>32.89</u>	48	21.33	22	9.78
Superintendents	14	9.21	1	.66	23	15.13	70	<u>46.05</u>	44	28.95
Principals	6	9.38	1	1.56	6	9.38	32	<u>50.00</u>	19	26.69
Teachers	306	<u>33.74</u>	66	7.28	215	23.70	221	24.37	98	10.92

Knowledge of early college programs was further explored with a one-way between-groups analysis of variance (ANOVA) to explore the impact of role on levels of Dual Credit Categories (DCC) as measured by the Illinois P-20 Council dual credit survey. Participants were divided into four groups according to their role (Group 1: teachers; Group 2: principals, Group 3: superintendents; Group 4: school board members). Data was screened to identify missing data and outliers and to evaluate the

fulfillment of test assumptions. All missing data and outliers were removed leaving 1332 total responses: 907 teachers, 217 school board members, 149 superintendents, and 59 principals.

There was a statistically significant difference at the $p < .05$ level in Dual Credit Categories scores for the four groups: $F(3,1328)=41.386$, $P < .001$. The effect size, calculated using eta squared, was .085, indicating a medium effect size. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for teachers ($M=1.72$, $SD=1.422$) was significantly different from principals ($M=2.95$, $SD=1.121$), superintendents, ($M=2.84$, $SD=1.133$) and school board members ($M=1.74$, $SD=1.347$). Also, there were significant differences between school board members ($M=1.74$, $SD=1.347$), principals ($M=2.95$, $SD=1.121$) and superintendents, ($M=2.84$, $SD=1.133$).

The means, standard deviations (Table 10) along with ANOVA (Table 11), Tukey Post-Hoc Results (Table 12), and means plot of DCA (Figure 38) are presented in the following tables and figure.

Table 10

Means and Standard Deviations of Dual Credit Categories Scores

Role	N	Mean	SD
Teacher	907	1.72	1.422
Principal	59	2.95	1.121
Superintendent	149	2.84	1.133
School Board	217	1.74	1.347
Total Role	1,332	1.90	1.429

Table 11

Analysis of Variance for Dual Credit Categories Scores

DCA	SS	Df	MS	F	P	ES
Between	232.532	3	77.511	41.386	<.001	.085
Within	2487.188	1328	1.873			
Total	2719.720	1331				

Table 12

Tukey Post Hoc Results and Effect Size of Dual Credit Categories Scores by Role

Role	Mean	Mean Differences ($X_1 - X_k$)			
		1	2	3	4
Teacher	1.72	0.00			
Principal	2.95	1.233**	0.00		
Superintendent	3.24	1.122**	.110	0.00	
School Board	1.74	.021**	1.212**	1.102**	0.00

**P<.5

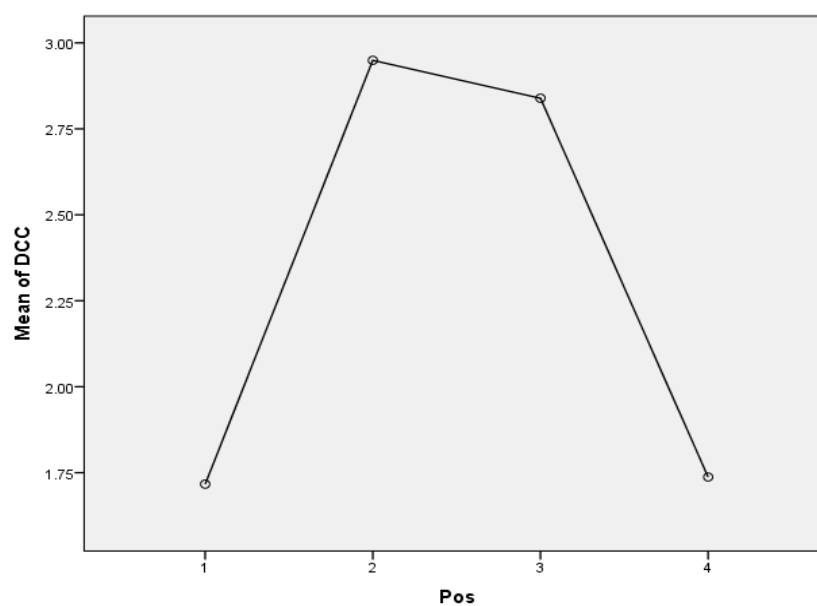


Figure 38. Means plot of dual credit categories.

The dependent variable, DDC, measured participants' perception of whether or not their school district offers dual credit. The highest percentage answer was "Yes" for each group: school board (75.89%), superintendents(86.27%), principals (96.88%), and teachers (82.45%). Table 13 displays the data.

Table 13

DDC: Does Your School District Currently Offer Dual Credit Courses to Students?

	<u>Yes</u>		<u>No</u>		<u>Not Sure</u>		N
	N	%	N	%	N	%	
School Board Members	170	<u>75.89</u>	47	20.98	7	3.13	224
Superintendents	132	<u>86.27</u>	21	13.73	0	0	153
Principals	62	<u>96.88</u>	1	1.56	1	1.56	64
Teachers	747	<u>82.45</u>	69	7.82	90	9.93	906

Dependent variables DCYear and APYear measured the participants' perceptions of the extent of offering general education dual credit and Advanced Placement[®] courses in their school district. The highest percentage response was the same for all groups was "Consistently Year to Year" for both general education dual credit and Advanced Placement[®]. For general education dual credit the percentages were: school board (54.13%), superintendents (68.18%), principals (80.36%), and teachers (67.58%). For AP the percentages were: school board (44.34%), superintendents (48.00%), principals (67.92%), and teachers (70.72%). The results for both are displayed in Table 14.

Table 14

DCYear, APYear: To What Extent are These Programs Used in Your School District?

	<u>Not Sure</u>		<u>None</u>		<u>Inconsistent</u>		<u>Consistently</u>		N	
	0		1		2		3			
	N	%	N	%	N	%	N	%		
Dual Credit:										
School Board Members	24	11.01	42	19.27	34	15.60	118	<u>54.13</u>	218	
Superintendents	1	.76	22	16.67	19	14.39	90	<u>68.18</u>	132	
Principals	2	3.57	4	7.14	5	8.93	45	<u>80.36</u>	56	
Teachers	86	11.81	27	3.71	123	16.90	492	<u>67.58</u>	728	
Advanced Placement[®]										
School Board Members	31	14.62	56	26.42	31	14.62	94	<u>44.34</u>	212	
Superintendents	1	.80	51	40.80	13	10.40	60	<u>48.00</u>	125	
Principals	0	0.00	12	22.64	5	9.43	36	<u>67.92</u>	53	
Teachers	50	7.07	99	14.00	58	8.20	500	<u>70.72</u>	707	

Additionally, a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Dual Credit Year (DCYear) as measured by the Illinois P20 Council dual credit survey. Participants were divided into four groups according to their role (Group 1: teachers; Group 2: principals, Group 3: superintendents; Group 4: school board members). Data was screened to identify missing data and outliers and to evaluate the fulfillment of test assumptions. All missing data and outliers were removed leaving 1332 total responses: 907 teachers, 217 school board members, 149 superintendents, and 59 principals.

There was a statistically significant difference at the $p < .05$ level in Dual Credit Year scores for the four groups: $F(3,1328)=9.947$, $P < .001$. The effect size, calculated using eta squared, was .085, indicating a medium effect size. Posthoc comparisons using the Tukey HSD test indicated that the mean score for teachers ($M=2.31$, $SD=1.054$) was

significantly different from school board members ($M=2.71$, $SD=1.118$). Also, there were significant differences between school board members ($M=1.74$, $SD=1.347$), and superintendents ($M=2.84$, $SD=1.133$).

The means, standard deviations (Table 15) along with ANOVA (Table 16), Tukey Post-Hoc Results (Table 17), and means plot of DCA (Figure 39) are presented in the following tables and figure.

Table 15

Means and Standard Deviations of Dual Credit Year Scores

Role	n	Mean	SD
Teacher	907	2.31	1.054
Principal	59	2.66	.769
Superintendent	149	2.36	.856
School Board	217	2.71	1.118
Total Role	1332	2.39	1.045

Table 16

Analysis of Variance for Dual Credit Year Scores

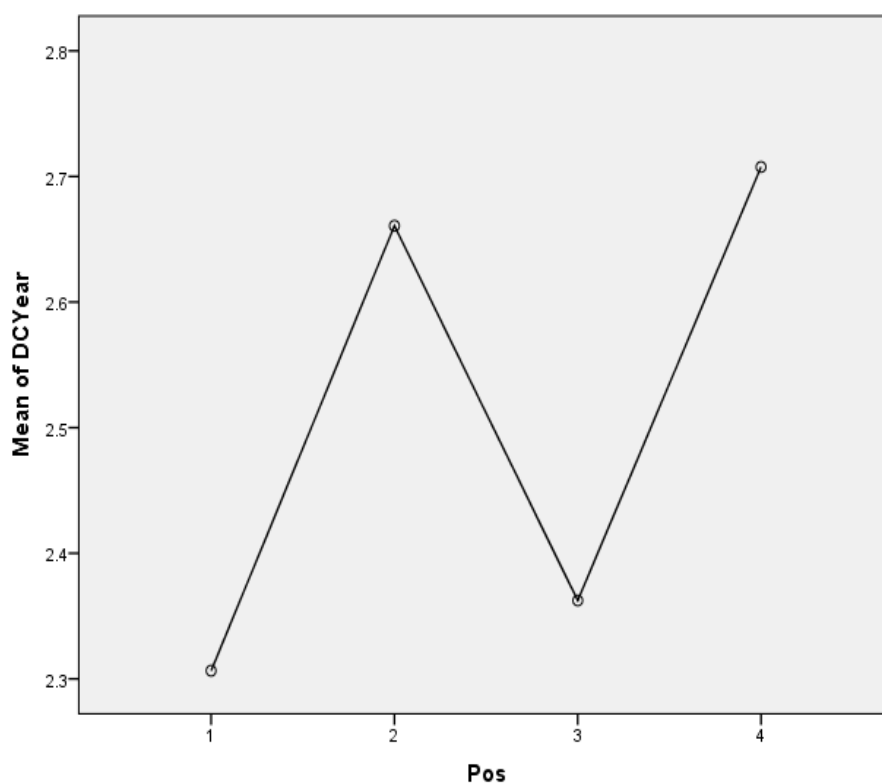
DCYEAR	SS	Df	MS	F	P	ES
Between	31.912	3	10.637	9.947	<.001	.022
Within	1411.643	1320	1.069			
Total	1443.555	1332				

Table 17

Tukey Post Hoc Results and Effect Size of Dual Credit Year Scores by Role

Role	Mean	Mean Differences ($X_1 - X_k$)			
		1	2	3	4
Teacher	2.31	0.00			
Principal	2.66	.354	0.00		
Superintendent	2.36	.056	.298	0.00	
School Board	2.71	.401**	.047	.345**	0.00

**P<.5

*Figure 39.* Means plot of dual credit year.

To measure the differences in perceptions about yearly AP offerings, a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of

role on levels of Advanced Placement[®] Year (APYear) as measured by the Illinois P20 Council Advanced Placement[®] survey. Participants were divided into four groups according to their role (Group 1: teachers; Group 2: principals, Group 3: superintendents; Group 4: school board members). Data was screened to identify missing data and outliers and to evaluate the fulfillment of test assumptions. All missing data and outliers were removed leaving 1,115 total responses including: 707 teachers, 206 school board members, 149 superintendents, and 53 principals.

There was a statistically significant difference at the $p < .05$ level in Advanced Placement[®] Year scores for the four groups: $F(3,1111)=34.755$, $P < .001$. The effect size, calculated using eta squared, was .086, indicating a medium effect size. Posthoc comparisons using the Tukey HSD test indicated that the mean score for teachers ($M=2.85$, $SD=.908$) was significantly different than principals ($M=2.45$, $SD=.845$) and superintendents, ($M=1.95$, $SD=.999$). Also, there were significant differences between principals ($M=2.45$, $SD=.845$) and superintendents ($M=1.95$, $SD=.999$) and significant differences between superintendents ($M=1.95$, $SD=.999$) and school board members ($M=2.68$, $SD=1.278$).

The means, standard deviations (Table 18) along with ANOVA (Table 19), Tukey Post-Hoc Results (Table 20), and means plot of DCA (Figure 21) are presented in the following tables and figure.

Table 18

Means and Standard Deviations of Advanced Placement® Year Scores

Role	N	Mean	SD
Teacher	707	2.85	.908
Principal	53	2.45	.845
Superintendent	149	1.95	.999
School Board	206	2.68	1.278
Total Role	1115	2.68	1.040

Table 19

Analysis of Variance for Advanced Placement® Year Scores

APYEAR	SS	Df	MS	F	P	ES
Between	103.390	3	34.463	34.755	<.001	.086
Within	1101.664	1111	.992			
Total	1205.055	1114				

Table 20

Tukey Post Hoc Results and Effect Size of Advanced Placement® Year Scores by Role

Role	Mean	Mean Differences ($X_1 - X_k$)			
		1	2	3	4
Teacher	2.85	0.00			
Principal	2.45	.397**	0.00		
Superintendent	1.95	.904**	.507**	0.00	
School Board	2.68	.170	.227	.733**	0.00

**P<.5

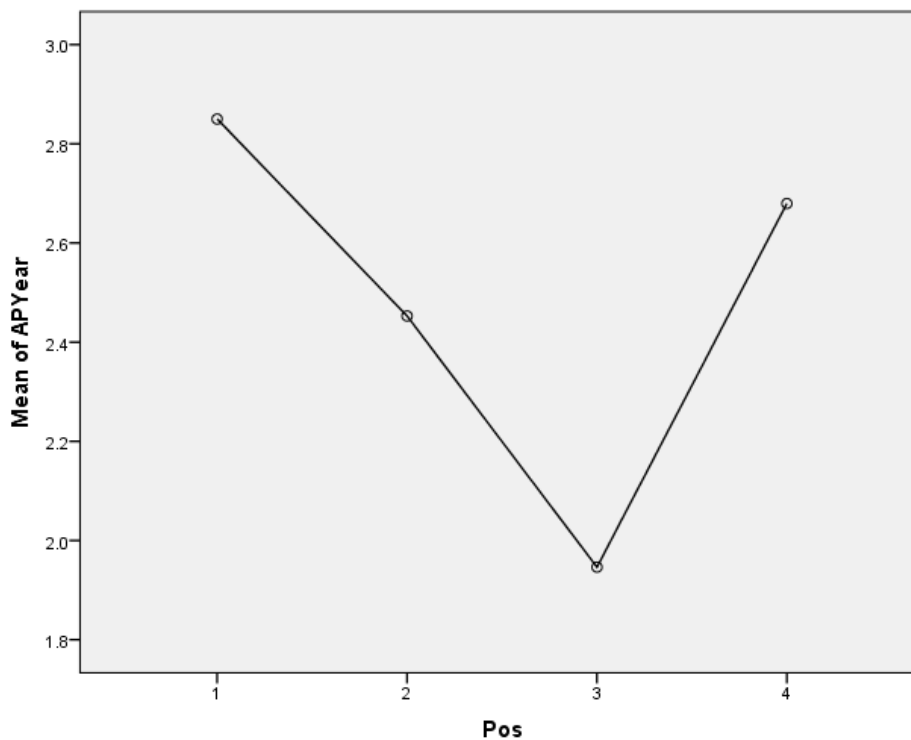


Figure 40. Means plot of Advanced Placement® year.

The summary results of the ANOVA for research question one are presented in Table 21.

Table 21

Differences in Knowledge of Early College Curriculum

Question	F(df _b ,df _w) ^a	F	p	ES
DCA	(3,1327)	18.176	<.05 ^b	.039
DCC	(3,1328)	41.386	<.05	.085
DCYear	(3,1328)	9.947	<.05	.085
APYear	(3,1111)	34.755	<.05	.086

^adf_b-degrees of freedom between groups, df_w-degrees of freedom within groups

^bSignificant at 0.05 level of significance

Additionally, dependent variables DCloc and APloc measured the participants' perceptions of the locations in which dual credit and Advanced Placement® courses are offered in their school district. The highest percentage response for all groups was hosted in their own school district for both general education dual credit and Advanced Placement®. For general education dual credit the percentages were: school board (57.60%), superintendents (68.70%) and principals (72.73%), and teachers (77.12%). For AP the percentages were: school board (52.86%), superintendents (58.06%) and principals (75.00%), and teachers (77.50%). Table 22 displays the data.

Table 22

DCloc, APloc: In Which Location(s) are the Courses Delivered in Your School District?

	<u>Not Sure</u>		<u>Not Offered</u>		<u>School District</u>		<u>College</u>		<u>Cohort School</u>		<u>Online</u>	
	N	%	N	%	N	%	N	%	N	%	N	%
Dual Credit												
School Board Members	20	9.22	39	17.97	125	<u>57.60</u>	71	32.72	8	3.69	19	8.76
Superintendents	0	0.00	19	14.50	90	<u>68.70</u>	10	7.63	2	1.53	10	7.63
Principals	1	1.82	2	3.64	40	<u>72.73</u>	8	14.55	1	1.82	3	5.45
Teachers	68	9.32	28	3.84	563	<u>77.12</u>	181	24.79	31	4.25	59	8.08
Advanced Placement®												
School Board Members	34	16.19	47	22.38	111	<u>52.86</u>	33	15.71	3	1.43	14	6.67
Superintendents	0	0.00	50	40.32	72	<u>58.06</u>	0	0.00	0	0.00	0	1.61
Principals	0	0.00	12	23.08	39	<u>75.00</u>	0	0.00	1	1.92	0	0.00
Teachers	39	5.49	103	14.49	551	<u>77.50</u>	36	5.06	13	1.83	17	2.39

Research Question 2: Initiatives to Improve Access

The second research question examined participants' perceptions about initiatives to improve access to early college programs and had five questions per participant group. The first two questions checked the participants awareness of benefits to teachers to teach dual credit courses prior to taking the survey. Dependent variable DCBen measured the participants' perceptions of the awareness of benefits that teachers receive for teaching dual credit courses. The highest percentage response for three groups was "None" with the following percentages: superintendents (54.92%) and principals (58.18%), and teachers (46.21%). Using the academic resources of the college partner was the highest percentage for school board (36.22%). Table 23 displays the data.

Dependent variable DCS1 measured the participants' perceptions of the awareness of who pays for the benefits that teachers receive for teaching dual credit courses. The highest percentage response, School District, was the same for school board members (33.80%) and superintendents (55.60%). The highest percentage response, I don't know, was the same for principals (29.41%) and teachers (38.36%). Table 24 displays the data. Increased weighting of a student's grades in early college courses encourages student participation. The dependent variable DCwt measured the participants' perceptions of the weighting of student grades for students who participate in honors, dual credit, and Advanced Placement[®] courses. The highest percentage response was Advanced Placement[®] for school board members (44.27%), principals (63.83%) and teachers (62.38%). The highest percentage for superintendents was honors classes (57.73%). Table 25 displays the data.

Table 23

DCBen: What Additional Benefits Do Teachers in Your School Receive for Teaching Dual Credit Courses?

	<u>School Board Members</u>		<u>Superintendents</u>		<u>Principals</u>		<u>Teachers</u>	
	N	%	N	%	N	%	N	%
None	55	NA	<u>67</u>	<u>54.92</u>	<u>32</u>	<u>58.18</u>	<u>396</u>	<u>46.21</u>
Can use the academic resources of college (access to articles, databases, etc.)	46	<u>36.22</u>	11	9.02	8	14.55	115	13.63
Tuition Waivers or reduced tuition from college partner	20	15.75	10	8.20	5	9.09	77	9.12
Annual teaching stipend	35	27.56	8	6.56	0	0.00	52	6.16
Can use the physical resources of the college partner	21	16.54	5	4.10	1	1.82	95	11.26
Reimbursement for expenses	42	33.07	4	3.28	2	3.64	52	6.16
Increased annual salary	46	36.22	3	2.46	5	9.09	64	7.58
Release Time	12	9.45	2	1.64	0	0.00	25	2.96
Onetime bonus	6	4.72	1	0.00	0	0.00	13	1.54
Decreased work load	8	6.30	0	0.00	0	0.00		3.32

Table 24

DCS1: Who is Primarily Responsible for Paying the Additional Benefits Received by Faculty Members in Your School District Who Instruct Dual Credit Courses?

	School Board		Superintendents		Principals		Teachers	
	Members		N	%	N	%	N	%
	N	%						
School District	73	<u>33.80</u>	60	<u>55.6</u>	13	25.49	82	9.74
I don't know	57	26.39	14	13.0	15	<u>29.41</u>	323	<u>38.36</u>
Higher education Partner	10	4.63	18	16.7	9	17.65	38	4.51
Shared between school district and higher education partner	10	4.63	6	5.6	3	5.88	15	1.78
Another third party	10	4.63	0	0.0	0	0.0	1	.12

Table 25

DCwt: Does Your District Give Additional Weight (Weighted Grades) for the Following Types of College Credit Courses in the Calculation of Grade Point Averages (GPA)?

	School Board		Superintendents		Principals		Teachers	
	Members		N	%	N	%	N	%
	N	%						
Advanced Placement®	85	<u>44.27</u>	55	56.70	30	<u>63.83</u>	470	<u>62.38</u>
Honors Classes	68	35.42	56	<u>57.73</u>	29	61.70	412	55.08
Dual Credit (General)	43	22.40	43	44.93	20	42.55	161	21.52

Dependent variables DCinc and APinc measured the participants' perceptions of their school districts efforts to increase the number of students who are involved in Advanced Placement® and dual credit courses. The highest percentage response for dual credit for each group was: (school board, agree, 39.20%), (superintendent, strongly agree, 54.84%), (principal, strongly agree, 51.85%), (teachers, agree, 36.77%). The

highest percentage response for Advanced Placement[®] for each group was: (school board, agree, 31.63%), (superintendent, strongly agree, 28.46%), (principal, strongly agree, 26.92%), (teachers, agree, 33.58%). Table 26 displays the data.

In addition to the descriptive statistics a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Dual Credit Increase (DCINCREASE) as measured by the Illinois P20 Council Dual Credit survey. Participants were divided into four groups according to their role (Group 1: teachers; Group 2: principals, Group 3: superintendents; Group 4: school board members). Data was screened to identify missing data and outliers and to evaluate the fulfillment of test assumptions. All missing data and outliers were removed leaving 1115 total responses: 707 teachers, 206 school board members, 149 superintendents, and 53 principals.

There was a statistically significant difference at the $p < .05$ level in Dual Credit Increase scores for the four groups: $F(3,1111)=16.868$, $P < .001$. The effect size, calculated using eta squared, was .040, indicating a small effect size. Posthoc comparisons using the Tukey HSD test indicated that the mean score for teachers ($M=2.91$, $SD=1.423$) was significantly different than superintendents, ($M=3.26$, $SD=1.159$) and school board members ($M=3.67$, $SD=1.553$). Also, there were significant differences between superintendents ($M=3.26$, $SD=1.159$) and school board members ($M=3.67$, $SD=1.553$).

The means, standard deviations (Table 27) along with ANOVA (Table 28), Tukey PostHoc Results (Table 29), and means plot of Dual Credit Increase (Figure 41) are presented in the below tables and figure.

Table 26

DCinc, APinc: My School District is Making Efforts to Increase the Number of Students Involved in Advanced Placement® and Dual Credit Courses

	<u>Strongly Disagree</u>		<u>Disagree</u>		<u>Neutral</u>		<u>Agree</u>		<u>Strongly Agree</u>	
	N	0	N	1	N	2	N	3	N	4
		%		%		%		%		%
Dual Credit										
School Board Members	8	4.02	15	7.54	34	17.09	78	<u>39.20</u>	42	21.11
Superintendents	6	4.84	3	2.42	12	9.68	33	26.61	68	<u>54.84</u>
Principals	0	0.00	3	5.56	7	12.96	16	29.63	28	<u>51.85</u>
Teachers	58	7.20	77	9.57	131	16.27	296	<u>36.77</u>	100	12.42
Advanced Placement®										
School Board Members	11	5.61	21	10.71	36	18.37	62	<u>31.63</u>	36	18.37
Superintendents	15	12.20	17	13.82	25	20.33	27	21.95	35	<u>28.46</u>
Principals	10	19.23	4	7.69	9	17.31	14	<u>26.92</u>	14	<u>26.92</u>
Teachers	45	5.54	79	9.90	115	14.41	268	<u>33.58</u>	209	26.19

Table 27

Means and Standard Deviations of Dual Credit Increase Scores

Role	n	Mean	SD
Teacher	803	2.91	1.423
Principal	54	3.28	.899
Superintendent	149	3.26	1.159
School Board	199	3.67	1.553
Total Role	1205	3.10	1.425

Table 28

Analysis of Variance for Dual Credit Increase Scores

DCINCREASE	SS	Df	MS	F	P	ES
Between	98.783	3	32.928	16.868	<.001	.040
Within	2344.465	1201	1.952			
Total	2443.248	1204				

Table 29

Tukey Post Hoc Results and Effect Size of Dual Credit Increase Scores by Role

Role	Mean	Mean Differences ($X_1 - X_k$)			
		1	2	3	4
Teacher	2.91	0.00			
Principal	3.28	.364**	0.00		
Superintendent	3.26	.348**	.016	0.00	
School Board	3.67	.759**	.396	.412**	0.00

** P<.05

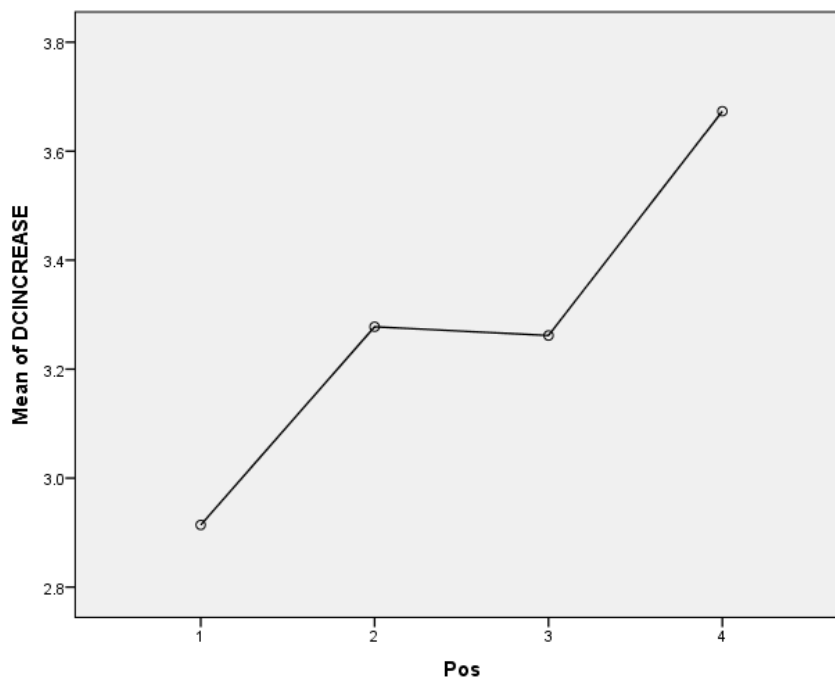


Figure 41. Means plot of dual credit increase.

To measure the difference in perceptions related to increasing Advanced Placement[®] courses a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Advanced Placement[®] Increase (APINCREASE) as measured by the Illinois P20 Council Dual Credit survey. Participants were divided into four groups according to their role (Group 1: teachers; Group 2: principals, Group 3: superintendents; Group 4: school board members). Data was screened to identify missing data and outliers and to evaluate the fulfillment of test assumptions. All missing data and outliers were removed leaving 1192 total responses: 796 teachers, 195 school board members, 149 superintendents, and 52 principals.

There was a statistically significant difference at the $p < .05$ level in Advanced Placement[®] Increase scores for the four groups: $F(3,1188)=17.570$, $P < .001$. The effect size, calculated using eta squared, was .042, indicating a small effect size. Posthoc

comparisons using the Tukey HSD test indicated that the mean score for teachers (M=2.96, SD=1.310) was significantly different than school board members (M=3.66, SD=1.726). Also, there were significant differences between superintendents (M=2.65, SD=1.452) and school board members (M=3.66, SD=1.726). The means, standard deviations (Table 30) along with ANOVA (Table 31), Tukey PostHoc Results (Table 32), and means plot of APincrease (Figure 42) are presented in the following tables and figure.

Table 30

Means and Standard Deviations of Advanced Placement[®] Increase Scores

Role	n	Mean	SD
Teacher	796	2.96	1.310
Principal	52	3.17	1.004
Superintendent	149	2.65	1.452
School Board	195	3.66	1.726
Total Role	1192	3.05	1.422

Table 31

Analysis of Variance for Advanced Placement[®] Increase Scores

DCINCREASE	SS	Df	MS	F	P	ES
Between	102.319	3	34.106	17.570	<.001	.042
Within	2306.143	1188	1.941			
Total	2408.462	1191				

Table 32

Tukey Post Hoc Results and Effect Size of Advanced Placement[®] Increase Scores by Role

Role	Mean	Mean Differences ($X_1 - X_k$)			
		1	2	3	4
Teacher	2.96	0.00			
Principal	3.17	.211	0.00		
Superintendent	2.65	.311	.522	0.00	
School Board	3.66	.694**	.483	1.005**	0.00

** $P < .05$

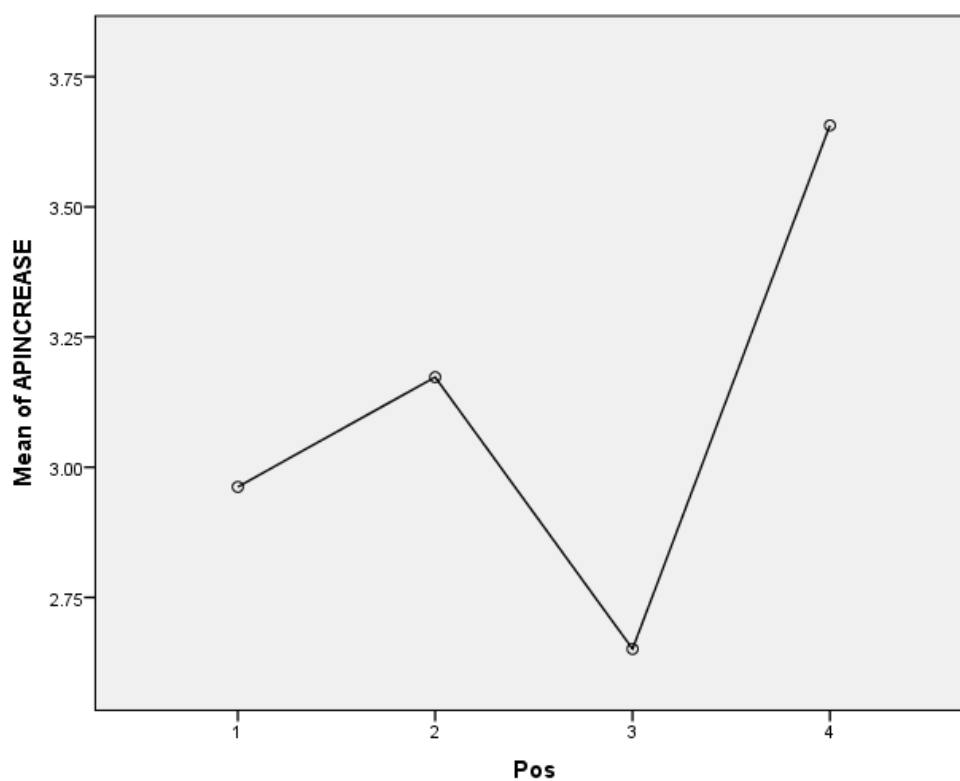


Figure 42. Means plot of Advanced Placement[®] increase.

The dependent variables DCopp and APopp measured the participants' perceptions of their school district's efforts to meet the needs of the student population in

Advanced Placement[®] and dual credit courses. The highest percentage response for dual credit for each group was: (school board, agree, 38.07%), (superintendent, strongly agree, 54.03%), (principal, strongly agree, 58.49%). The highest percentage response for Advanced Placement[®] for each group was: (school board, agree, 29.38%), (superintendent, neutral, 30.08%), (principal, agree, 29.41%). Table 33 displays the data.

To measure the difference in perceptions related to meeting the needs of students in Dual Credit courses a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Dual Credit Opportunity (DCOPP) as measured by the Illinois P20 Council Dual Credit survey. Participants were divided into four groups according to their role (Group 1: teachers; Group 2: principals, Group 3: superintendents; Group 4: school board members). Data was screened to identify missing data and outliers and to evaluate the fulfillment of test assumptions. All missing data and outliers were removed leaving 1193 total responses: 801 teachers, 197 school board members, 142 superintendents, and 53 principals.

There was a statistically significant difference at the $p < .05$ level in Dual Credit Opportunity scores for the four groups: $F(3,1189)=16.561$, $P < .001$. The effect size, calculated using eta squared, was .042, indicating a small effect size. Posthoc comparisons using the Tukey HSD test indicated that the mean score for teachers ($M=2.90$, $SD=1.688$) was significantly different than school board members ($M=3.74$, $SD=1.442$). Also, there were significant differences between superintendents ($M=3.15$, $SD=1.074$) and school board members ($M=3.74$, $SD=1.442$). The means, standard deviations (Table 34) along with ANOVA (Table 35), Tukey PostHoc Results (Table 36), and means plot of DCopp (Figure 43) represented in the following tables and figure.

Table 33

DCopp, APopp: My School District is Making Efforts to Ensure That the Courses Below Meet the Needs of the Student Population of the School

	<u>Strongly Disagree</u>		<u>Disagree</u>		<u>Neutral</u>		<u>Agree</u>		<u>Strongly Agree</u>	
	0		1		2		3		4	
	N	%	N	%	N	%	N	%	N	%
Dual Credit:										
School Board Members	4	2.03	15	7.61	31	15.74	75	<u>38.07</u>	49	24.87
Superintendents	5	4.03	4	3.23	38	30.65	6	4.84	67	<u>54.03</u>
Principals	1	1.89	1	1.89	7	13.21	13	24.53	31	<u>58.49</u>
Teachers	87	10.83	80	9.96	186	23.16	161	20.05	50	<u>6.23</u>
Advanced Placement®:										
School Board Members	10	5.15	15	7.73	38	19.59	57	<u>29.38</u>	43	22.16
Superintendents	16	13.01	12	9.76	37	<u>30.08</u>	23	18.70	32	26.03
Principals	9	17.65	2	3.92	8	15.69	15	<u>29.41</u>	16	31.37
Teachers	76	9.61	87	11.00	167	21.11	180	<u>22.76</u>	90	11.38

Table 34

Means and Standard Deviations of Dual Credit Opportunity Scores

Role	n	Mean	SD
Teacher	801	2.90	1.688
Principal	53	3.43	.797
Superintendent	142	3.15	1.074
School Board	197	3.74	1.442
Total Role	1193	3.09	1.587

Table 35

Analysis of Variance for Dual Credit Opportunity Scores

DCOPPORTUNITY	SS	Df	MS	F	P	ES
Between	120.416	3	40.139	16.561	<.001	.042
Within	2881.807	1189	1.941			
Total	3002.223	1192				

Table 36

Tukey Post Hoc Results and Effect Size of Dual Credit Opportunity Scores by Role

Role	Mean	Mean Differences ($X_1 - X_k$)			
		1	2	3	4
Teacher	2.90	0.00			
Principal	3.43	.538	0.00		
Superintendent	3.15	.259	.279	0.00	
School Board	3.74	.845**	.307	.586**	0.00

**P<.5

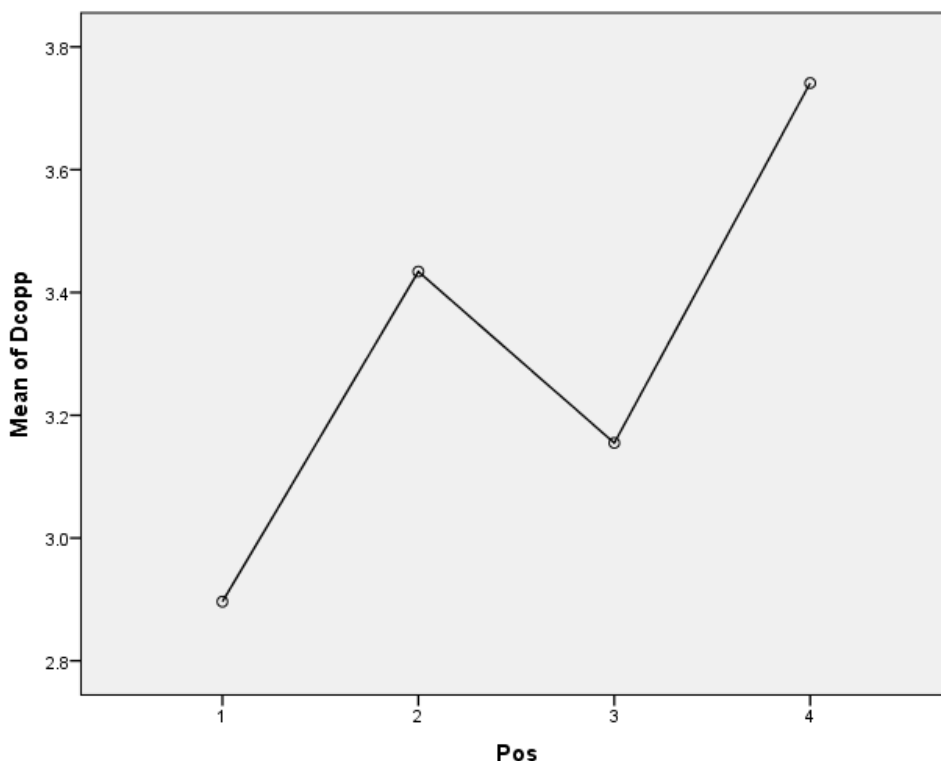


Figure 43. Means plot of dual credit opportunity

To measure the difference in perceptions related to meeting the needs of Advanced Placement[®] students a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Advanced Placement[®] Opportunity (APopp) as measured by the Illinois P20 Council Advanced Placement[®] survey. Participants were divided into four groups according to their role (Group 1: teachers; Group 2: principals, Group 3: superintendents; Group 4: school board members). Data was screened to identify missing data and outliers and to evaluate the fulfillment of test assumptions. All missing data and outliers were removed leaving 1181 total responses: 789 teachers, 193 school board members, 148 superintendents, and 51 principals.

There was a statistically significant difference at the $p < .05$ level in Advanced Placement[®] Opportunity scores for the four groups: $F(3,1177)=26.091$, $P < .001$. The effect size, calculated using eta squared, was .062, indicating a medium effect size. Posthoc comparisons using the Tukey HSD test indicated that the mean score for teachers ($M=2.88$, $SD=1.605$), was significantly different than superintendents, ($M=2.45$, $SD=1.252$) and school board members ($M=3.81$, $SD=1.652$). Also, there were significant differences between superintendents, ($M=2.45$, $SD=1.252$) and school board members ($M=3.81$, $SD=1.652$). The means, standard deviations (Table 37) along with ANOVA (Table 38), Tukey PostHoc Results (Table 39), and means plot of APopp (Figure 44) are presented in the below tables and figure.

Table 37

Means and Standard Deviations of Advanced Placement[®] Opportunity Scores

Role	n	Mean	SD
Teacher	789	2.88	1.605
Principal	51	3.29	.901
Superintendent	148	2.45	1.252
School Board	193	3.81	1.652
Total Role	1181	2.99	1.598

Table 38

Analysis of Variance for Advanced Placement[®] Opportunity Scores

APOPPORTUNITY	SS	Df	MS	F	P	ES
Between	187.808	3	62.603	26.091	<.001	.062
Within	2824.137	1177	2.399			
Total	3011.946	1180				

Table 39

Tukey Post Hoc Results and Effect Size of Advanced Placement[®] Opportunity Scores by Role

Role	Mean	Mean Differences ($X_1 - X_k$)			
		1	2	3	4
Teacher	2.88	0.00			
Principal	3.29	.417	0.00		
Superintendent	2.45	.431**	.848**	0.00	
School Board	3.81	.931**	.514**	1.362**	0.00

**P<.5

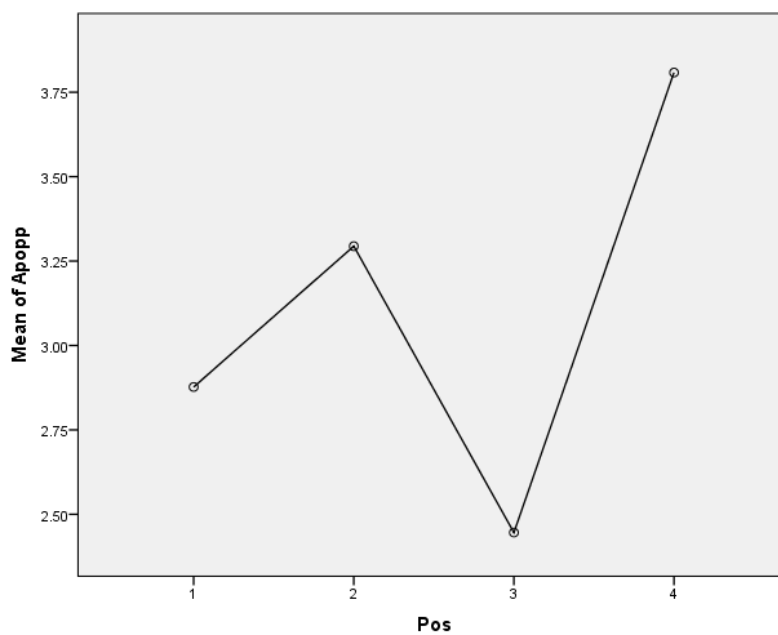


Figure 44. Means plot of Advanced Placement[®] opportunity.

The summary results of the ANOVA for research question two are presented in Table 40.

Table 40

Differences in Initiatives to Improve Access

Question	F(df _b ,df _w) ^a	F	p	ES
DCINCREASE	(3,1111)	16.868	<.05 ^b	.040
APINCREASE	(3,1188)	17.570	<.05	.042
DCopp	(3,1189)	16.561	<.05	.042
APopp	(3,1177)	26.091	<.05	.062

^adf_b-degrees of freedom between groups, df_w-degrees of freedom within groups

^bSignificant at 0.05 level of significance

Research Question 3: Barriers to Opportunity

The third research question examined participants' perceptions about barriers to opportunity to access dual credit programs and had two questions per participant group. One of the challenges of building dual credit programs in school districts is having instructors with sufficient credentials to teach General Education (GE) dual credit courses. In Illinois, teachers are required to have a master's degree in the subject they are teaching in order to teach a GE dual credit course. If teachers have an advanced degree, but not in the subject they are teaching, they must have earned 18 graduate credits in that subject. The questions centered around teacher certification to enable them to teach dual credit courses. The dependent variable ADCTQ measured the participants' perceptions of their awareness of the teacher requirement to teach dual credit courses. The highest percentage response for each group was: school board (some, 29.60%), superintendent (strong, 49.34%), principal (strong, 50.00%), teacher (no, 33.74%). Table 41 displays the data.

Table 41

ADCTQ: Were You Aware of the Teacher Requirements to Teach Dual Credit Courses Prior to Taking This Survey?

	<u>No</u>		<u>Very Little</u>		<u>Some</u>		<u>Strong</u>		<u>Very Strong</u>		N
	0		1		3		3		4		
	N	%	N	%	N	%	N	%	N	%	N
School Board Members	48	21.52	27	12.11	66	29.60	61	27.35	21	9.42	223
Superintendents	0	0.00	2	1.32	16	10.53	75	49.34	59	38.82	152
Principals	6	9.38	1	1.56	6	9.38	32	50.00	19	26.69	64
Teachers	306	33.74	66	7.28	215	23.70	221	24.37	99	10.92	907

To measure the difference in perceptions related to meeting the teacher requirements necessary to teach dual credit courses in Illinois a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Dual Credit Teaching Qualification (ADCTQ) as measured by the Illinois P20 Council Dual Credit survey. Participants were divided into four groups according to their role (Group 1: teachers; Group 2: principals, Group 3: superintendents; Group 4: school board members). Data was screened to identify missing data and outliers and to evaluate the fulfillment of test assumptions. All missing data and outliers were removed leaving 1329 total responses: 907 teachers, 217 school board members, 149 superintendents, and 56 principals.

There was a statistically significant difference at the $p < .05$ level in the ADCTQ scores for the four groups: $F(3,1325)=23.464$, $P < .001$. The effect size, calculated using eta squared, was .050, indicating a small effect size. Posthoc comparisons using the Tukey HSD test indicated that the mean score for teachers ($M=2.12$, $SD=1.357$) was

significantly different than principals (M=3.25, SD=.899) and superintendents, (M=2.69, SD=1.304). School board members had significant differences in mean scores between principals, (M=3.25, SD=.899), and school board members, (M=1.90, SD=1.287)

The means, standard deviations (Table 42) along with ANOVA (Table 43), Tukey PostHoc Results (Table 44), and means plot of ADCTQ (Figure 45) are presented in the following tables and figure.

Table 42

Means and Standard Deviations of Dual Credit Teaching Requirements

Role	n	Mean	SD
Teacher	907	2.12	1.357
Principal	56	3.25	.899
Superintendent	149	2.69	1.304
School Board	217	1.90	1.287
Total Role	1329	2.99	1.357

Table 43

Analysis of Variance for Dual Credit Teaching Requirements

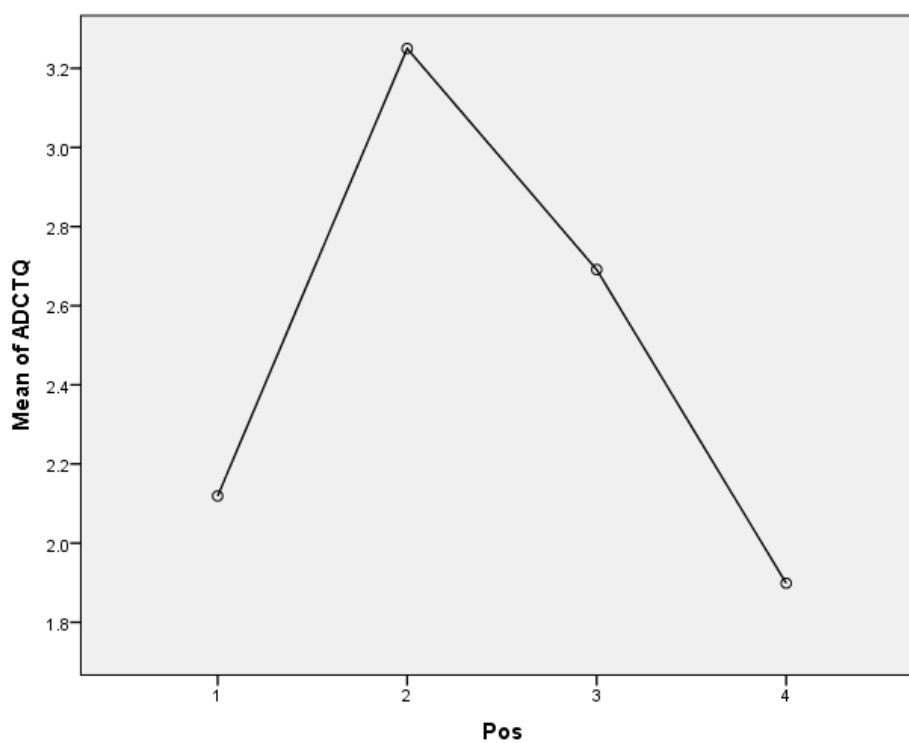
ADCTQ	SS	Df	MS	F	P	ES
Between	123.317	3	41.106	23.464	<.001	.050
Within	2321.208	1325	1.752			
Total	2444.525	1328				

Table 44

Tukey Post Hoc Results and Effect Size of Dual Credit Teaching Requirements by Role

Role	Mean	Mean Differences ($X_1 - X_k$)			
		1	2	3	4
Teacher	2.12	0.00			
Principal	3.25	1.131**	0.00		
Superintendent	2.69	.572**	.559**	0.00	
School Board	1.90	.220	1.351**	.793**	0.00

**P<.5

*Figure 45. Means plot of dual credit teaching requirements.*

The summary results of the ANOVA for research question three are presented in Table 45.

Table 45

Differences in Barriers to Opportunity

Question	F(df _b ,df _w) ^a	F	p	ES
ADCTQ	(3,1325)	23.464	<.05 ^b	.050

^adf_b-degrees of freedom between groups, df_w-degrees of freedom within groups

^bSignificant at 0.05 level of significance

Two additional questions for superintendents and principals included questions about how they determine whether or not to offer dual credit courses and did they have teachers who are qualified to teach dual credit but do not teach the classes.

Superintendents shared that the credentials of teachers (92.06) is the primary driver.

Figure 46 displays the data for variable, DCoff.

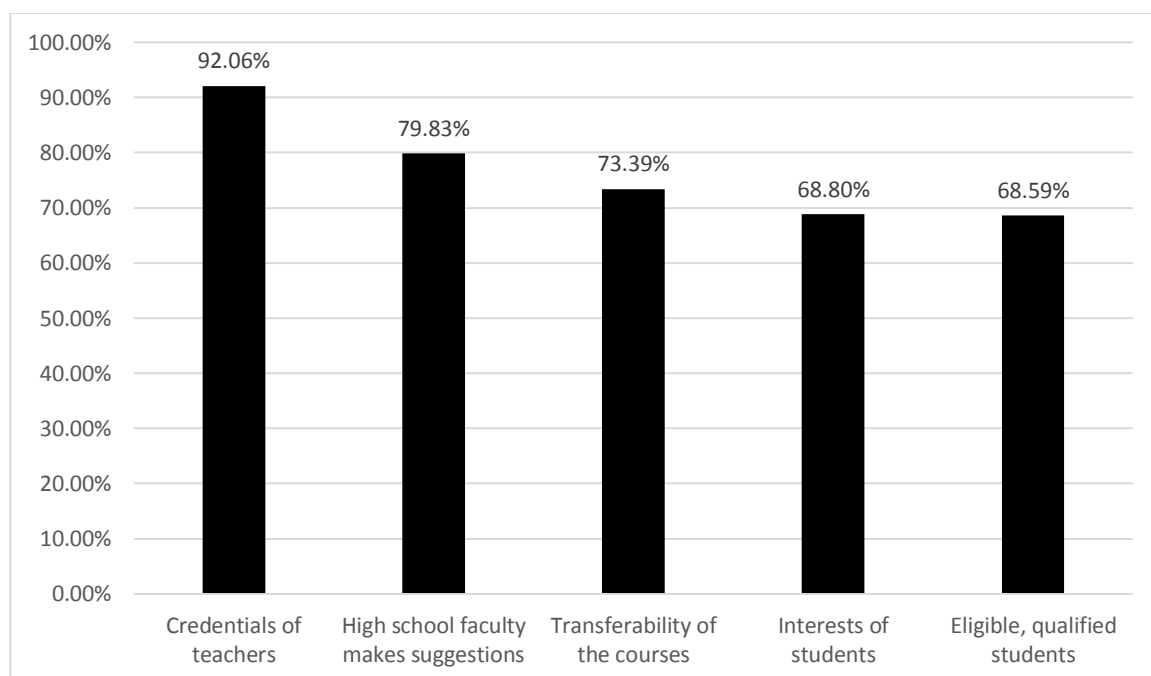


Figure 46. Superintendents, how does your school district identify which dual credit courses to offer?

Superintendents (51) and principals (59) confirmed they currently had teachers in districts or schools that were qualified to teach dual credit courses but were not teaching the courses. The data is displayed in Figure 47.

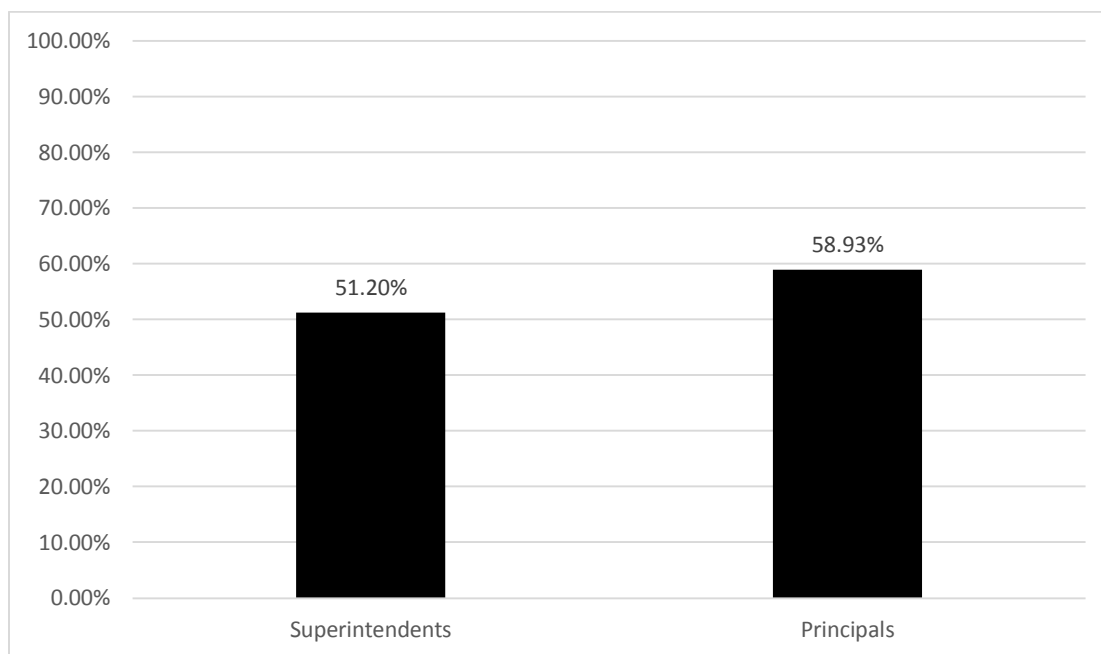


Figure 47. Are there teachers qualified to teach dual credit courses but currently are not doing so?

The dependent variable DCBQ centers around the participants' perceptions of barriers to having more teachers qualified to teach dual credit courses. Various different financial and time constraints were the main barriers. Table 46 displays the data.

Table 46

DCBQ: Which of the Following are Barriers to Having More Teachers Meet the Qualifications Needed to Teach Dual Credit Courses?

	<u>Strongly Disagree</u>		<u>Disagree</u>		<u>Neutral</u>		<u>Agree</u>		<u>Strongly Agree</u>	
	0		1		2		3		4	
	N	%	N	%	N	%	N	%	N	%
School Board Members:										
Financial cost of obtaining credentials	9	4.13	32	14.68	36	16.51	70	<u>32.11</u>	51	23.39
Increased work load	7	3.27	26	12.15	51	23.82	68	<u>31.78</u>	41	19.16
No financial incentive	15	6.88	45	20.64	51	<u>23.39</u>	49	22.48	39	17.89
Graduate program demands	5	2.28	24	10.96	59	26.94	71	<u>32.42</u>	32	14.61
Takes too much time to get credentialed	8	3.65	28	12.79	51	23.29	77	<u>35.16</u>	31	14.16
Access to graduate courses	17	7.83	47	21.66	51	23.50	58	<u>26.73</u>	22	10.14
Not enough prestige for teacher	13	5.94	55	25.11	83	<u>37.90</u>	29	13.24	26	5.94
No staff interest at this time	21	9.63	57	26.15	69	<u>31.65</u>	36	16.51	31	1.83
Superintendents:										
Financial cost of obtaining credentials	7	5.65	12	9.68	20	16.13	46	<u>37.10</u>	39	31.45
Increased work load	3	2.44	24	19.51	31	25.20	45	<u>36.59</u>	20	16.26
No financial incentive	6	4.88	22	17.89	24	19.51	47	<u>38.21</u>	24	19.51
Graduate program demands	1	.81	14	11.38	30	24.39	58	<u>47.15</u>	20	16.26
Takes too much time to get credentialed	4	3.23	13	10.48	17	13.71	64	<u>51.61</u>	26	20.97
Access to graduate courses	9	7.32	28	22.58	30	24.19	39	<u>31.45</u>	18	14.52
Not enough prestige for teacher	9	7.32	53	<u>43.09</u>	36	29.27	21	17.07	4	3.25
No staff interest at this time	11	8.94	37	<u>30.08</u>	35	28.46	32	26.02	8	6.50

(Table continues)

	<u>Strongly Disagree</u>		<u>Disagree</u>		<u>Neutral</u>		<u>Agree</u>		<u>Strongly Agree</u>	
	0		1		2		3		4	
	N	%	N	%	N	%	N	%	N	%
Principals:										
Financial cost of obtaining credentials	2	3.64	4	7.27	7	<u>12.73</u>	22	<u>40.00</u>	20	36.36
Increased work load	2	3.64	7	12.73	16	<u>29.09</u>	25	<u>45.45</u>	5	9.09
No financial incentive	3	5.36	7	12.73	6	<u>10.71</u>	25	<u>44.64</u>	15	26.79
Graduate program demands	2	3.64	7	12.73	14	<u>25.45</u>	26	<u>47.27</u>	6	10.91
Takes too much time to get credentialed	3	5.45	4	7.27	10	<u>18.18</u>	29	<u>52.73</u>	9	16.36
Access to graduate courses	2	3.57	14	25.00	13	<u>23.21</u>	20	<u>35.71</u>	7	12.50
Not enough prestige for teacher	2	3.57	24	<u>42.86</u>	19	33.93	8	14.29	3	36.00
No staff interest at this time	2	3.57	23	<u>41.07</u>	17	30.36	13	23.21	1	1.79
Teachers:										
Financial cost of obtaining credentials	14	1.66	61	7.25	73	8.68	318	37.81	375	<u>44.59</u>
Increased work load	17	2.03	76	9.07	156	18.62	353	<u>42.12</u>	236	28.16
No financial incentive	15	1.78	91	10.87	121	14.37	289	34.32	326	<u>38.72</u>
Graduate program demands	22	2.63	91	10.87	168	20.07	353	<u>42.17</u>	203	24.25
Takes too much time to get credentialed	15	1.79	100	11.93	153	18.26	344	<u>41.05</u>	226	26.97
Access to graduate courses	50	5.97	153	18.28	171	20.43	313	<u>37.40</u>	150	17.92
Not enough prestige for teacher	47	5.63	180	21.56	243	<u>29.10</u>	229	27.43	136	16.29
No staff interest at this time	114	13.65	315	<u>37.72</u>	263	31.50	122	14.61	21	2.51

Teachers were asked what would be good incentives offered to teachers to help with meeting the qualifications to teach dual credit courses. The most common percentages were: teaching stipend (91.90%), reimburse expenses for graduate hours (89.85%) and increased base salary (89.34%). The data is displayed in Figure 48.

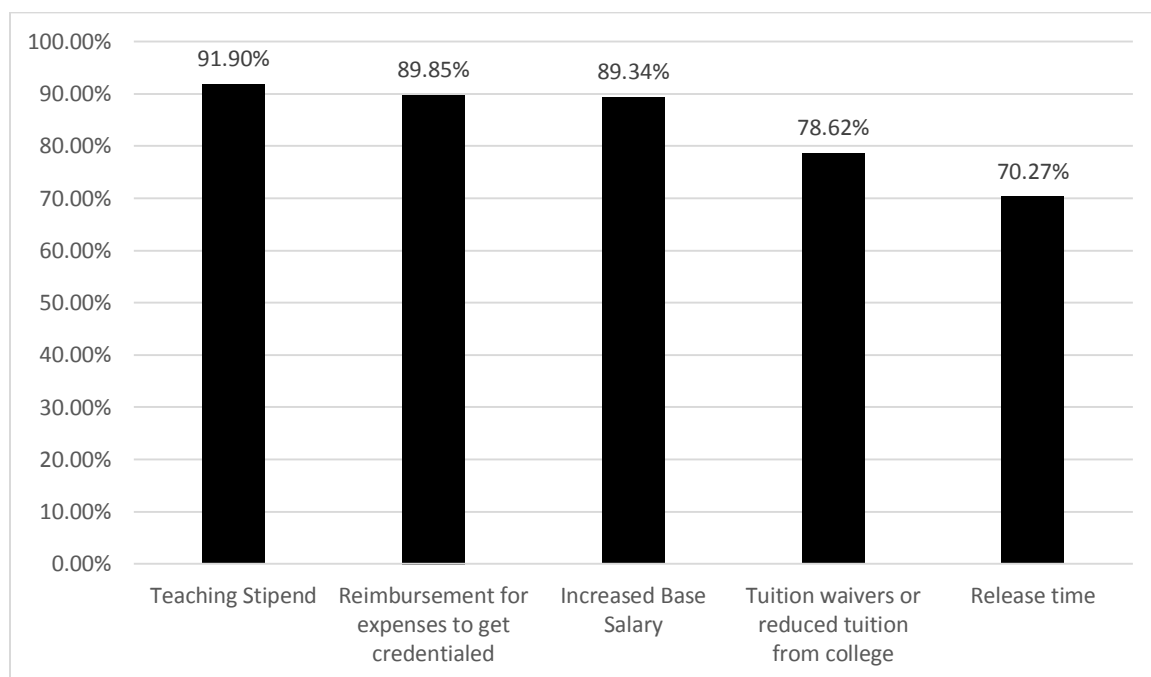


Figure 48. Teachers, which incentives encourage teachers to complete the necessary coursework to teach dual credit?

Chapter Summary

School board members, superintendents, principals, and teachers in the state of Illinois made up the population of the study. The cross-sectional survey to gather the data was sent as a web link using the computer program Survey Monkey. Descriptive data were examined as it relates to the participants and the perceptions of school board

members, superintendents, principals, and teachers about Advanced Placement® and dual credit coursework.

The perceptions were viewed as they related to the broad categories of early college curriculum, initiatives to improve access, and barriers to opportunity. Each of the four groups of respondents gave its perceptions by answering various questions. From these responses, data were organized and presented in several different ways. The total number of persons choosing each of the responses was determined and the percentage of persons choosing each response was indicated. The various relationships among the school board members, superintendents, principals, and teachers on nine variables were then investigated using ANOVA.

Demographic information for the participants included gender, ethnicity, and experience. Generally, the population of the survey was female (52.34%) and white (86.29%), with varied experience. There was a percentage difference among groups for gender. The largest percentages per group for gender were: school board members (Male, 52.21%), superintendents (Male, 74.00%), principals (Male, 64.06%) and teachers (Female, 52.34%). The largest percentages per group for ethnicity were: school board members (White, 87.82%), superintendents (White, 90.60%), principals (White, 90.63%) and teachers (White, 85.27%). The largest percentages per group for experience were: school board members (1-5 years, 47.62%), superintendents (6-10 years, 40.14%), principals (1-5 years, 51.56%) and teachers (11-15 years, 23.19%).

The first research question examined the early college curriculum knowledge of the participants and had six questions per group. The dependent variable, DCA, measured general awareness about dual credit coursework. All groups had “More Aware” as the

highest category in which school board (51.79%), superintendents (49.34%), principals (67.19%), and teachers (56.19%). In addition to the descriptive statistics a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Dual Credit Awareness (DCA) as measured by the Illinois P20 Council dual credit survey. There was a statistically significant difference at the $p < .05$ level in Dual Credit Awareness (DCA) scores for the four groups with a small effect size of .039. This means that 3.9 of the change in DCYear can be accounted for by role.

The dependent variable, DCC, measured the participants knowledge of the difference between the two categories. Teachers were the least aware of the two different categories of dual credit courses. The highest percentage response answer by group was: school board (32.89%, Somewhat), superintendents (46.05%, More Aware), principals (50.0%, More Aware), and teachers (33.74%, No). In addition to the descriptive statistics a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Dual Credit Categories (DCC) as measured by the Illinois P20 Council dual credit survey. There was a medium effect size of .085 for the four groups. This means that 8.5 of the change in DCC can be accounted for by role.

The data suggests the survey population believes they offer dual credit in their schools. The dependent variable, DDC, measured participants' perception of whether or not their school district offers dual credit. The highest percentage answer was "Yes" for each group: school board (75.89%), superintendents (86.27%), principals (96.88%), and teachers (82.45%).

All survey four groups reported offering dual credit courses and Advanced Placement[®] courses consistently year to year and on site in their school districts. The

highest percentage response for all groups was “Consistently Year to Year” for both general education dual credit and Advanced Placement[®]. The highest percentage response for all groups was hosted in their own school district for both general education dual credit and Advanced Placement[®].

Dependent variables DCYear and APYear measured the participants’ perceptions of the extent of offering general education dual credit and Advanced Placement[®] courses in their school district. The highest percentage response, “Consistently Year to Year”, was the same for all groups for both general education dual credit and Advanced Placement[®]. For general education dual credit the percentages were: school board (54.13%), superintendents (68.18%) and principals (80.36%), and teachers (67.58%). In addition to the descriptive statistics a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Dual Credit Year (DCYear) as measured by the Illinois P20 Council dual credit survey. There was a medium effect size of .085 for the four groups. This means that 8.5% of the change in DCYear can be accounted for by role. For APYear the percentages were: school board (44.34%), superintendents (48.00%), principals (67.92%), and teachers (70.72%). In addition to the descriptive statistics a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Advanced Placement[®] Year (APYear) as measured by the Illinois P20 Council dual credit survey. There was a medium effect size of .086 for the four groups. This means that 8.6% of the change in APYear can be accounted for by role.

Dependent variables DCloc and APloc measured the participants’ perceptions of the locations in which dual credit and Advanced Placement[®] courses are offered in their

school district. The highest percentage response for all groups was hosted in their own school district for both general education dual credit and Advanced Placement[®]. For general education dual credit the percentages were: school board (57.60%), superintendents (68.70%) and principals (72.73%), and teachers (77.12%). For AP the percentages were: school board (52.86%), superintendents(58.06%) and principals (75.00%), and teachers (77.50%).

The second research question examined participants' perceptions about initiatives to improve access to early college programs and had five questions per participant group. Dependent variable DCBen measured the perceptions of the participants related to the benefits that the teachers receive for teaching dual credit courses. The highest percentage response for three groups was "None" with the following percentages: superintendents (54.92%) and principals (58.18%), and teachers (46.21%). Using the academic resources of the college partner was the highest percentage for school board members (36.22%).

Dependent variable DCS1 measured the participants' perceptions of the awareness of who pays for the benefits that teachers receive for teaching dual credit courses. The highest percentage response, "School District", was the same for school board members (33.80%) and superintendents (55.6%). "I don't know" was the highest percentage response for principals (29.41%) and teachers (38.36%).

Increased weights of grades when calculating a student's grade point average encourages student participation in courses. The dependent variable DCwt measured the participants' perceptions of the weighting of student grades for students who participate in honors, dual credit, and Advanced Placement[®] courses. The highest percentage response was Advanced Placement[®] for school board members (44.27%), principals

(63.83%) and teachers (62.38%). Superintendent's perceive that honors courses (57.73%) are weighted the most.

All participant groups reported efforts to increase the number of students in both AP and DC credit courses. School board members, superintendents, and principals shared varying percentages that their school district is making efforts to ensure that AP and DC meet the needs of the student population of the school. Teachers shared their schools are more likely to make efforts to ensure that the student population in Advanced Placement[®] mirrors the diversity of the school population compared to dual credit courses.

Dependent variables DCinc and APinc measured the participants' perceptions of their school districts efforts to increase the number of students who are involved in Advanced Placement[®] and dual credit courses. The highest percentage response for dual credit for each group was: (school board, agree, 39.20%), (superintendent, strongly agree, 54.84%), (principal, strongly agree, 51.85%), (teachers, agree, 36.77%). In addition to the descriptive statistics a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Dual Credit Increase (DCinc) as measured by the Illinois P20 Council dual credit survey. There was a small effect size of .40 for the four groups. This means that 4.0 % of the change in DCinc can be accounted for by role.

The highest percentage response for increasing Advanced Placement[®] courses for each group was: (school board, agree, 31.63%), (superintendent, strongly agree, 28.46%), (principal, strongly agree, 26.92%), (teachers, agree, 33.58%). In addition to the descriptive statistics a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Advanced Placement[®] Increase

(APinc) as measured by the Illinois P20 Council dual credit survey. There was a small effect size of .042 for the four groups. This means that 4.2% of the change in DCYear can be accounted for by role.

The dependent variables DCopp and APopp measured the participants' perceptions of their school district's efforts to meet the needs of the student population in Advanced Placement[®] and dual credit courses. The highest percentage response for dual credit for each group was: (school board, agree, 38.07%), (superintendent, strongly agree, 54.03%), (principal, strongly agree, 58.49%). In addition to the descriptive statistics a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Dual Credit Opportunity (DCopp) as measured by the Illinois P20 Council dual credit survey. There was a small effect size of .042 for the four groups. This means that 4.2% of the change in DCopp can be accounted for by role.

The highest percentage response for Advanced Placement[®] Opportunity for each group was: (school board, agree, 29.38%), (superintendent, neutral, 30.08%), (principal, agree, 29.41%). In addition to the descriptive statistics a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Advanced Placement[®] Opportunity (APopp) as measured by the Illinois P20 Council dual credit survey. There was a medium effect size at .062 among the four groups. This means that 6.2% of the change in APopp can be accounted for by role.

The third research question examined participants' perceptions about barriers to opportunity to access dual credit programs and had two general questions for all participant groups with superintendents, principals and teachers having two additional questions. Superintendents shared that credentials of teachers (92.06%) are the primary

way in which their district determines which dual credit courses while both superintendents (51%) and principals (59%) believe they have teachers in their schools that are qualified to teach dual credit courses but are not teaching the courses.

Various financial and time constraints were shared by all four participant groups as the largest barriers for qualifying teachers to teach dual credit courses and yet a large percentage of teachers (33.74%) reported no awareness of the qualifications necessary to teach dual credit courses. Teachers were asked what would be good incentives offered to teachers to help with meeting the qualifications to teach dual credit courses and the most common answers were: teaching stipend (91.90%), reimburse expenses for graduate hours (89.85%), and increased base salary (89.34%).

The dependent variable ADCTQ measured the participants' perceptions of their awareness of the teacher requirement to teach dual credit courses. The highest percentage response for each group was: (school board, some, 29.60%), (superintendent, strong, 49.34%), (principal, strong, 50.00%), (teacher, no, 33.74%). In addition to the descriptive statistics a one-way between groups analysis of variance (ANOVA) was conducted to explore the impact of role on levels of Dual Credit teaching requirements (ADCTQ) as measured by the Illinois P20 Council dual credit survey. There was a small effect size at .050 among the four groups. This means that 5.0% of the change in ADCTQ can be accounted for by role.

This chapter presented an analysis of the data. Chapter V gives an overview of the study, presents significant findings, implications for current practice, and recommendations for further study.

CHAPTER V

FINDINGS, IMPLICATIONS, AND CONCLUSIONS

The purpose of this quantitative study was to examine the perceptions of teachers, principals, superintendents, and school board members using a cross-sectional survey about Advanced Placement[®] and dual credit courses in Illinois high schools. The data analysis focused on the differences of the stakeholders' perceptions regarding early college program awareness, initiatives to improve access, and barriers to opportunity. A summary, conclusions, implications, and recommendations for future study are detailed in the following sections.

Background

Opportunity gaps exist for children to access Advanced Placement[®] and Dual Credit (DC) courses depending on the school they attend. There is an under-representation of student groups along ethnic lines in dual credit and Advanced Placement[®] (AP[®]) programs (Allen, 2010; An, 2009; Karp, Calcagno, Hughes, Jeong, & Bailey, 2007; Kim, 2008; Klopfenstein, 2004; Oakes, 1995; Swanson, 2008; Taylor, 2013; Witt, Lichtenberger, Blankenberger, & Franklin, 2012). There are also gaps by location and size of school. Larger schools and those in urban areas offer less dual credit opportunities (Taylor & Lichtenberger, 2013), while smaller schools in rural areas have gaps in AP[®] programs (U.S. Department of Education, 2014). Student's access to AP[®] and Dual Credit coursework are not consistent with social justice as there are gaps under Rawls' (2003) "equal opportunity principle". The equal opportunity principal requires

that all students, regardless of race, color, national origin, or culture, have comparable access to the diverse range of courses, programs, and extracurricular activities offered in America's public schools.

The findings presented as part of this research study provide a picture of Advanced Placement and dual credit coursework in Illinois that can inform educational leaders in order to improve student access to these programs. The researcher examined a variety of variables using quantitative statistical methods and found that early college coursework in Illinois has gained momentum through the years and yet the data from this survey suggests more deliberate actions by policymakers, local school boards, and superintendents are necessary to increase student access to AP[®] and DC.

The research questions of the study were organized around three areas: early college knowledge, initiatives to improve access, and barriers to opportunity. The role of the participant in the study (school board member, superintendent, principal, and teacher) played a significant factor in the answers to the survey questions. For each research question the null hypothesis was rejected.

Discussion of Findings

The first research question examined the early college curriculum knowledge of the four different survey groups: school board members, superintendents, principals, and teachers. The categories were Dual Credit Awareness (DCA), Dual Credit Category (DCC) Awareness, Dual Credit Offerings (DCYear) and Advanced Placement[®] (APYear) Offerings.

RQ1: How do school board members, superintendents', principals', and teachers' perceptions differ with respect to knowledge about Advanced Placement® and dual credit courses?

HO1: There is not a statistically significant difference in the perceptions of school board members', superintendents', principals', and teachers' perceptions with respect to early college curriculum programs, Advanced Placement® and dual credit.

Based on the data from the ANOVA for the four questions the researcher concluded to reject the null hypothesis. See Table 47 to view mean the differences and effect size for each question within this category.

Table 47

Mean Differences and Effect Size Between Teachers, Principals, Superintendents, and School Board Members in Early College Knowledge

Role	DCA	DCC	DCYear	APYear
Teacher	2.88	1.72	2.31	2.85
Principal	3.27	2.95	2.66	2.45
Superintendent	3.24	2.84	2.36	1.95
School Board	2.75	1.74	2.71	2.68
Effect Size	.039	.085	.085	.086

There was a small effect size for the dependent variable Dual Credit Awareness, DCA, at .039 with respect to the different levels of awareness of dual credit courses in Illinois. This means that 3.9% of the change in DCA can be accounted for by role. Teachers (2.88) and school board members (2.75) were the least aware of dual credit

courses prior to taking the survey while principals (3.27) and superintendents (3.24) were the most aware and had similar responses in their perceived knowledge about dual credit programs.

There was a medium effect size for the dependent variable Dual Credit Category, DCC, at .085 with respect to the awareness of the two different types of dual credit courses in the state of Illinois. This means that 8.5% of the change in DCC can be accounted for by role. Teachers (1.72) had the least awareness of the two categories of dual credit, followed by school board members (1.74). Principals (2.95) and superintendents (2.84) shared similar awareness in their perceived knowledge about dual credit.

There was a medium effect size for Dual Credit Year, DCYear, at .085 with respect to the participants' perceptions related to the consistency of their schools' offering dual credit courses from year to year. This means that 8.5% of the change in DCYear can be accounted for by role. Teachers (2.31) had the lowest perception and differed significantly from school board members (2.71) and superintendents (2.36).

There was a medium effect size for Advanced Placement[®] Year, APYear, at .086 with respect to participants' perceptions related to the consistency of their schools' offering Advanced Placement[®] courses from year to year. This means that 8.6% of the change in APYear can be accounted for by role. Superintendents (1.95) had the lowest perception of their schools' yearly offerings and differed significantly from teachers (2.85), principals (2.45) and school board members (2.68).

The participants reported offering Advanced Placement[®] and dual credit mainly at their school sites on a fairly consistent basis year to year. The descriptive data and

ANOVA results from this study related to knowledge of early college curriculum by the participants suggest all groups were informed about dual credit coursework prior to the study. Teachers and school board members are the least knowledgeable about dual credit programming. Teachers are the least aware of the two types of dual credit courses and feel AP[®] was offered more at their school than dual credit compared to the other groups. Superintendents were the least knowledgeable of the offering of AP[®] at their school.

The second research question examined the perceptions of the four different survey groups: school board members, superintendents, principals, and teachers related to initiatives to improve access to early college coursework at their schools. The categories were Dual Credit Increase (DCIncrease), Advanced Placement[®] Increase (APIIncrease), Dual Credit Opportunity (DCOpp, and Advanced Placement[®] Opportunity (APOpp).

RQ2: How do school board members, superintendents', principals', and teachers' perceptions differ with respect to initiatives to improve student access to Advanced Placement[®] and dual credit courses?

HO2: There is not a statistically significant difference in the perceptions of school board members', superintendents', principals', and teachers' perceptions to initiatives to improve student access to early college programs.

Based on the data from the ANOVA the researcher concluded to reject the null hypothesis. See Table 48 to view mean the differences and effect size for each question within this category.

Table 48

Mean Differences and Effect Size Between Teachers, Principals, Superintendents, and School Board Members on Initiatives to Increase Access to AP and DC

Role	DCIncrease	APIIncrease	DCOpp	APOpp
Teacher	2.91	2.96	2.90	2.88
Principal	3.28	3.17	3.43	3.29
Superintendent	3.26	2.65	3.14	2.45
School Board	3.67	3.66	3.74	3.81
Effect Size	.040	.042	.042	.062

There was a small effect size for Dual Credit Increase, DCIncrease, at .040 with respect to participants' perceptions related to their schools trying to increase students participation in dual credit courses. This means that 4.0% of the change in DCIncrease can be accounted for by role. Teachers (2.91) had the lowest perception of their schools initiatives to increase dual credit courses and differed significantly from superintendents (3.26) and school board members (3.67). Superintendents (3.26) perception scores also differed significantly from school board members (3.67).

There was a small effect size for Advanced Placement[®] Increase, APIIncrease, at .042 with respect to participants' perceptions related to their schools trying to increase students participation in Advanced Placement[®] courses. This means that 4.2% of the change in APIIncrease can be accounted for by role. School board members had the highest (3.66) perception of their schools initiatives to increase Advanced Placement[®] courses and differed significantly from superintendents (2.65) and teachers (2.96).

There was a small effect size for Dual Credit Opportunity, DCOpp, at .042 with respect to participants' perceptions related to their schools trying to meet the needs of the

student population in their school's dual credit courses. This means that 4.2% of the change in DCOpp can be accounted for by role. School Board members (3.74) had the highest perception of their schools initiatives to improve opportunity to dual credit courses and differed significantly from superintendents (3.14) and teachers (2.90). Principals (3.43) perception scores also differed significantly from school board members (3.74).

There was a medium effect size for Advanced Placement[®] Opportunity, APOpp, at .062 with respect to participants' perceptions related to their schools trying to meet the needs of the student population in their school's Advanced Placement[®] courses. This means that 6.2% of the change in APOpp can be accounted for by role. Superintendents (2.45) had the lowest perception of their schools initiatives to improve opportunity to Advanced Placement[®] courses and differed significantly from school board members (3.81) and teachers (2.88).

All participant groups reported efforts to increase the number of students in both AP[®] and DC credit courses. School board members, superintendents, and principals shared varying percentages that their school district is making efforts to ensure that AP[®] and DC meet the needs of the student population of the school. Teachers shared that schools are more likely to make efforts to ensure that the student population in dual credit courses mirrors the diversity of the school population compared to Advanced Placement[®] courses. The respondents shared that teachers generally receive no additional benefits to teach dual credit courses with the next largest percentage benefit being the opportunity to use the academic resources of the college partner. The population of this survey shared that their school districts weighed Advanced Placement[®] courses more than dual credit

courses in student's grade point average calculation.

The ANOVA results from this study suggest that members of the school community have different perceptions related to increasing student participation and meeting the needs of students in AP[®] and dual credit programs. Teachers had the lowest scores while school board members had the highest scores of trying to improve student participation and meeting the needs of students in AP[®] and DC courses. Superintendent's perceptions of meeting the needs of their student population were the lowest among all groups for AP[®] courses.

The third research question examined the perceptions of the four different survey groups: school board members, superintendents, principals, and teachers related to their awareness of the teaching qualifications necessary to teach dual credit courses.

RQ3: How do school board members, superintendents', principals', and teachers' perceptions differ regarding barriers to the opportunity to take dual credit courses?

HO3: There is not a statistically significant difference in the perceptions of school board members', superintendents', principals', and teachers' perceptions regarding barriers to the opportunity to take dual credit courses.

The dependent variable ADCTQ measured the participants' perceptions of their awareness of the teacher requirement to teach dual credit courses. Based on the data from the ANOVA the researcher concluded to reject the null hypothesis. The mean differences and effect size for Awareness of Dual Credit Teaching Qualifications, (ADCTQ) is listed in Table 49 below.

Table 49

Mean Differences and Effect Size Between Teachers, Principals, Superintendents, and School Board Members on Their Awareness of the Teaching Qualifications Necessary to Teach Dual Credit Courses

Role	ADCTB
Teacher	2.12
Principal	3.25
Superintendent	2.69
School Board	1.90
Effect Size	.050

There was a small effect size for ADCTQ, at .050, with respect to participants' perceptions related to their schools trying to meet the needs of the student population in their school's Advanced Placement[®] courses. This means that 5.0% of the change in ADCTQ can be accounted for by role. School board members (1.90) had the lowest awareness of the qualifications necessary to teach dual credit courses, followed by teachers (2.12). There were significant mean differences between teachers (2.12), principals (3.25) and superintendents (2.69). School board members had significant differences in mean scores between principals (3.25) and superintendents (1.90).

Teachers identified barriers to obtaining the qualifications to teach dual credit courses with financial and time constraints the most common barriers. In addition, teachers and principals were asked what additional benefits teachers received for teaching dual credit courses, the most common response was "none". The survey indicated that there are teachers qualified to teach dual credit courses but are not teaching these courses due to lack of financial incentives. Teachers and principals surveyed did have some

suggestions for benefits that might be seen as associated with teaching dual credit courses that included: teaching stipend (91.90%), reimburse expenses for graduate hours (89.85%), and increased base salary (89.34%). Any additional benefits that teachers do receive is primarily the school district's financial responsibility.

Implications and Recommendations

The literature on Advanced Placement[®] and dual credit programs is extensive. Both programs have grown significantly over the past decades as the courses have been opened up for secondary students beyond those exhibiting high academic achievement or ability. The benefits to students are very similar, one significant difference is that dual credit is direct credit while students must pass the AP[®] exam to receive college credit. Achievement gaps are evident for students who take AP[®], while there is no data available for dual credit in Illinois related to achievement. Opportunity gaps are prevalent by ethnicity for both programs while there are also gaps by location and size of school. Larger schools and those in urban areas offer less dual credit, while smaller schools in rural areas have gaps in AP[®] programs.

A difference between AP[®] and dual credit financially for families is difficult to quantify based on the different arrangements for dual credit across the state. Local school districts are funded the same for AP[®] and DC based on student enrollment, while the college partner receives money for students who attend for dual credit. The financial burden to incentivize teachers to teach dual credit courses is on the school district while Advanced Placement[®] places no additional burden on school districts.

Data from this study supports the literature and suggests that recently Advanced Placement[®] has received a larger priority to increase student access compared to dual

credit, both nationally and in Illinois. The AP[®] data collection and reporting have highlighted equity and achievement while dual credit course data is not easily attainable. Additionally, there is a state law in Illinois requiring state universities to grant credit to students who score a three on the exam while no such mandate exists for dual credit. The additional cost to insure credentialed dual credit teachers creates a barrier to have qualified teachers and the survey highlighted that more school districts weight AP[®] courses compared to dual credit courses, creating incentives for students to take AP[®].

The survey results of this study were informative to understanding the perceptions of teachers, principals, superintendents, and school board members on the topics of Advanced Placement[®] and dual credit courses. A large number of participants surveyed were aware of Advanced Placement[®] and dual credit coursework prior to taking the survey and felt their school district was engaged in efforts to increase the number of students involved with both early college programs.

However, the survey results suggest a lack of a concerted strategy related to initiatives to improve access to AP[®] and DC courses as members of the school community have different perceptions related to increasing student participation and meeting the needs of students in AP[®] and dual credit programs. This is highlighted by the fact that two essential stakeholder groups necessary to increase student access are the least engaged. These groups, superintendents and teachers, are the least knowledgeable and vested in increasing access to students for AP[®] and DC. For example, superintendents shared the credentials of teachers are the primary way in which their district determines which dual credit courses to offer and yet teachers are the least knowledgeable about dual credit and the qualifications necessary to teach the courses.

Teachers being the least knowledgeable about dual credit suggests that the qualifications have not been a priority in school districts due to financial constraints. Additionally, superintendents in this study were the least knowledgeable of the offering of AP[®] and meeting the needs of the student population at their schools in both AP[®] and DC. This is concerning as the literature suggests leadership is essential in improving access to students.

Based on the significant findings from the study in order to increase students opportunities to access Advanced Placement[®] and dual credit courses it is necessary to create incentives, remove barriers, and allocate the necessary resources to expand the early college programs.

Education leaders in the State of Illinois can be more intentional in their efforts to increase access for students to both Advanced Placement[®] and dual credit programs and need to improve how schools recruit, develop, place, support and incentivize teachers to become credentialed to teach dual credit courses.

In order to expand access to rigorous coursework to students, local school districts need a shared vision and leadership objective. Superintendents and school boards must have a common interest in social justice and narrowing opportunity gaps in order to improve student opportunity and achievement. “Research increasingly points to the relationship between effective leadership and increased student achievement” (Leithwood, Louis, Anderson, & Wahlstrom, 2004, p. 12). The type of leadership needed is that of a transformative leader.

“Transformative leadership begins with questions of justice and democracy; it critiques inequitable practices and offers the promise not only of greater individual

achievement but of a better life lived in common with others” (Shields, p. 2010).

Transformational leadership is leadership in which the leader identifies the needed change, creates a vision to guide the change through inspiration, and executes the change with the commitment of the members of various stakeholder groups.

Research studies have indicated that transformational leadership can impact achievement and equity. In a study conducted by Sheppard (1996), the characteristics of transformational leadership were found to facilitate moving a school forward toward improvement and narrowing the achievement gap. Sheppard (1996) surveyed 624 teachers and concluded that the correlation between transformational school level leadership and the characteristics of effective schools was not only positive but also strong. Additionally, Chin (2007) reviewed 28 independent research studies from the United States and Taiwan using a meta-analysis technique that found transformational school leadership improved equity in education by producing positive effects on teacher job satisfaction, school effectiveness and student achievement. Three separate meta-analyses were performed to explore the relationship between transformational school leadership and student outcomes. Also, Chin’s (2007) study examined the covariation between two continuous variables in the 28 studies to investigate the effect of transformational leadership using correlation coefficients. Eleven of the 28 studies found an association specifically between transformational leadership and student achievement.

One primary role of superintendent leadership is to influence those in the school community, including school board members, principals and teachers, to collaboratively take action around school reform issues (Leech & Fulton, 2008). A study by Smith and Brazer (2016) found common principles shared by leaders in 13 school districts that

narrowed the opportunity and achievement gaps for students. Among the results reported by the superintendents include: rising achievement, greater participation in advanced classes, increasing graduation rates and higher college matriculation among students in all subgroups. The school districts in the study showed narrowed achievement gaps in each of the measured categories between white students and students of color, and between students whose parents are poor and those whose parents are not (Smith & Brazer, 2016).

The Smith and Brazer (2016) study highlighted principles at the core of the superintendent's work that included consistency in expectations regarding what is taught, how it is taught and how it is measured; rigorous academic experiences available and promoted to all students; teacher collaboration directed toward increased student performance; implementation of equitable curriculum and instruction through vehicles such as professional learning communities; and a drive for high expectations and directly confronting issues of race and privilege (Smith & Brazer, 2016). Almost all of the superintendents interviewed shared a background of devotion to social justice, and they wished to work in school districts with like-minded boards and community leaders. Six of the thirteen superintendents referenced their experiences with civil rights and/or alluded specifically to seeking positions in communities and with boards that shared their interest in working toward narrowing learning gaps.

It is clear that leadership is critical to improving student achievement. Education leaders at all levels can institute initiatives that increase student access to AP[®] and DC. Below are the following recommendations that emerged based on the findings in this study:

1. Districts should establish a dual focus on raising achievement for all students and eliminating racial achievement gaps in early college programs guided by principles or policies set by the school board.

2. School districts must be willing to allocate the resources necessary to meet established goals. Teachers identified financial and time constraints as the biggest barriers to obtaining the qualifications to teach dual credit courses. Also, there are teachers qualified to teach dual credit courses but are not teaching these courses due to lack of financial incentives.

3. Schools should allow open enrollment in Advanced Placement[®] and dual credit courses with no prerequisites and provide support for students to meet college entrance requirements in dual credit courses.

4. Increase weighting of Advanced Placement[®] and dual credit courses to impact student's grade point averages can also increase enrollment.

5. The state of Illinois must institute a complete data collection system including dual credit coursework in order to quantify student achievement.

6. State and school level early college score cards should be developed that include categories of equity, excellence, and teacher qualifications for dual credit courses.

7. Provide incentives for high school teachers to obtain the academic degree or qualifications needed to teach dual credit classes at the high school level. ICCB, ISBE, and IBHE can take specific steps to support this goal. ICCB should continue to provide grants that develop innovative pathways for teachers to meet the qualifications of higher education partners, and assure innovative pathways are still compliant with higher education accreditation requirements. Additionally, ICCB should identify and target

regions of the state in most need for bringing dual credit opportunities to students and supporting teachers to meet accreditation requirements. ISBE, ICCB, IBHE and school districts should explore strategies for how federal funds available in Title I, Title II, Title III, Title IV of ESSA may be used to support high school teachers to obtaining the necessary certification for dual credit classes. Innovative strategies that may be worth exploring include the state establishing priority to distribute funding to districts in most need (e.g., schools with limited dual credit options, few teachers with advanced degrees, etc.), and school districts using ESSA formula funding to financially support teachers in acquiring needed graduate courses/program contingent on the agreement to stay in district and teach dual credit courses for a specific time. Also, the Illinois Student Assistance Commission (ISAC) should expand the eligibility of the Minority Teachers of Illinois grant program (MTI) to also allow for grants to cover the tuition and fees for courses help teachers obtain either a master's degree in the specialty or 18 graduate level credit hours within the specialty to be qualified to teach dual credit courses. The grant should also stipulate that the recipient should teach at least one dual credit course in an Illinois school for each year of scholarship assistance received.

8. School districts should explore dual credit options with the pool of eligible teachers not currently utilized. In order to do so the recommendation is for school districts to audit teacher qualifications in their schools to see which teachers are eligible to teach dual credit courses and align teacher qualifications to the needs of their students to determine the gaps in courses offered in their districts.

9. Encourage principals and superintendents to do succession planning by recruiting and hiring teachers of need for both dual credit and AP[®] courses.

The recommendations from this study involving dual credit were submitted to the P-20 Council School, College, and Career Readiness Committee by the P-20 TLE Committee.

Areas for Future Study

It is the responsibility of all stakeholders (school board members, superintendents, principals, and teachers) to assure that students have access to rigorous high school curriculum. In order for education leaders to make research-based decisions, studies such as this need to be expanded upon to provide a clearer picture of the landscape of Advanced Placement and dual credit coursework. Suggestions for prospective studies include the following:

1. A qualitative or mixed methods approach expanding the research methods used in this study could include interviews of school board members, superintendents, principals, or teachers and provide valuable insight into something that otherwise had been missing from the data collection; as this study focused on a quantitative approach.
2. Use the P20 TLE Committee's survey bank from this study with the P20 CCSR Committee or other researchers. A number of participants indicated they would be interested in participating in a focus group from this survey: 186 teachers, 21 principals, 39 superintendents, and 58 school Board Members. Areas for future study using focus groups could be to work with school districts that identified that they had teachers qualified but not teaching dual credit courses to reduce barriers. Also, future study could link data responses to geographic regions in the state using the survey bank from this study as zip code information was collected from the teacher, principal, and superintendent surveys.

3. Explore the teacher data from this survey more deeply as the data set has some specific answers to questions regarding equity and access by race for their schools.

4. Expand the work of this study to other states across the nation .

Any subsequent research gathering feedback from stakeholders should be more deliberate in sampling stakeholders, particularly those in leadership roles, that represent the demographics of the United States education system. The participants who completed the survey do not represent the demographics of principals, and teachers of the United States. The population surveyed in this survey is less diverse than the student, teacher, and principal population in 2011-2012. The largest percentages by group for ethnicity of this study were mainly White: school board members (White, 87.82%), superintendents (White, 90.60%), principals (White, 90.63%) and teachers (White, 85.27%). The percentage of teachers nationwide in 2011-12 was 7% White and the principals were 81.8% White (NECS, 2012).

Summary and Conclusion

The purpose of this study was to examine the differences of perceptions of teachers, principals, superintendents, and school board members using a cross-sectional survey about AP[®] and dual credit courses in Illinois high schools in order to improve student access to these programs. Opportunity gaps, the unequal distribution of resources and opportunities, exist for children to access Advanced Placement[®] (AP[®]) and dual credit (DC) courses depending on the school they attend (Long, Conger, & Iatarola, 2012; Taylor & Lichtenberger, 2014; Klopfenstein, 2004).

Expanding educational attainment is a clear route to improving opportunity for students as expectations have increased over the decades in the global labor market that

requires a more skilled workforce. The most powerful predictor of college completion and likelihood of success in the job market is the academic rigor of a students' high school curricula (Adelman, 1999, 2006; Warburton, Bugarin, & Nunez, 2001). Advanced Placement[®] and dual credit coursework have been positively associated with almost every educational outcome for students in high school and college (College Board, 2015; Dodd, Fitzpatrick, DeAyala, & Jennings, 2002; Karp, Calcagno, Hughes, Jeong, & Bailey, 2007; Morgan & Ramist, 1998; Swanson, 2008).

Utilizing survey research methods, this study addressed whether differences exist among Illinois education stakeholders' (school board members, superintendents, principals, and teachers) perceptions around early college curriculum, initiatives to improve access, and barriers to opportunity for students to take AP[®] and DC courses. The research suggested education leaders in the state of Illinois can be more intentional in their efforts to increase access for students to both Advanced Placement[®] and dual credit programs and need to improve how schools recruit, develop, place, support and incentivize teachers to become credentialed to teach dual credit courses.

The researcher shared the results of the surveys with the P-20 TLE committee in April 2016 which helped form some of the recommendations. Based on the significant findings from the study, nine recommendations are given to increase students opportunities to access Advanced Placement[®] and dual credit courses in Illinois by creating incentives, removing barriers, and allocating the necessary resources to expand the early college programs. Recommendations include:

1. Districts establish a dual focus on raising achievement for all students and eliminating racial achievement gaps in early college programs guided by principles or policies set by the school board.
2. School districts must allocate the resources necessary to meet established goals.
3. Schools should allow open enrollment in Advanced Placement[®] and dual credit courses with no prerequisites and provide support for students to meet college entrance requirements in dual credit courses.
4. Increase weighting of Advanced Placement[®] and dual credit courses to impact student's grade point averages.
5. The state of Illinois must institute a complete data collection system including dual credit coursework in order to quantify student achievement.
6. State and school level early college score cards should be developed that include categories of equity, excellence, and teacher qualifications for dual credit courses.
7. Provide incentives for high school teachers to obtain the academic degree or qualifications needed to teach dual credit classes at the high school level.
8. School districts should explore dual credit options with the pool of eligible teachers not currently utilized.
9. Principals and superintendents should do succession planning by recruiting and hiring teachers of need for both dual credit and AP[®] courses.

Specific recommendations for future study include using the robust data set collected from this survey to dig deeper into stakeholder perceptions around barriers to early college programs. Additionally, expanding the research methods of this study can

provide more insight into the issue of student access to early college programming. The many benefits of Advanced Placement[®] and dual credit coursework for students make it necessary that any education agenda by policymakers should include avenues to increase access to these programs for students. A public education system based in social justice can break the perpetuation of any inequitable practices that can limit opportunities for students.

This study adds to the literature about Advanced Placement[®] and dual credit courses and provides direction for future study calling for transformational leadership at all education levels that leads for social justice. Without focused leadership to provide equitable opportunities for students to access rigorous coursework resulting in equality of educational attainment, income levels, and upward mobility, it will not happen.

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APPENDIX A

CODEBOOK

Codebook

Participant	#	Question	Coding Scheme	Variable Name	Group
School Board Superintendent Principal Teacher	2 4 4 4	What is your gender?	Male = 0 Female = 1 Prefer not to answer = 2	Gen	Dem
School Board Superintendent Principal Teacher	3 5 5 5	What is your race/ethnicity?	African American = 0 Hispanic = 1 Asian = 3 Native American = 4 Caucasian = 5 Multiracial = 6 Other = 7 Prefer not to answer=8	Eth	Dem
School Board Superintendent Principal Teacher	4 6 6 6	How many years have you been a ?	15 years = 0 2 6 years = 1 610 years = 2 1115 years = 3 1620 years =4 2125 years =5 26+ years =6	Exp	Dem

(Table continues)

Participant	#	Question	Coding Scheme	Variable Name	Group
School Board	7	"Dual Credit Courses" are	I had never heard of dual credit	DCA	ECCC
Superintendent	8	college courses taken by a	courses before taking this survey.0		
Principal	8	high school student for credit			
Teacher	8	at both the college and high school level. Were you aware of dual credit coursework before taking this survey?	I had heard of dual credit courses, but did not know what they are. 1 I had heard of dual credit courses. 2 I know dual credit courses, and I can explain what they are and how our district uses them if asked. 3 I know dual credit courses quite well and I am aware of recent developments regarding Illinois Dual Credit 4		

(Table continues)

Participant	#	Question	Coding Scheme	Variable Name	Group
School Board	8	In the state of Illinois dual credit courses are offered through cooperative agreements with Illinois colleges generally that fall into two broad categories: Career and Technical Education (CTE) or General Education (GE). Were you aware of these two different categories of dual credit courses before taking this survey? Choose one.	I had heard of the two categories of dual credit courses before taking the survey. 0	DCC	ECCC
Superintendent	9		I had heard of the two different categories of dual credit courses, but did not know what they are. 1		
Principal	9		I had heard of the two different categories of dual credit courses. 2		
Teacher	9		I know the two different categories of dual credit courses, and I can explain what they are and how our district uses them. 3		
	9		I know the two different categories of dual credit courses quite well and I am aware of recent developments regarding categories.4		
School Board	10	Does your school district currently offer dual credit courses to students?	General Education Dual Credit	DDC	ECCC
Superintendent	10		Advanced Placement®		
Principal	10		International Baccalaureate		
Teacher			Yes – 1		
			No –0		
			Not sure – 2		

(Table continues)

Participant	#	Question	Coding Scheme	Variable Name	Group
School Board	10	To what extent are these programs used in your school district?	Not sure 0	DC Year	ECCC
Superintendent	18		Not Offered 1	AP Year	
Principal	18		Inconsistent Year to year – 2		
Teacher	11		Consistently Year to Year – 3 None 4		
School Board	11	In which location(s) are the courses delivered in your school district? Check all that apply. General Education Dual Credit Advanced Placement®	Not sure 0	DCloc, APloc	ECCC
Superintendent	19		Not Offered 1		
Principal	19		School District Building – 2		
Teacher	12		College – 3		
			Cohort School 4		
			Online – 5		
			School District, College 6		
			School District, College, Online 7		
			School District, Online 8		
			College, Online 9		
			School District Cohort 10		
			School District, College, Cohort 11		
		College, Cohort, Online 12			

(Table continues)

Participant	#	Question	Coding Scheme	Variable Name	Group
School Board	12	One of the challenges of building dual credit programs in school districts	I had not heard of the requirements to teach dual credit courses before taking this survey. 0	ADCTQ	BARO
Superintendent	21	is having instructors with sufficient credentials to teach General Education (GE) dual credit courses. Teachers are required to have a master's degree in the subject they are teaching in order to teach a GE dual credit course. If teachers have an advanced degree, but not in the subject they are teaching, they must have earned 18 graduate credits in that subject. Were you aware of the teacher requirements to teach dual credit courses prior to taking this survey? Choose one.	I had heard of the requirements to teach dual credit courses, but did not know what they are. 1		
Principal	21		I had heard of the requirements to teach dual credit courses. 2		
Teacher	13		I know the requirements of dual credit courses, and I can explain what they are if asked. 3		
			I know the two different categories of dual credit courses quite well and I am aware of recent developments regarding these categories. 4		

(Table continues)

Participant	#	Question	Coding Scheme	Variable Name	Group
School Board	13	Which of the following are barriers to having more teachers meet the qualifications needed to teach dual credit courses?	Strongly Disagree – 0	DCBQ	BARO
Superintendent	24		Disagree 1		
Principal	24		Neutral 2		
Teacher	16		Agree 3	BARInt	
			Strongly Agree 4	BarTR	
			No staff interest at this time	BarFin	
			Access to graduate classes (travel)	BarTime	
			Financial cost of obtaining credentials	BarMon	
			Takes too much time to get credentialed	BarWk	
			No financial incentive	BarPre	
		Increased work load	BarGradDem		
		Not enough prestige for teacher			
		Graduate Program demands (thesis, time, etc.)			

(Table continues)

Participant	#	Question	Coding Scheme	Variable Name	Group
School Board	14	What additional benefits do teachers in your school receive for teaching dual credit courses? Select all that apply.	Increased annual salary 0	DCBen 111	IIA
Superintendent	26		Annual teaching stipend 1		
Principal	26		Onetime bonus 2		
Teacher	17		Release time 3		
			Reimbursement for expenses 4		
			Can use the physical resources of the college partner (sharing equipment, library,etc.) 5		
			Can use the academic resources of college (access to articles, databases, etc.) 6		
			Decreased work load (fewer classes taught, smaller class sizes, etc.)7,		
			Tuition Waivers or reduced tuition from college partner 8		
			None 9		
			Not Sure 10		
		Other11			
School Board	15	Who is primarily responsible for paying the additional benefits received by faculty members in your school district who instruct dual credit courses?	School District 0	DCS1	IIA
Superintendent	27		Higher Education Partner 1		
Principal	27		Another Third Party 2		
Teacher	18		Shared between the School District and the Higher Education Partner 3		
			I don't know 4		
			If another third party, please explain. 5		
			We don't receive additional benefits 6		

(Table continues)

Group	#	Question	Coding Scheme	Variable Name	Group
School Board	18	When comparing difficulty	Don't Know – 0	DCvsAP	ECCC
Superintendent	28	and rigor to Advanced	Less Rigorous – 1	DCvsIB	
Principal	28	Placement [®] general	Equally Rigorous 2		
Teacher	20	education dual credit courses typically are:	More Rigorous 3		
	17			DCwt	IIA
School Board	29	Does your district give	Dual credit (career and technical education)		
Superintendent	29	additional weight (weighted	0		
Principal	21	grades) for the following	Dual credit (all other) 1		
Teacher		types of college credit	Advanced Placement [®] (AP) 2		
		courses in the calculation of	International Baccalaureate (IB)3		
		grade point averages (GPA)?	Honors classes 4		
		(Check all that apply)	Unit District 5		
			Don't Know6		
			DCCTE, DCTR – 7		
			DCCTE, DCTR AP8		
			DCCTE, DCTR, AP, Hon – 9		
			DCCTE, DCTR, AP, Hon, IB 10		
			DCCTE, DCTR, Hon11		
			DCTR,AP12		
			DCTR, Hon13		
			DCTE,AP,Hon14		
			DCTE,AP115		
			AP, Hon16		
			Don't Weight – 17		
			DCCTE,Hon 18		
			IB, Honors19		
			AP,IB20		

(Table continues)

Group	#	Question	Coding Scheme	Variable Name	Group
School Board	19	My school district is making efforts to increase the number of students involved in the following programs: Dual Credit Courses Advanced Placement® Courses	Strongly Disagree 0	DCinc	IIA
Superintendent	30		Disagree – 1	APinc	
Principal	30		Neutral2		
Teachers	22		Agree3 Strongly Agree4 Not Sure 5		
School Board	20	My school district is making efforts to ensure that the student population in the courses below meet the needs of the student population of the school.	Dual Credit Courses 6	DCopp	IIA
Superintendent	31		Advanced Placement® Courses 7	APopp	
Principal	31		Strongly Disagree 0 Disagree 1 Neutral2 Agree3 Strongly Agree4 Not Sure 5		
Teachers	23	My school district is making efforts to ensure that the student population in the courses below mirror the diversity of the population of the school.	Dual Credit Courses 6 Advanced Placement® Courses 7	TDCopp TAPOpp	IIA
			Strongly Disagree 0 Disagree 1 Neutral2 Agree3 Strongly Agree4 Not Sure 5		

APPENDIX B

INTRODUCTION TO STUDY

The mission of the Illinois P-20 Council Committee on Teacher and Leader Effectiveness is to advise the Governor on recommendations for strengthening and aligning the preparation, recruitment, certification, selection, evaluation, support, development, and retention of highly effective and diverse teachers and leaders. This year, the Committee is conducting research on Dual-Credit in Illinois through the following activities:

For 2015, the committee is taking a deeper look into the topic of dual credit through:

1. Examining the current “state” of dual credit in Illinois schools by documenting what is occurring in this arena throughout schools and districts and to identify the needs of districts in the area of dual credit.
2. Studying the credentialing of high school teachers to teach dual credit courses in their respective schools.
3. Learning about and publicizing the dual credit programs at the district, school, higher education, and state levels.
4. Making recommendations about the best practices in dual credit at the district and university levels.

We are seeking your help with completing a survey that will help us address activity 1, "examining the current 'state' of dual credit in Illinois schools by documenting what is occurring". The information from this survey will help us to move forward on supporting our high schools in our state through the dual credit lens.

The survey should only take approximately fifteen minutes and your responses are completely confidential. Any questions regarding the survey can be directed to Pam Reilly at reillyreillypc@gmail.com. We greatly appreciate your input.

Dr. Erika Hunt, Center for the Study of Education Policy, Co-Chair of Teacher and Leadership Effectiveness Committee

Ms. Audrey Soglin, Executive Director, Illinois Education Association, Co-Chair of Teacher and Leadership Effectiveness Committee

APPENDIX C

INFORMED CONSENT TO PARTICIPATE IN RESEARCH

This study on educators' perceptions of dual credit and advance placement courses in Illinois is occurring through the work of the Teacher and Leadership Effectiveness Committee of the Illinois P-20 Council.

What is the purpose of this study? The mission of the Illinois P-20 Council Committee on Teacher and Leader Effectiveness is to advise the Governor on recommendations for strengthening and aligning the preparation, recruitment, certification, selection, evaluation, support, development, and retention of highly effective and diverse teachers and leaders. This year, the Committee is conducting research on Dual-Credit in Illinois through the following activities:

For 2015, the committee is taking a deeper look into the topic of dual credit through:

- 1) Examining the current "state" of dual credit in Illinois schools by documenting what is occurring in this arena throughout schools and districts and to identify the needs of districts in the area of dual credit.
- 2) Studying the credentialing of high school teachers to teach dual credit courses in their respective schools.
- 3) Learning about and publicizing the dual credit programs at the district, school, higher education, and state levels.
- 4) Making recommendations about the best practices in dual credit at the district and university levels.

The Center for the Study of Education Policy (CSEP) at Illinois State University is collecting this data for the P-20 Council Teacher and Leadership Effectiveness Committee. They seek your help with completing a survey that will help the committee to address activity 1, "examining the current 'state' of dual credit in Illinois schools by documenting what is occurring".

What will be done if you take part in this research study? This survey is being distributed through a professional organization to which you belong. If you take part in this survey, you will be asked a series of questions related to your perceptions on dual credit and Advanced Placement courses. Your responses will remain confidential and will be stored in a secured on-line database.

What are the possible discomforts and risks? This study involves minimal risk to you. You will not be asked any questions of a personal nature. Your participation will not affect your current or future relationship with your school, district, your professional organization, Illinois State University, or the Illinois P-20 Council.

What are the possible benefits to you or to others? The findings of this study will expand the knowledge of local school stakeholders' perceptions around early college credit coursework, and could be used to help impact policy and procedures that improve access to students for dual credit and Advanced Placement courses. Through participating with this study we hope that you will feel a real sense of constructive involvement because they are taking part in a project that can help understand perceptions around early college programs.

If you choose to take part in this study, will it cost you anything? Participation in this study will only cost you the time to complete this survey. What if you are injured because of the study? This study involves no physical risks to you. No payment will be provided in the event of a medical problem during the course of the survey.

If you do not want to take part in this study, what other options are available to you? Participation in this survey is entirely voluntary. You are free to refuse to complete the survey, and your refusal will not influence current or future relationships

Center for the Study of Education Policy
Local Stakeholders' Perceptions of Advanced Placement and Dual Credit Courses in
Illinois Principal Investigators: Erika Hunt – 309/438-2725; elhunt@ilstu.edu

APPENDIX D

P-20 SCHOOL BOARD MEMBERS SURVEY

P-20 SCHOOL BOARD MEMBERS SURVEY

1. Do you give consent to use the answers given on this survey for research purposes?

- Yes
- No

2. What is your gender?

- Male
- Female
- Prefer not to answer

3. What is your race/ethnicity?

- African American
- Hispanic
- Asian/Pacific Islander
- Native American
- Caucasian
- Multiracial
- Other
- Prefer not to answer

4. How many years have you been a school board member?

- 1-5
- 6-10
- 11-15
- 16-20
- 21-25
- 26+
- Prefer not to answer

5. My school district is a:

- Unit District
- Elementary District
- High School District

6. My district is:

- Rural
- Urban
- Suburban

7. "Dual Credit Courses" are college courses taken by a high school student for credit at both the college and high school level. Were you aware of dual credit coursework before taking this survey?

- I had never heard of dual credit courses before taking this survey.
- I had heard of dual credit courses, but did not know what they are.
- I had heard of dual credit courses and know what they are.
- I know about dual credit courses and I can explain what they are and how our district uses them.
- I know about dual credit courses quite well and I am aware of recent developments regarding Illinois dual credit.

8. In the state of Illinois dual credit courses are offered through cooperative agreements with Illinois colleges generally that fall into two broad categories: Career and Technical Education (CTE) or General Education (GE). Were you aware of these two different categories of dual credit courses before taking this survey? Choose one.

- I had never heard of the two categories of dual credit courses before taking this survey.
- I had heard of the two different categories of dual credit courses, but did not know what they are.
- I had heard of the two different categories of dual credit courses.
- I know the two different categories of dual credit courses, and I can explain what they are and how our district uses them.
- I know the two different categories of dual credit courses quite well and I am aware of recent developments in Illinois around these categories.

9. Does your school district currently offer dual credit courses to students?

- Yes
- No
- Not sure

10. To what extent are these programs used in your school district?

	Not Sure	None	Occasionally	Widely
General Education Dual Credit Courses				
Advanced Placement Courses				
International Baccalaureate				

11. Where are the courses delivered in your school district? Check all that apply.

	Not Sure	Not Offered	School District	College	Cohort School	On- Line
General Education Dual Credit Courses						
Advanced Placement Courses						
International Baccalaureate						

12. One of the challenges of building dual credit programs in school districts is having instructors with sufficient credentials to teach General Education (GE) dual credit courses. Teachers are required to have a master's degree in the subject they are teaching in order to teach a GE dual credit class. If teachers have an advanced degree, but not in the subject they are teaching, they must have earned 18 graduate credits in that subject. Were you aware of the teacher requirements to teach dual credit courses prior to taking this survey? Choose one.

- I have never heard of the requirements to teach dual credit courses before taking this survey.
- I have heard of the requirements to teach dual credit courses, but did not know what they are.
- I have heard of the requirements to teach dual credit courses, and I am somewhat aware of these requirements.
- I know requirements of dual credit courses, and I can explain what they.
- I know the two different categories of dual credit courses quite well and I aware of recent developments around these categories.

13. Rate the barriers to having more teachers meet the qualifications needed to teach dual credit courses? (Select all that apply).

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
No staff interest at this time					
Access to graduate classes (travel, distance)					
Financial cost of obtaining credentials					
Takes too much time to get credentialed					
No financial incentive					
Not enough status					
Graduate programs demands (thesis, etc.)					

- Other (Please explain):

14. What additional benefits do teachers in your school receive for teaching dual credit courses? (Select all that apply)

- Increased yearly salary
- Yearly teaching stipend
- One-time bonus
- Release time
- Reimbursement for expenses
- Physical resources of college
- Academic Resources of college
- None
- Other, please specify:

15. Who is primarily responsible for paying the additional benefits received by faculty members in your school district who instruct dual credit courses?

- I don't know
- School District
- Higher Education partner
- Another third party
- Shared between school District and Higher Education partner

If another third party please explain:

16. To qualify to teach dual credit courses, how will these incentives encourage teachers to complete necessary course work?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Increased base salary					
Teaching Stipend					
One-time Bonus					
Release time					
Reimbursement for expenses					
Physical resources of college					
Academic resources of college					
Increased status					
None					

If other, please explain:

17. Does your district give additional weight for the following types of college credit courses in the calculation of grade point averages (GPA)? (All that Apply)

- Dual credit (career and technical education)
- Dual credit (all other)
- Advanced Placement (AP)
- International Baccalaureate (IB)
- Honors Classes
- If other, please explain

18. When comparing difficulty and rigor to Advanced Placement and International Baccalaureate, general Education dual credit courses typically are:

	Don't Know	Less Rigorous	Equally Rigorous	More Rigorous
Advanced Placement				
International Baccalaureate				

19. My school district is making efforts to increase the number of students involved in the following programs:

	Not Sure	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Dual Credit Courses						
Advanced Placement Courses						
International Baccalaureate						

20. My school district is making efforts to ensure that the student population in the courses below meet the needs of the students population of the school.

	Not Sure	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Dual Credit Courses						
Advanced Placement Courses						
International Baccalaureate						

21. Are you willing to be part of a discussion or focus group on dual credit?

- Yes
- No
- If yes, please provide an email address below.

APPENDIX E

P-20 SUPERINTENDENT/PRINCIPAL SURVEY

P-20 SUPERINTENDENT/PRINCIPAL SURVEY

1. Do you give consent to use the answers in this survey for research purposes?
 - Yes
 - No

2. What county is your school district in? (Fill in the blank)

3. What is the zip code of your school district? (Fill in the blank)

4. What is the number of your school district? (Fill in the blank)

5. What is your gender?
 - Male
 - Female
 - Prefer not to answer

6. What is your race/ethnicity?
 - African American
 - Hispanic
 - Asian/Pacific Islander
 - Native American
 - Caucasian
 - Multiracial
 - Other

7. How many years have you been a superintendent?
 - (Fill in the blank)

8. "Dual credit courses" means a college course taken by a high school student for credit at both the college and high school level. Were you aware of dual credit coursework before taking this survey? Choose one.
 - I have never heard of dual credit courses before taking this survey.
 - I have heard of dual credit courses, but did not know what they are.
 - I have heard of dual credit courses, and I am somewhat aware of these courses.
 - I know dual credit courses, and I can explain what they are and how our district uses them.
 - I know dual credit courses quite well and I am aware of recent developments around Illinois dual credit.

9. In the state of Illinois dual credit courses are offered through cooperative agreements with Illinois colleges generally that fall into two broad categories: Career and Technical Education (CTE) or General Education (GE). Were you aware of these two different categories of dual credit courses before taking this survey? Choose one.

- I have never heard of the two categories of dual credit courses before taking this survey.
- I have heard of the two different categories of dual credit courses, but did not know what they are.
- I have heard of the two different categories of dual credit courses, and I am somewhat aware of these courses.
- I know the two different categories of dual credit courses, and I can explain what they are and how our district uses them.
- I know the two different categories of dual credit courses quite well and I am aware of recent developments around these categories.

10. Does your school district currently offer dual credit courses to students?

- Yes.
- No.
- Not sure.

11. Whom is your higher education partner in dual credit courses?

- Local Community College
- Other, please list

12. In which General Education English courses do you offer dual credit courses to students in your school district for the 2015-16 school year. (Select all that apply)

	Yes	No	Not Sure
English Composition			
Speech/Oral Communication			
General Literature			
British Literature			
American Literature			
Western Literature			
Non-Western Literature			
Fiction, Poetry, Shakespeare, etc.			

13. In which General Education Mathematics courses do you offer dual credit courses to students in your school district for the 2015-16 school year. (Select all that apply)

	Yes	No	Not Sure
Calculus			
Quantitative Literacy			
Statistics			
Discrete / Finite Math			

14. In which General Education Science courses do you offer dual credit courses to students in your school district for the 2015-16 school year. (Select all that apply)

	Yes	No	Not Sure
Physics			
Chemistry			
Astronomy			
Geology			
Physical Geography			
Environmental Science			
General Biology			
Human Biology			
Environmental Biology			
Evolution			

15. In which General Education History and Social Science courses do you offer dual credit courses to students in your school district for the 2015-16 school year. (Select all that apply)

	Yes	No	Not Sure
U.S. History			
World History			
Western Civilization			
Non-Western Civilization			
Human Geography			
U.S. National Government			
U.S. State & Local Government			
International Relations			
Psychology			
Sociology			
Anthropology			
Principles of Economics			
Microeconomics			
Macroeconomics			

16. In which General Education Fine Arts and Humanities courses do you offer dual credit courses to students in your school district for the 2015-16 school year. (Select all that apply)

	Yes	No	Not Sure
Music Appreciation			
Music History			
Theater Appreciation			
Art Appreciation			
Art History			
Film Appreciation			
Film History			
Religious Studies			
Philosophy			
Ethics			

17. In which General Education Foreign Language courses do you offer dual credit courses to students in your school district for the 2015-16 school year. (Select all that apply)

	Yes	No	Not Sure
Spanish			
French			
German			
Latin			
Chinese			

18. To what extent are these programs used in your school district?

	Not Sure	None	Occasionally	Widely
General Education Dual Credit Courses				
Advanced Placement Courses				
International Baccalaureate				

19. What location are the courses delivered in your school district? Check all that apply.

	Not Sure	Not Offered	School District	College	Cohort School	On-Line
General Education Dual Credit Courses						
Advanced Placement Courses						
International Baccalaureate						

20. How does your school district identify which dual credit courses to offer? (Select all that apply).

	Never	Seldom	Sometimes	Often	Always
My higher education partner makes suggestions for potential dual credit courses					
My high school faculty makes suggestions for potential dual credit courses					
Students/families make suggestions for potential dual credit courses					
The specialization of our higher education partner determines dual credit offerings					
The interests of the students determine dual credit offerings					
The transferability of the courses determines dual credit offerings					
Based on what our teachers are already credentialed in.					
Eligible, qualified students					

- Other (Please explain):

21. One of the challenges of building dual credit programs in school districts is having instructors with sufficient credentials to teach General Education (GE) dual credit courses. Teachers are required to have a master's degree in the subject they are teaching in order to teach a GE dual credit class. If teachers have an advanced degree, but not in the subject they are teaching, they must have earned 18 graduate credits in that subject. Were you aware of the teacher requirements to teach dual credit courses prior to taking this survey? Choose one.

- I have never heard of the requirements to teach dual credit courses before taking this survey.
- I have heard of the requirements to teach dual credit courses, but did not know what they are.
- I have heard of the requirements to teach dual credit courses, and I am somewhat aware of these requirements.
- I know requirements of dual credit courses, and I can explain what they.
- I know the two different categories of dual credit courses quite well and I aware of recent developments around these categories.

22. Are you aware of the teachers in your school that are eligible to teach dual credit courses?

- Yes
- No,
- I don't know

23. Do you have teachers who are qualified to teach dual credit but do not?

- Yes
- No,
- I don't know

24. Rate the barriers to having more teachers meet the qualifications needed to teach dual credit courses? (Select all that apply).

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
No staff interest at this time					
Access to graduate classes (travel, distance)					
Financial cost of obtaining credentials					
Takes too much time to get credentialed					
No financial incentive					
Not enough status					
Graduate programs demands (thesis, etc.)					

- Other (Please explain):

25. What area is your greatest need for GE dual credit courses that you currently do not have a teacher for? (Select all that apply).

	Not Important at all	Unimportant	Neutral	Important	Most Important
English					
Mathematics					
Science					
History/Social Science					
Fine Arts					
Foreign Language					

- Other (Please explain):

26. What additional benefits do teachers in your school receive for teaching dual credit courses? (Select all that apply)

- Increased yearly salary
- Yearly teaching stipend
- One-time bonus
- Release time
- Reimbursement for expenses
- Physical resources of college
- Academic Resources of college
- None
- Other, please specify:

27. Who is primarily responsible for paying the additional benefits received by faculty members in your school district who instruct dual credit courses?

- I don't know
- School District
- Higher Education partner
- Another third party
- Shared between school District and Higher Education partner

If another third party please explain:

28. When comparing difficulty and rigor to Advanced Placement and International Baccalaureate, general Education dual credit courses typically are:

	Don't Know	Less Rigorous	Equally Rigorous	More Rigorous
Advanced Placement				
International Baccalaureate				

29. Does your district give additional weight for the following types of college credit courses in the calculation of grade point averages (GPA)? (All that Apply)

- Dual credit (career and technical education)
- Dual credit (all other)
- Advanced Placement (AP)
- International Baccalaureate (IB)
- Honors Classes
- If other, please explain

30. My school district is making efforts to increase the number of students involved in the following programs:

	Not Sure	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Dual Credit Courses						
Advanced Placement Courses						
International Baccalaureate						

31. My school district is making efforts to ensure that the student population in the courses below meet the needs of the students population of the school.

	Not Sure	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Dual Credit Courses						
Advanced Placement Courses						
International Baccalaureate						

32. Are you willing to be part of a discussion or focus group on dual credit?

- Yes
- No
- If yes, please provide an email address below.

APPENDIX F
P-20 TEACHER SURVEY

P-20 TEACHER SURVEY

1. Do you give consent to use the answers in this survey for research purposes?
 - Yes
 - No

2. What county is your school district in? (Fill in the blank)
3. What is the zip code of your school district? (Fill in the blank)
4. What is the number of your school district? (Fill in the blank)
5. What is your gender?
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6. What is your race/ethnicity?
 - African American
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 - Asian/Pacific Islander
 - Native American
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 - Multiracial
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7. How many years have you been a teacher?
 - (Fill in the blank)

8. "Dual credit courses" means a college course taken by a high school student for credit at both the college and high school level. Were you aware of dual credit coursework before taking this survey? Choose one.
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- I know the two different categories of dual credit courses, and I can explain what they are and how our district uses them.
- I know the two different categories of dual credit courses quite well and I am aware of recent developments around these categories.

10. Does your school district currently offer dual credit courses to students?

- Yes.
- No.
- Not sure.

11. To what extent are these programs used in your school district?

	Not Sure	None	Occasionally	Widely
General Education Dual Credit Courses				
Advanced Placement Courses				
International Baccalaureate				

12. Where are the courses delivered in your school district? Check all that apply.

	Not Sure	Not Offered	School District	College	Cohort School	On-Line
General Education Dual Credit Courses						
Advanced Placement Courses						
International Baccalaureate						

13. One of the challenges of building dual credit programs in school districts is having instructors with sufficient credentials to teach General Education (GE) dual credit courses. Teachers are required to have a master's degree in the subject they are teaching in order to teach a GE dual credit class. If teachers have an advanced degree, but not in the subject they are teaching, they must have earned 18 graduate credits in that subject. Were you aware of the teacher requirements to teach dual credit courses prior to taking this survey? Choose one.

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- I have heard of the requirements to teach dual credit courses, and I am somewhat aware of these requirements.
- I know requirements of dual credit courses, and I can explain what they.
- I know the two different categories of dual credit courses quite well and I aware of recent developments around these categories.

14. Are you qualified to teach dual credit courses using the criteria above?

- Yes
- No.
- I don't know.

15. I am qualified to teach dual credit in the following disciplines:

	No	Yes	Unsure
English			
Mathematics			
Science			
History/Social Science			
Fine Arts			
Foreign Language			

- Other (Please explain):

16. Rate the barriers to having more teachers meet the qualifications needed to teach dual credit courses? (Select all that apply).

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
No staff interest at this time					
Access to graduate classes (travel, distance)					
Financial cost of obtaining credentials					
Takes too much time to get credentialed					
No financial incentive					
Not enough status					
Graduate programs demands (thesis, etc.)					

- Other (Please explain):

17. What additional benefits do teachers in your school receive for teaching dual credit courses? (Select all that apply)

- Increased yearly salary
- Yearly teaching stipend
- One-time bonus
- Release time
- Reimbursement for expenses
- Physical resources of college
- Academic Resources of college
- None
- Other, please specify:

18. Who is primarily responsible for paying the additional benefits received by faculty members in your school district who instruct dual credit courses?

- I don't know
- School District
- Higher Education partner
- Another third party
- Shared between school District and Higher Education partner

If another third party please explain:

19. To qualify to teach dual credit courses, how will these incentives encourage teachers to complete necessary coursework?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Increased base salary					
Teaching Stipend					
One-time Bonus					
Release time					
Reimbursement for expenses					
Physical resources of college					
Academic resources of college					
Increased status					
None					

If other, please explain:

20. When comparing difficulty and rigor to Advanced Placement and International Baccalaureate, general Education dual credit courses typically are:

	Don't Know	Less Rigorous	Equally Rigorous	More Rigorous
Advanced Placement				
International Baccalaureate				

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- Advanced Placement (AP)
- International Baccalaureate (IB)
- Honors Classes
- If other, please explain

22. My school district is making efforts to increase the number of students involved in the following programs:

	Not Sure	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Dual Credit Courses						
Advanced Placement Courses						
International Baccalaureate						

22. My school district is making efforts to ensure that the student population in the courses below mirrors the diversity of the population of the school.

	Not Sure	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Dual Credit Courses						
Advanced Placement Courses						
International Baccalaureate						

23. Are you willing to be part of a discussion or focus group on dual credit?

- Yes
- No
- If yes, please provide an email address below.