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# The Impact of Academic Co-Curricular Activity Participation on Academic Achievement: A Study of Catholic High School Students

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The Impact of Academic Co-Curricular Activity Participation on Academic Achievement:

A Study of Catholic High School Seniors

by

Gail M. Ritchie

Submitted in partial fulfillment of the requirements for the degree of

Doctor of Education

Department of Education, Management, Leadership and Policy

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APPROVAL FOR SUCCESSFUL DEFENSE

Gail M. Ritchie, has successfully defended and made the required modifications to the text of the doctoral dissertation for the Ed.D. during this Spring Semester 2018.

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## ABSTRACT

The purpose of this study was to examine the impact of Catholic secondary school students' involvement in academic co-curricular activities on their academic performance. The data in this study were collected from Catholic high schools in a northeastern state of the United States. They consisted of de-identified data taken from school student information systems. The number of academic co-curricular activities, the length of time for which a student participated, and his or her grade point average were included. Student ethnicity and gender were analyzed for interaction with the above-mentioned factors.

The research questions for this study were answered using descriptive statistics and an analysis of the influence of gender, ethnicity, intensity, engagement, and school type on student learning. The results of the regression analysis suggest that academic co-curricular activity participation improves Catholic high school students' learning as measured by grade point averages. Factors including gender, ethnicity, and school type are also examined as potential moderators of academic outcomes.

Key words: academic co-curricular activities, student engagement, intensity of involvement, co-curricular participation. Student learning, Catholic high schools, academic achievement

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Lastly, to my husband, Gene, who never hesitated to love, support, and encourage me on this challenging journey. You have been there beside me for the past thirty years and counting. The best is yet to come!

## DEDICATION

I dedicate this dissertation to the memory of two inspirational women in my life. Bridget Callaghan, my grandmother, ventured to the United States in 1916 all alone as an Irish immigrant to start a new life in America. Josephine O’Keefe, my mother, raised a family of eight children while working full-time. She broke many barriers before it was in vogue. Through their example of strength, courage and determination, I was taught that anything worth pursuing is attainable. They also taught me how to value the essential things in life: family, our Catholic faith, a day at the beach and a good laugh.

# TABLE OF CONTENTS

## 1. Introduction

Background.....	1
Problem Statement.....	6
Purpose Statement.....	8
Research Questions.....	8
Significance of the Study.....	9
Hypothesis.....	10
Theoretical Framework.....	11
Limitations.....	11
Definition of Terms.....	12

## 2. Review of the Literature

Introduction.....	15
Catholic Schools.....	15
History and Comparative Perspective.....	17
Comparative Studies.....	20
Impact on Academic Outcomes.....	21
Student Engagement.....	26
Student Satisfaction.....	27
Theoretical Framework.....	28

## 3. Methodology

Introduction.....	30
Research Questions.....	30
Conceptual Framework.....	32
Design.....	32
Population.....	33
Sample.....	33
Data Collection.....	34

Human Subjects Protection.....	35
Instrumentation and Variable Descriptions.....	35
Data Analysis.....	38
4. Analysis and Findings	
Introduction.....	42
Research Questions.....	43
Hypotheses.....	43
Descriptive Statistics.....	44
Results:	
• Research Question 1.....	51
• Research Question 2.....	53
• Research Question 3.....	54
• Research Question 4.....	60
5. Summary, Conclusions, and Recommendations	
Introduction.....	63
Summary of Findings.....	64
Implications of Findings.....	66
Recommendations for Future Research.....	67
References.....	69

# CHAPTER ONE

## INTRODUCTION

### BACKGROUND

Catholic schools exist to offer academic excellence and a faith-filled education for students (McDonald & Schultz, 2016). For the 2015–2016 school year, the total Catholic secondary school enrollment in the United States was 578,206. These students were enrolled in 1,200 schools. The percentage of non-Catholic enrollees was 17.4%. The proportion of racial minorities was about .203%, and Hispanics/Latinos made up about 16.1% of the total enrolled population, while students of unknown racial background comprised 6.5% of enrollees (McDonald & Schultz, 2016). New Jersey ranks among the top ten states in the United States with the highest Catholic school enrollment (McDonald & Schultz, 2016). According to the United States Department of Education National Center for Education Statistics (NCES) and the National Catholic Education Association (NCEA), the graduation rate for Catholic secondary school students is 99%, as compared to 82.3% for public high schools (McDonald & Schultz, 2016, p. 5, Exhibit 4). Of those Catholic high school graduates, 85.7% attend four-year colleges, as compared to 39.4% of public school graduates (McDonald & Schultz, 2016).

In April 2016, the National Center for Education Statistics released the National Assessment of Educational Progress (NAEP) results for reading and mathematics in Grade 12. These results further confirmed the success of students attending Catholic high schools. In both reading and math, the percentage of proficient and advanced students was higher for Catholic school than for public school students. While a significant factor accounting for these differences

is the successful completion of core courses for graduation, it seems that a more comprehensive approach to explaining these differences should explore how co-curricular activities support the core curriculum. Examining the value of co-curricular participation would provide insights regarding the value of program offerings in support of the academic curriculum. All Catholic schools endure to create successful students. Providing out-of-class activities is helpful for the nation's future in that it can help in developing a good citizenry (Riazameen, 2013). Moreover, research has suggested that these co-curricular activities not only produce good citizens but also promote academic success (Franchino, 2001). High school seniors who reported participating in academic co-curricular activities were three times more likely to perform in the top quartile in both mathematics and reading assessments as compared to non-participants (O'Brien & Rollefson, 1995).

Some studies both in the US and abroad have found a positive relationship between participation in extracurricular activities and academic performance (Adeymo, 2010; Bergen-Cico & Viscomi). Marsh and Kleitman (2002) examined the effects of participation in extracurricular school activities on grade 12 students' academic achievement while in high school, as well as post-secondary outcomes (e.g., grades, coursework selection, homework, occupational aspirations, university applications, etc.). Their findings supported the conclusion that extracurricular activities foster school identification and commitment, which benefits academic outcomes (Marsh & Kleitman, 2002 p. 1). A study conducted in South Africa solicited data from both private and public schools. It found that educators felt that participation was beneficial in numerous ways, including promoting academic success, with 92.5% of the educators agreeing that learners should seriously participate in co-curricular activities (Kariyana, Maphosa, & Mapuranga, 2012).

In a study that examined the relationship between students' participation in school-based extracurricular activities and their achievement in physics in Nigeria, Adeyemo found that high school students who participated in extracurricular activities demonstrated significant improvements in physics (Adeyemo, 2010). Adeyemo concluded that "the importance of extra-curricular activities should be highly emphasized" and that these activities "influence student grades" (Adeyemo, 2010, p.1). Similarly, a study of school resources and student achievement in rural India found that schools with more co-curricular activities produced children that performed better in mathematics than schools with fewer activities (Chudgar, Chandra, Iyengar, & Shanker, 2015). This study utilized a 60-item instrument and data from 88 government schools and 2,072 students.

Most Catholic high schools require students to participate in community service activities for promotion and graduation. Combining these with other academic co-curricular activity participation calls for evaluating the benefit of the time spent in light of a proposed "zero-sum model" (Coleman, 1961) in which greater involvement means more narrowly defined academic pursuits. Catholic high schools, in general, do offer rich extra-curricular programs, but there is little or no research regarding their impact in this setting. Extracurricular activities can be defined as those sets of activities that are performed by students outside of the realm of the normal school curriculum. Sometimes referred to as enrichment programs, they are opportunities to help promote skills and a high level of thinking for students (Adeyemo, 2010). Sports, drama, music, scouting, dance, and various subject-related clubs are a key part of student school experiences. Although students who participate in activities are found to be more academically successful than those who do not, it is not clear whether this is because the brighter and more energetic students are also the ones who more often participate in extracurricular activities or the

activities themselves improve students' academic performance (Adeyemo, 2010). Academically based activities, such as clubs, library and debate teams, a young achiever club, and organized essay competitions, as well as robotics and mathematics leagues, often teach the basic concepts and values of society as a whole (Adeyemo, 2010). Other types of extra-curricular activities that are sports-related, such as soccer, football, cheerleading, track, and swimming, are also a key part of high school offerings.

These activities been found to be related to not only academic performance but also other measures of student development. A case-study exploring the motivation for and satisfaction achieved by 127 college students participating in a summer-camp extra-curricular activity from 2011 to 2014 found that student participation in extra-curricular activities played an instrumental role in subjects' performance in a subject within their major (Rohm, Chang, & Park, 2016). Tanner and Tanner also noted that academic co-curricular activity participation (ACCAP) helps with social adjustment, thus contributing to academic coursework (Tanner & Tanner, 2007). Studies conducted by Appleton (2008) and Pascarella (2005) suggest that there are connections between ACCAP, student learning, and student engagement and satisfaction (Pascarella & Terenzini, 2008). Engagement is defined as active participation in academic and co-curricular activities, as well as commitment to educational goals and learning (Pascarella & Terenzini, 2008). Engaged students find learning meaningful and are invested in their learning and future. This Check and Connect theory of engagement draws upon the theoretical and empirical literature on high school dropout and school completion (Appleton et al., 2008). The greatest impact appears to stem from students' total level of engagement, particularly when academic, interpersonal, and extracurricular involvements are mutually reinforcing (Pascarella & Terenzini, 2005, p.647).

Likewise, a study conducted in a large northeastern US private university, which followed two cohorts of over 3,000 students and in which the authors analyzed the relationship between student participation in co-curricular programs and grade point average (GPA), noted that those students who attended between five and 14 co-curricular programs over a four-year period had significantly higher GPAs than students who did not participate. Even though this study was conducted in a college setting rather than a high school setting, there are lessons that can be transferred to highlight the benefits of ACCAP. The research findings from this study contribute to the scope of the above-mentioned research by Pascarella and Terenzini (2008) regarding the positive influence on student engagement (Bergen-Cico & Viscomi, 2012).

Athletics is one of the most studied types of co-curricular participation. In spite of the evidence presented in some studies, as well as the conventional wisdom, which has held that the structure provided by the athletics culture during a given season of competition leads to focused and enhanced academic efforts, resulting in increased academic success, there are also studies that suggest otherwise. Some researchers indicate that increased athletic activity often corresponds with less time being available for academics (Paskus, 2008). Scott, Petr, and Paskus of the National Collegiate Athletic Association teamed up with Miranda, of the State University of New York – Plattsburgh, and McArdle, of the University of Southern California, and studied the association between academic performance and athletic activities. Three studies were conducted in which they investigated the credits earned by NCAA student athletes (D (v I, II, III) in season versus during their off-season. The academic performance of the student athletes, in general, was found to be better outside the competition season than during the season.

One model to consider defines student engagement using a four-part typology: academic engagement, reflected as a student's time doing schoolwork or other related projects; behavioral

engagement, reflected as the active participation in classes and/or involvement in extracurricular activities; cognitive engagement, which refers to the extent to which students perceive school to be relevant to their future aspirations; and effective engagement, or the sense of belonging and connection (Appleton, Christenson, Kim, & Reschly, 2006). It may be that together, ACCAP and student engagement and satisfaction result in increased student learning.

This study will examine the link between ACCAP and student learning. Despite the positive results produced by Catholic high schools, the future of American parochial education is at risk. Some 50 years ago, there were more than 5.7 million children in Catholic schools, but by 2010, enrollment slipped to under two million (Walch, 2016, p. 189). This study will examine whether there is a link between academic co-curricular activity participation and increased student learning as measured by GPA, particularly in the Catholic school setting. School administrators are faced with making decisions about dedicating funds and personnel to provide these activities for students. While there has been significant research on the factors that impact academic success, there is little or no research about whether ACCAP influences academic success in Catholic high school students. Because this population represents over 550,000 students in the US, it is pertinent to have a better understanding of the impact of ACCAP on their academic success (McDonald & Schultz, 2015). Examining the connection between student engagement and satisfaction and academic results will also contribute to the data pool for decision makers and administrators.

## **PROBLEM STATEMENT**

Research studies conducted in the late twentieth century and the early part of the twenty-first century have concluded that there is support for findings regarding the positive effects of

ACCAP on academic and social outcomes for students and that there is little evidence that suggests that ACCAP has negative effects (Marsh & Kleitman, 2002). Catholic high schools invest significant resources in co-curricular activities. An examination of budgets indicates that approximately one to three percent of a typical budget is dedicated to activity programs (National Federation of High Schools, 2015). Many students choose to become involved in ACCAP. Therefore, it would be beneficial to understand the influence of ACCAP on student GPA. The value of this study is its potential to provide information that will help students decide how to use their time outside the classroom to the benefit of their academic results. Moreover, school administrators are faced with decisions about dedicating funds and personnel to these activities. Information about the impact of ACCAP could inform these decisions. This is especially important in that given diminishing enrollment and reduced funds, budgets are strained to cover necessary expenses.

While numerous students choose to participate in athletics, there are many who have personal interests more closely related to their curriculum of study. Could participation in such activities have a positive outcome for these students? For example, does being a member of the debate team improve a student's grades? If a student is on the yearbook committee or the school newspaper, is his or her English grade significantly affected? Will a student who is active in the Model United Nations club realize a more favorable academic outcome in social studies?

## **PURPOSE STATEMENT**

This paper will examine the impact of Catholic secondary students' involvement in extra-curricular activities on their academic performance. Even though the research cited earlier in this chapter includes studies of college students, who have developmental differences from high school students, and multi-cultural settings with ethnic differences as compared to the typical American suburban Catholic high school, there are transferable lessons that can provide a foundation for this study. Data on approximately 900 Catholic high school male and female seniors in the Class of 2017 who participated in academic co-curricular activities during their freshman and sophomore years were gathered. The schools are located in the northeastern US and serve middle-to-upper-income communities, with programs funded by tuition and school fundraising.

Catholic and public high schools use student GPA to measure student academic success. While evidence exists that ACCAP is beneficial to student achievement, the relationship between such participation and student learning, as measured by GPA, has not been quantified in Catholic school settings. This study sought to understand how ACCAP and academic achievement over the high school career are associated.

## **RESEARCH QUESTIONS**

The study was guided by the following research questions:

1. To what extent does student engagement in co-curricular activities contribute to academic performance?

2. How does the intensity (time dimension) of involvement moderate the relationship between academic co-curricular activity participation and student learning?
3. How does the association between participation and learning vary based on student gender and ethnicity?
  - a. Does gender moderate the relationship between ACCAP and student learning?
  - b. Does ethnicity moderate the relationship between ACCAP and student learning?
4. How does school type moderate the relationship between ACCAP and student learning?

## **SIGNIFICANCE OF THE STUDY**

This study is significant because there is a body of research regarding public high school students and their participation in academic co-curricular activities and their learning. Little or no data exist regarding this relationship in the Catholic high school population. Furthermore, 85.7% of Catholic high school graduates attend a four-year college (McDonald & Schultz, 2016), but the research regarding ACCAP and its potential impact on student learning is limited in this setting. Given the significant investment in these programs, it would be valuable to know whether there is a positive impact on the part of ACCA programs on academic results. Such results could help make the case for keeping or expanding these programs. Catholic high school students would be in a better position to make choices about where to invest personal time and energy to achieve academic success. Administrators' decision making about which programs to offer would be better informed.

This study will contribute to the knowledge base for Catholic schools. School administrators are faced with making decisions about dedicating funds and personnel to providing these activities for students. Having information about the impact of ACCAP could inform these decisions. Because, on average, 60–70% of students participate in some activity, this seems a small price to pay (Swift, 1991, p.63). However, these are often the first budget lines to be eliminated. In the last decade, it has become difficult for dioceses to provide the financial assistance required to keep schools open (McDonald & Schultz, 2016). Since 2006, the national enrollment of Catholic secondary and elementary schools has felt in a 17.6% loss in student population (McDonald & Schultz, 2016). Hence, this study could have some practical implications for Catholic school administrators.

## **HYPOTHESIS**

The hypothesis is that there is positive influence on the part of academic co-curricular activity participation on Catholic high school student learning, as measured by GPA.

## **RESEARCH HYPOTHESES IN NULL FORM**

There is no relationship between academic co-curricular activity participation and increased student learning. In other words, the regression coefficient is not significantly different from zero.

## **THEORETICAL FRAMEWORK**

The theoretical framework for this study is found in the student development theory of Alexander W. Astin. Originally published in 1984 and subsequently in 1999 in the *Journal of College Student Development*, this theory, known as involvement theory, includes the following basic postulates. The investment of physical and psychological energy in student experiences with different degrees of involvement has both qualitative and quantitative features. The amount of learning and development gained from an educational program is proportional to the quality and quantity of student involvement in the program. The effectiveness of an educational policy or practice is directly related to its capacity to increase student involvement (Astin, 1999). This theory emphasizes student effort and investment of energy in the achievement of the desired learning and development (Astin, 1999). This theoretical framework provides strong evidence for the value of ACCAP. Academic performance is associated with student involvement, according to Astin (Astin, 1999). Astin takes into account student demographics, background, experiences, and environment when explaining this association. More involved students result in better performance (Astin, 1999).

## **LIMITATIONS**

The study involves schools located in moderate-to-high-income areas. The sample will not include other regions of the US. The sample only includes students attending Catholic high schools and not public high school students. The findings are not intended to be generalized to a public setting.

Another significant limitation of this study is that in reviewing the existing research, there is not a universal definition of an academic co-curricular activity. Some researchers only consider co-curricular activities that take place during the actual school day, while others include all non-academic activities. The terms *co-curricular* and *extracurricular* are often used interchangeably. For the purposes of this study, all non-athletic activities will be examined as ACCA.

## **DEFINITION OF TERMS**

*Academic co-curricular activities (ACCA)*. Those activities that fall outside the regular academic curriculum yet enhance and enrich the curriculum during the normal school day as part of the student's yearly schedule (Zehner, 2011). These activities are mostly faculty-organized and faculty-directed. Because this study examines a population of students who attend Roman Catholic high schools, religious co-curricular activities, such as religious celebrations (mass) and service activities (Midnight Run), will be included because they are essential to the development of the Catholic identity of the students.

*Academic co-curricular activity participation (ACCAP)*. The amount of time and effort students spend participating in those activities that fall outside the regular academic curriculum yet enhance and enrich the curriculum during the normal school day as part of the student's yearly schedule (Zehner, 2011). These activities are mostly faculty-organized and faculty-directed.

*Extra-curricular activity (ECA)*. Those activities that are extra or additional to the curriculum and may be more leisure-oriented than learning-oriented. These activities usually take place after

school hours and generally do not complement academic studies. Examples include newspaper, yearbook, Mathematics League, Honor Society, student government, and campus ministry.

*Grade point average (GPA).* Term grades are given at the end of a term or marking period. The term GPA is calculated based on a term grade for each marking period and is used to determine honor roll and eligibility for participation in extra-curricular activities and sports. This information is included on the student report card and progress reports. When calculating a student's GPA, all courses studied are counted and based on all term grades for the course. This is based on a 4.0 scale. An unweighted GPA is calculated by multiplying the final course grade by the credit awarded divided by two total credits (see table below).

<b>Grade</b>	<b>Points Awarded</b>
A (90% - 100%)	4
B (80% - 89%)	3
C (70% - 79%)	2
D (60% - 69%)	1
F (0% - 59%)	0

(Calculate Your GPA, n.d.)

Example: Calculate unweighted (4.0 scale) cumulative GPA:

$$(\text{Quality Points} = \text{Grade Points} \times \text{Credits Earned})$$

*Student engagement or intensity.* The degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation for learning and educational progress.

*Student satisfaction.* An important goal of education and universities, often used as an indication of institutional effectiveness.

*Student success.* Student success is measured by GPA (see table above).

## **SUMMARY**

This chapter provided a summary of the context for this topic for the sake of educational leaders' decision-making regarding ACCA, described the importance of this study, and provided an outline of the research questions to be examined. The definition of terms was also performed to ensure the clarity of the interpretation of the findings.

## **CHAPTER TWO: REVIEW OF THE LITERATURE**

### **INTRODUCTION**

In Chapter One, the importance of the study of this topic was discussed. There is a need for further information regarding the link between ACCAP and increased student learning. School leaders make decisions daily about allocations for programs that will produce successful students. Students are looking for experiences that will enhance their education. Investigating what programs may provide opportunities to work in a particular field of interest or a certain subject area in a student's field of interest may increase students' likelihood of achieving academic success.

This chapter reviews the research and scholarly literature on the influence of ACCAP on academic achievement. This information is organized as follows: (a) history and comparative perspective, (b) impact on academic outcomes, (c) student engagement, (d) student satisfaction, and (e) a summary of the research and findings. The focus will be on the impact of ACCAP on student GPA. The focus of this chapter will center on what the prevailing literature says about the influence of ACCAP on student results. The sources of this review are scholarly studies and journal articles.

### **CATHOLIC SCHOOLS**

The development of Catholic schools was an ambitious social movement in American history. Beginning more than 200 years ago, Catholic parochial schools have educated millions of American citizens without direct financial assistance from the government. This educational

movement came to a high point in the 1960s, when Catholic school enrollment reached more than 5.7 million children (Walch, 2016). This represents 12% of the children enrolled in schools at that time. A core tenant of this movement is that the education of children is the primary responsibility of the family and the Church, not the government (Walch, 2016). In the early days of Catholic schools, church leaders opposed public schools because they were contrary to the traditional role of the Church in the educational process and the curriculum had heavy doses of Protestant instruction and anti-Catholic propaganda. Above all, Catholic schools were an effort to develop the Catholic identity of children and prevent them from abandoning their faith. Parents of Catholic children are faced with some difficult decisions in choosing a school. They must consider the quality of the curriculum, the cost of the education, and the importance of nurturing the faith. Many immigrant families chose to send their children to their parish school to preserve the culture of their homeland, along with their Catholic faith. A key theme in Catholic schools is community and a sense of belonging.

The future of Catholic schools can seem uncertain. Despite such strong enrollment 50 years ago, the numbers dwindled to less than 2 million in 2010 (Walch, 2016, p. 189). Independent studies by social scientists have found that students in parish schools outperformed students in public schools on standardized tests (Walch, 2016). With ever-changing social values and changes to the family structure, as well as the rising costs of a private education, Catholic schools are being challenged. Those Catholic schools that are to remain viable must keep pace with programs and activities to foster student success (Walch, 2016).

## **HISTORY AND COMPARATIVE PERSPECTIVE**

There is evidence to suggest that co-curricular activities play an instrumental role in the positive development of young people and contribute to academic success (Camp, 1990). Offering ACCA to high school students is a common practice in the US. In the past, many other countries have taken the view that ACCAP takes time away from schoolwork and studying. Existing research indicates that there is a positive relationship between ACCAP and student learning, leading to increased student engagement in school and greater student satisfaction. The need for more information on how these interrelate, whether there is an optimal amount of participation time, and what types of activities produce improved student learning outcomes is the focus of this study.

The researcher reviews studies that have been conducted in a variety of educational settings, including elementary school, high school, and college. There is very little existing research that considers the impact of ACCAP in Catholic High Schools.

In the early days of education, prior to 1900, the primary emphasis was on the learning of information and the pursuit of knowledge. Beginning in one-room schoolhouses, there was the rote learning of facts and the reading of the classics. The focus of educators on their students did not extend beyond the school day. Formerly, involvement in outside-the-classroom activities was not considered as constructive as in-classroom experiences. In fact, such activities were even discouraged because they were thought to be distractions from schoolwork (Gholson & Buser, 1983).

Other studies view the positive aspects of ACCAP as an extension of the contacts and experiences students have during the formal part of the school day (Millard, 1930, p.16). The

negative view of ACCAP began to change in the beginning of the twentieth century, when educators began to consider the development of the entire child to be important. Clubs and organizations were then encouraged as a contribution to overall child development (Gholson & Buser, 1983). In 1932, a court decision in the Utah Supreme Court supported the value of ACCA by stating that one aim of the educational system was to provide school children with alternatives to mischief in their leisure time, when they were not attending school (Beard v. Board of Education, 1932). Later, in 1972, the Ohio Court case of Davis v. Meek (1972) provided additional support for the importance of ACCA. The plaintiff in this case was being excluded by the defendant Board of Education from participating in extracurricular activities in the Fremont Ross High School. When he became 18 years of age, he married a young lady who was 16 years of age. She became pregnant by him and later suffered a miscarriage. He was a senior at Fremont Ross High School. He was an honor student and an excellent baseball player, who was being scouted by major league teams and colleges interested in granting him athletic scholarships. The Fremont City Board of Education adopted a policy in its handbook dealing with the marriage and pregnancy of school students that required that a boy who “contributed to a pregnancy of any girl out of wedlock” should be restricted to classes for the balance of the school year. Normal extracurricular activities could be resumed the following school year. Additionally, any students who married should be restricted to classes leading to graduation. Therefore, the student was not included on the baseball roster. The plaintiff contended that he had a constitutional right to become married and that the action the school had taken against him was a violation of his civil liberties. The court expressly held that “these activities are an integral and complimentary part of the total school program” (Sohn, 2012, p. 14).

As ACCAP increased, more research about the value of ACCA was conducted, and it was found that ACCAP also had a positive relationship with increased self-esteem, responsibility, self-confidence, and academic achievement (Gerber, 1996). Gerber examined the relationship between participation in extracurricular activities and academic achievement using data from the National Educational Longitudinal Study (NELS). The project began in 1988, collecting data on 24,599 eighth graders attending public schools. Student participation was examined in school-related and non-school activities. The results showed that participation in extracurricular activities was positively related to academic achievement. The relationship was stronger for white students overall and for school-related activities for both racial groups. Students valued participation in ACCA because it allowed them to spend more time with friends and social gain acceptance (Gerber, 1996, 42-50).

Prior to 1990, educators were skeptical of participation in extracurricular activities, believing that the school-day experience should focus solely on narrowly defined academic outcomes. Non-academic activities were viewed as being primarily recreational and detrimental to academic achievement, and consequently, they were discouraged (Marsh & Kleitman, 2002). It was not until recently that it was determined that participation in these types of activities may also benefit academic achievement (Marsh & Kleitman, 2002).

Formerly, extracurricular activities were thought to only supplement and extend those contacts and experiences that students have in the more formal part of an educational program (Millard, 1930).

## COMPARATIVE STUDIES

Studies have been conducted in other countries regarding the importance and impact of ACCA. Though the context for these studies may differ from the Catholic School environment addressed in this study, including in terms of cultural norms, religious versus non-religious bases, and socioeconomic status, there are still lessons that can be transferred. Australian independent school education has traditionally offered a wide range of co-curricular activities to students. This practice has not been without tension. For many of the parents of these students, the time spent on co-curricular activities was not as important as the time spent maximizing student academic performance. The development of the entire child is a common theme in these schools, which carry out their mission through rigorous academics, as well as rich ACCA offerings. Research on Australian schools suggests that these students have increased self-confidence and time-management skills. These qualities can then help in achieving academic goals. This research offers certain interesting insights but cautions against drawing definitive conclusions about the impact of ACCAP. It does reveal that outcomes vary from student to student, and therefore, it cannot be assumed that all students will benefit from ACCAP (Wellham, & Hickey 2009).

Researchers from US universities and a well-established educational foundation in India collaborated to conduct a study regarding which school resources beyond basic infrastructure are important to improve learning. Using a comprehensive 60-item survey instrument, data were collected from 88 government schools. The findings indicate that in schools with more co-curricular activities, with all other factors being held equal, children perform better in math (Chudgar, Chandra, Iyengar, & Shanker, 2015).

In Hong Kong, a study was conducted to examine whether co-curricular activities enhance the learning effectiveness of students. The results indicated that there was no positive effect on the part of ACCAP on academic performance but that further studies could explore the potential of ACCA and other experiential learning opportunities in promoting student learning effectiveness (Leung, Ng, & Chan, 2011).

## **IMPACT ON ACADEMIC OUTCOMES**

In 1988, there was a National Educational Longitudinal Study to test the impact of participation in co-curricular activities on high school achievement. The results show that participation in certain activities improved achievement, while participation in others diminished achievement (Broh, 2002). Beckett Broh, the author of the study, used a longitudinal study sponsored by the National Center for Education Statistics (NCES) of the United States Department of Education. Using a stratified, clustered sample of 24,599 eighth graders from public, private, and parochial schools, the students were asked to complete survey questionnaires. Follow-ups were conducted two and four years after the base year, when the students were in the 10<sup>th</sup> and 12<sup>th</sup> grades. Subject achievement tests were also administered in each year of the study. Dependent and independent variables were also identified (Broh, 2002, p. 73-75). The findings of this research suggest that participation in interscholastic sports creates a small but consistent benefit in terms of students' grades. Additionally, participation was found to be positively associated with student math grades ( $b=.230, p<.001$ ) and English grades ( $b+.219, p<.001$ ). Moreover, the researchers determined that participating in interscholastic sports throughout high school was related to improved grades in mathematics and English.

Participation in interscholastic sports promotes student development and social ties between students, parents, and schools. These benefits explain the positive effect of participation on achievement. Broh published his results in the *Sociology of Education Journal* and further concluded that participation in such activities may have a positive effect on life skills and may also benefit academic performance.

One example of a school that has had improvements in student achievement is Woodstock High School in Woodstock, Illinois (Reeves, 2008). It serves almost 2,000 students, more than 20% of whom are minority students and more than 25% of whom are eligible for free or reduced lunch. Ninth grade failure rates in mathematics, science, social studies, English, and physical education went down substantially. The mathematics failure rate went down almost 40% in a single year. More students have received National Merit honors, while at the same time, the number of minority, low-income, and English language-learner students has increased. The school graduation rate increased to 88%, the highest it has been in the previous 10 years. Administrators report that discipline has improved simultaneously. At the same time, participation in extracurricular activities increased over 400% (Reeves, 2008). The conclusion cannot be drawn, however, that participation in co-curricular activities, in itself, caused such a significant improvement, but it does point to this as a positive influence because it promotes adult and peer relationships, organization, discipline, and expectations (Reeves, 2008).

Some studies support the positive aspects of ACCAP as an extension of those contacts and experiences that students have during the formal part of the school day (Millard, 1930, p.16). It has been pointed out that ACCAP helps with social adjustment, thus contributing to academic coursework (Tanner & Tanner, 2007). Other scholars suggest that there are connections between ACCAP, student learning, and student engagement and satisfaction. Engagement is defined as

active participation in academic and co-curricular activities, as well as commitment to educational goals and learning. Engaged students find learning meaningful and are invested in both learning and their future. This Check and Connect theory of engagement draws upon the theoretical and empirical literature on high school dropout and school completion (Appleton et al., 2008). The greatest impact appears to stem from students' total levels of engagement, particularly when academic, interpersonal, and extracurricular involvements are mutually reinforcing (Pascarella & Terenzini, 2005, p.647).

Data were collected from 2,111 high school students in 41 rural high schools in Arizona, Florida, and Texas to identify the factors that influence participation in extracurricular activities (Rayfield, Compton, Doerfert, Frazee, & Akers, 2008). It was determined that those students who participated in these activities had superior self-perceptions, a better understanding of their leadership, and better GPAs. The Chilton School District has had a rich history of support for a broad range of co-curricular activities. Studies have been conducted that “support the common theme that participation in co-curricular activities does correlate to higher student achievement” (Sonnabend, 2012). Sonnabend states that in addition to higher student achievement, other related personal and social benefits are found as well. Those benefits include better grades, a higher likelihood of college attendance, a lower likelihood of dropping out of school, higher educational aspirations, more satisfaction with schools and teachers, higher life satisfaction, broader conventional peer networks, less involvement in delinquent behavior, and less drug and alcohol use. Sonnabend maintains that those students who participate in co-curricular activities have less truancy, lower drop-out rates, fewer disciplinary issues, and better average GPAs than their peers who do not participate. This school district, though located in Wisconsin, has some

similarities to the population that will be studied here in terms of demographics and economic data.

A study that examined the five success factors of high-achieving Puerto Rican high school students concluded that involvement in community-based extracurricular activities had a positive impact on their academic achievement, in addition to the development of a positive self-concept, which discourages participation in oppositional youth cultures such as gang life (Antrop-Gonzalez, Velez, & Garrett, 2003).

A 2007 research project examined the academic achievement levels of students who studied music. These data suggest that the arts are central to the learning experience, adding depth and quality to the learning process, which has a beneficial ripple effect through the rest of a student's academic life. Academic achievement scores were significantly higher for students studying music, particularly on mathematics tests (Harris, 2007). It was suggested that music should assume a place in the regular school curriculum because it showed a positive effect on academic achievement.

A Virginia Tech study of participation in student activities and achievement studied the implied causal relationship between the level of student participation in co-curricular activities and academic achievement. The model examined accounts of the effects of gender, family background, academic ability, and other competing time-use habits. The findings suggest that academic achievement is enhanced by student participation and raise questions about the rationale behind excluding academically marginal students from participating in co-curricular activities (Camp, 1990). Similarly, a study of Kenyan high school students revealed that co-

curricular participation seems to impact academic performance (Kimenzi, Kiptula, & Okero, 2013).

Research continues to indicate that participation in extracurricular activities affects student performance. Some studies have been conducted to assess the effects of specific extracurricular activities on academic performance. A study of junior high school students at the Walnut Creek Christian Academy during the 2004–2005 school year requested demographic information, in addition to a survey containing five Likert-type questions. The data revealed that according to the students surveyed, playing sports, watching television, and participating in community service improved academic performance, while playing a musical instrument did not improve academic performance. Therefore, it can be concluded that extracurricular activity participation affects student performance and that this effect depends on the specific activities in which the student is involved (Fujita, 2006).

Some research has also found that ACCAP fills in some of the development gaps that exist outside the span of the academic day (Baker, 1993). The International Association for the Evaluation of Educational Achievement analyzed scientific achievement in 17 countries in 1988. It found that the top-achieving countries had music as an integral part of their co-curricula (Kelstrom, 1998). Kelstrom suggests that the US could learn from the examples of Hungary, Japan, and the Netherlands, which all use music as part of their regular education curricula. They all acknowledge the importance of music, and its positive effect on academic achievement (Kelstrom, 1998 p. 37).

## STUDENT ENGAGEMENT

Zehner (2011) conducted a study at Purdue University using a dataset that contained 7,392 records for engaged students and 182,666 records for Purdue students generally. He found that co-curricular activity participation resulted in higher engagement and that engaged students earned higher GPAs. In addition to engagement, these students also exhibited better time management skills and higher levels of satisfaction. According to their study, the most satisfied students are also those who are most heavily engaged in co-curricular activities and earn higher GPAs than other students. Zehner's report focuses on the impact of intensive engagement on academic achievement. He also notes in passing, however, that engagement seems to go hand in hand with another important objective: student satisfaction. The effect of activity on satisfaction is important, but it should not be overstated. The difference between the least and most engaged students is small (Zehner's findings show that satisfaction varies only from 3.1 to 3.5 on a 1–4 scale). Engagement does not necessarily cause satisfaction. It may instead be a result of satisfaction: students may join in activities because they are happy with their classes, their housing situations, and other factors. Nevertheless, Purdue's most satisfied students are also those who are most heavily engaged in co-curricular activities. Zehner's sample examined the academic progress of students in five specific co-curricular programs at Purdue University. These five groups are typified by intensive levels of student involvement, including both frequent lengthy practice sessions and occasional absences from campus: Aerospace Studies and Air Force Reserve Officer Training Corps (ROTC), Military Science and Army ROTC, Bands and Orchestras and Naval Science and Navy ROTC, and Purdue Musical Organizations.

Zehner states that his report demonstrates that highly engaged students are successful. He concludes, based on the evidence of his sample, that co-curricular involvement of up to 20

hours per week is consistent with a full course credit load and a high GPA. His conclusions apply only to participants in the five programs included in the study (listed above). He expects that similar results will occur among students in other programs that emphasize planning, high expectations, tutoring help, and supervision as strongly as the five studied programs do. Zehner cautions against assuming that students who devote 20 hours a week to out-of-class activities will realize academic benefits. His report should not be interpreted as implying that all students, especially students with poor study skills and low academic qualifications, should engage in extensive outside activities

## **STUDENT SATISFACTION**

Another school of thought about academic co-curricular activity participation is documented by Stewart (2008). Even though this participation is generally considered to be a positive for students because it may foster a sense of belonging or community and a sense of pride, it is possible that that such participation may divert time and energy from valuable academic activities designed to increase student learning. Furthermore, because there are different types of activities, not all participation is consequentially equal, and students therefore do not gain the same advantages from participation. A 1999 study suggests that ACCAP may increase a student's investment in school, which may promote better attitudes and habits (Cooper, Valentine, Nye, & Lindsay, 1999). This sense of belonging is closely related to student satisfaction in school. They look forward to participating in activities with friends and trusted adult leaders. There is also evidence that ACCAP reduces the risky behaviors of high school students (Eccles & Barber, 1999). Students have stated that they experienced an increase in motivation and a sense of involvement in school with ACCAP (Gerber, 1996).

## **THEORETICAL FRAMEWORK**

The theoretical framework for this study is found in the student development theory of Alexander W. Astin, which is based on student involvement. Originally published in 1984 and subsequently in 1999 in the *Journal of College Student Development*, the involvement theory includes basic postulates. The investment of physical and psychological energy in student experiences can entail various degrees of involvement and both qualitative and quantitative features. The amount of learning and development gained from an educational program is proportionate to the quality and quantity of student involvement in the program. The effectiveness of educational policy or practice is directly related to the capacity to increase student involvement (Astin, 1999). This theory emphasizes the active participation of students and the investment of energy to achieved desired learning and development. In other words, how much time and energy a student devotes to the learning process is important (Astin, 1999). This theoretical framework provides strong evidence for the value of ACCAP. Academic performance is correlated with student involvement (Astin, 1999). Astin takes into account student demographics, background, experiences, environment, and outcomes (Astin, 1999).

## **SUMMARY**

Utilizing Alexander Astin's Theory of Involvement and based on the current research, ACCA are an important part of a high school student's experience with school, peers, academics, and total development. Given the amount of time that is spent outside of the classroom, having worthwhile activities not only positively contributes to academic results but also provides an

outlet for socializing in positive ways while developing life and organizational skills for future endeavors. ACCA also help to define areas of strength and potential for individual students. Students become more engaged, which results in higher satisfaction with school. This sets the stage for increased success during the college application process, providing clarity regarding which path a student may want to take as the education process continues. Surely, this is important information for secondary school administrators to consider when making decisions about resources and how to invest them in programs.

## **CHAPTER THREE: METHODOLOGY**

### **INTRODUCTION**

The purpose of this research study was to add to the existing knowledge about the influence of academic co-curricular activity participation on the part of Catholic high school students on their learning, as measured by GPA. It also further determined whether student gender and participation intensity had an impact on learning. This quantitative, longitudinal study utilized existing data from student information systems regarding members of the class of 2017 for all consecutive school years (2013–2017). These student data were collected from Catholic high schools in a northeastern state in the US. This study determined the extent to which the mediators of student gender and participation intensity (measured by both the number of activities the student participated in and the duration of participation) influence student academic achievement. It also examined the influence of ethnicity and school type on student learning.

### **RESEARCH QUESTIONS**

The research questions are presented again here to provide the reader with the opportunity to view them in conjunction with their associated hypothesis.

The study was guided by the following research questions:

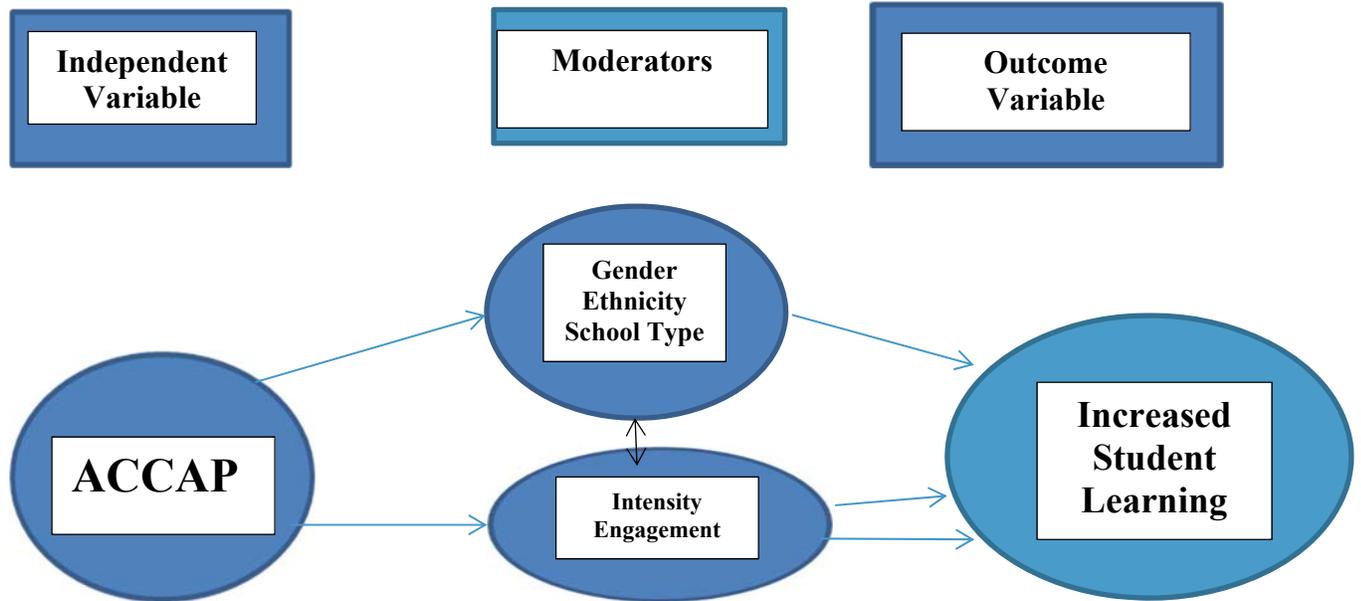
1. To what extent does student engagement in co-curricular activities contribute to academic performance?

2. How does the intensity (time dimension) of involvement moderate the relationship between academic co-curricular activity participation and student learning?
3. How does the association between participation and learning vary based on student gender and ethnicity?
  - a. Does gender moderate the relationship between ACCAP and student learning?
  - b. Does ethnicity moderate the relationship between ACCAP and student learning?
4. How does school type moderate the relationship between ACCAP and student learning?

The null hypothesis of this study is that ACCAP has no impact on student learning, or that the regression coefficient is not significantly different from zero.

## CONCEPTUAL FRAMEWORK

The purpose of this study was to examine the impact of ACCAP of Catholic high school students in terms of their learning, as measured by GPA.



Null hypothesis = There is no impact on the part of ACCAP on student learning  
(The regression coefficient is significantly different from zero).

## DESIGN

This quantitative explanatory longitudinal study examined the influence of ACCAP on student learning. The study used secondary data provided to the researcher by the six high schools.

## **POPULATION**

The participants in this study attend Catholic high schools in a northeastern state of the United States. These schools are governed by the archbishop and supported by the superintendent and assistant superintendent of schools. Out of the 29 high schools, data were provided by six schools. These high schools have consistently high graduation rates, 99.0% in the 2014–2015 school year, and a significant number of their students, 85.7%, go on to study at a four-year college (McDonald & Schultz, 2015). As illustrated by the conceptual framework presented previously, the outcome variable of interest is student learning. As of 2015–2016, enrolment was 12,787. Twelve of these schools are coeducational, seven are single-sex male, and ten are single-sex female, with three variously serving grades 7 to 12. The schools represent various communities, ranging from inner cities to middle-class towns. The students in these high schools includes 59% Caucasians, 19% African Americans, 9% Asians, and 13% students of other groups or multiracial students. Fifteen percent of the overall student population is Latino (RCAN, 2016).

## **SAMPLE**

A Daniel Soper A-priori Multiple Regression Power Analysis was completed to determine the adequate sample size for this study. To be adequately powered, this study needed to include a minimum sample population of 600 participants from various schools. The sample included Catholic high school seniors in this particular northeastern state who were members of the Class of 2017 and who had participated in academic co-curricular activities during their high school years. The sample was identified through the guidance offices, which provided a list of the students in the Class of 2017 and their respective GPAs. The researcher fully described the

purpose and details of the study to both the school principal and guidance administrator in writing.

## **DATA COLLECTION**

The data for this study were collected via two distinct processes. The GPA and ACCAP, along with information on student gender and socioeconomic status, were collected from existing student information systems provided by the school guidance counselors. Permission to access this data was provided by the superintendent to the researcher and the school principals.

Participation in activities was collected via a similar process in an attempt to capture which activities the students were active in and during what timeframe they participated. The information systems and process for retaining these data were recommended by the Office of the Superintendent of Schools.

The individual systems may have varied, but the information was similar, and ACCAP was recorded and summarized for each student. The summative end-of-senior-year GPA was provided. The data collected from the student information systems utilized in the respective high schools, e.g., Power School, thus met a standard of reliability and validity. IBM Statistical Package for the Social Sciences (SPSS) software was used to perform the analysis. The required International Review Board (IRB) process was completed, and it was determined that the study was exempt. No parental permission for participation was required.

## **HUMAN SUBJECTS PROTECTION**

The Seton Hall University IRB was consulted, and the required forms were filed to ensure compliance for the protection of the human subjects, Catholic high school students under the age of eighteen. All information gathered was de-identified to protect the subjects. The study was exempt, and IRB approval was obtained. Permission was granted by the Archdiocesan Superintendent of Schools for the schools to provide the student information system data to the researcher for this study. No individual information was compromised because the data were de-identified. The study did not provide names or identifiable characteristics for any specific students. See Table A below for a summary outline of the study instrumentation.

## **INSTRUMENTATION AND VARIABLE DESCRIPTIONS**

Data on ACCAP, the independent variable, were collected from the high school guidance office via the student information system. Student learning, the dependent variable (Y1), was measured via GPA for the 2013–2017 academic cycles. This information was included in the student information system and published on the student report card and progress report. When calculating a student’s GPA, all courses studied were counted, and each course’s final grade was based on all term grades for that course. This was measured on a 4.0 scale. An unweighted GPA was calculated by multiplying the final course grade by the credit awarded divided by the total credits. Data on the moderators of gender, ethnicity, school type, and intensity were gathered from the student information system (SIS). These data were provided to the researcher via the high school guidance counselor. The GPA collected concerned the 2013-2017 school years for the Class of 2017. Intensity was measured by totaling the length of time students participated in

ACCA over the course of their four years in high school. Data on the number of ACCAP activities were collected from the student information systems. See Table A for a summary outline of the study instrumentation.

**Table A***Study Instrumentation*

<b>Variable</b>	<b>Measurement</b>	<b>Status</b>
Student Learning (Y1)	Student level GPA (1–4 scale) for all high school years 2013–2014, 2014–2015, 2015–2016, and 2016–2017	Dependent
SES (Y2)	Two-way scale (0 = does not qualify for free or reduced lunch; 1 = does qualify for free or reduced lunch) from SIS	Moderator
Student Intensity (Y3)	Length of time of participation measured in number of school years, taken from SIS	Independent
ACCAP (x)	For 2013–2017 Number and type of ACCAP, taken from SIS	Independent
Gender (x1)	Two-way scale (0 = Female; 1 = Male)	Moderator
Ethnicity (x2)	Two-way scale	Moderator
School Type (x3)	Two-way scale	Moderator

## DESCRIPTION OF VARIABLES

Dependent variable – Student learning, as measured by GPA.

1. Independent variables - ACCAP, defined as participation in at least one ACCA during both the sophomore and junior years, and intensity, or the number of school years of participation.
2. Moderator variables
  - a. Moderator – Gender dummy coded as 0 = female; 1 = male.
  - b. Ethnicity
  - c. School type

## DATA ANALYSIS

Data were analyzed utilizing the Statistical Package for Social Sciences Software (SPSS). Descriptive statistics with predictions for numerical outcomes were included in the software. The acceptable significance level used was greater than or equal to .05, and this was applied as outlined below.

$$Y1 = a + \text{ACCAP}$$

$$\text{Question 1 - } Y2 = a + \text{ACCAP} + \text{Intensity}$$

$$\text{Question 2 - } Y3 = a + \text{ACCAP} + (\text{ACCAP} * \text{Intensity})$$

$$\text{Question 3 - } Y4 = a + \text{ACCAP} + (\text{ACCAP} * \text{gender})$$

Question 3 –  $Y5 = a + \text{ACCAP} + (\text{ACCAP} * \text{Ethnicity})$

Question 4 –  $Y6 + \text{ACCAP} + (\text{ACCAP} * \text{School Type}^*)$

**Table B**

*Data Analysis by Research Question*

<b>Research Question</b>	<b>Data Source</b>	<b>Data Analysis</b>
	<i>All data de-identified and collected from student information systems</i>	<i>Regression analysis</i>
1. To what extent does student engagement in co-curricular activities contribute to grade point average?	The number of ACCA in which the student participated over four years of high school and the student grade point average upon graduating with the class of 2017.	Regression
2. How does the intensity (time dimension) of involvement moderate the relationship between academic co-curricular activity participation and student learning?	The proportion of time in which the student participated in more than one year of high school and student grade point average upon graduation.	Regression with interaction terms
3. How does the association between ACCAP and student learning vary based on student gender, ethnicity, and socio-economic status?	The ACCA in which the student participated in over the four years of high school, GPA, and student gender.	Regression with interaction terms and point-biserial correlations
4. How does school type moderate the relationship between ACCAP and student learning?	The type of school, designated as either single sex or co-ed high school.	Regression with interaction

Key:

ACCA = academic co-curricular activities

ACCAP = academic co-curricular activity participation

GPA = grade point average

## **SUMMARY**

Chapter Three summarizes the methodology of the study and the research questions within the conceptual framework and research design. The population, data collection, instrumentation, and variables in the study are also defined. Limitations and ethical issues regarding human subject protection are also addressed.

## CHAPTER FOUR: ANALYSIS AND FINDINGS

### INTRODUCTION

Research studies conducted in the late twentieth century and the early part of the twenty-first century have concluded that there is evidence for the positive effects of academic co-curricular activity (ACCA) on academic and social outcomes for students (Marsh & Kleitman, 2002). Based on these findings, the purpose of this study is to determine the impact of Catholic secondary students' involvement in academic co-curricular activities on their academic performance, as measured by GPA, during the four years of high school. A specific focus is placed on the intensity of participation in ACCA, defined as the number of years the student participated in activities. Also examined in this study is how gender, ethnicity, and school type moderate the effects of participation on academic outcomes. It is hoped that the findings of this study will be beneficial to administrators who must make decisions about the allocation of the budgets for such activities. It is also hoped that the findings will provide information to students who must make choices about how to spend their time outside of the classroom. For males and females and both white and non-white students, the data provided by this study will show how students can best support their academic goals with the time and effort spent on ACCA.

This study includes data from six Catholic high schools located in the northeastern US. They mostly serve middle-to-upper-class communities, with programs being funded by tuition and school fundraising. The study is based on information on the academic achievement and the ACCA activities of 971 members of the class of 2017.

## **RESEARCH QUESTIONS**

The findings presented in this chapter are organized so as to address each of the following research questions:

1. To what extent does student engagement in co-curricular activities contribute to academic performance?
2. How does the intensity (time dimension) of involvement moderate the relationship between academic co-curricular activity participation and student learning?
3. How does the association between participation and learning vary based on student gender and ethnicity?
  - a. Does gender moderate the relationship between ACCAP and student learning?
  - b. Does ethnicity moderate the relationship between ACCAP and student learning?
4. How does school type moderate the relationship between ACCAP and student learning?

## **HYPOTHESES**

The main hypothesis is that academic co-curricular participation positively influences student learning. The hypothesis is supported by the following propositions:

1. There is a positive correlation between grade point average and co-curricular activities.
2. There is a relationship between the intensity (time) of involvement in academic co-curricular activities and student learning (GPA).
3. There is an association between participation and learning that is moderated by gender.

4. There is an association between participation and learning that is moderated by ethnicity.
5. There is an association between ACCAP and student learning that is moderated by school type.

## **DESCRIPTIVE STATISTICS**

The sample consisted of 971 Catholic high school students who were members of the Class of 2017. The students attended six Catholic high schools in a northeastern state. Two of the high schools are coeducational, two are all-female, and two are all-male. The demographic breakdown of the sample is presented in Table 1. Of the 971 students in the sample, 45.73% were male, and 54.27% were female; 17.41% attended an all-male Catholic high school; 18.74% attended an all-female Catholic high school; and 63.9% attended a coeducational (COED) Catholic high school. Approximately 55.65% of the students in the co-educational school were females. Table 1 also presents data on the socioeconomic status of the students in the study. Only 50 students qualified for free or reduced lunch, and 921 were not eligible.

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**Table 1***Profile of the types of schools and student demographics*

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	Frequency	Percent
<b>School Type:</b>		
COED	620	63.9
Single Sex	351	36.1
Male	169	17.4
Female	182	18.7
<b>Gender:</b>		
Female	527	54.3
Male	444	45.7
<b>Ethnicity:</b>		
White	598	61.6
Not white	373	38.4
Black	149	15.3
Asian	93	9.6
Hispanic	109	11.2
Other	22	2.3
<b>Socio-economic status (SES):</b>		
No	921	94.9
Yes	50	5.1
Total	971	100.0

---

Table 2 presents the descriptive data for the dependent and independent variables: grade point average, the number of activities, and the intensity of involvement. The range for student GPA was between 4.55 and 1.10. The mean GPA was 3.42. The maximum number of activities in which a student participated was 19, and the minimum number of activities was zero. The mean number of ACCA was 1.92 activities. Intensity, measured by the number of years in which the student participated in ACCA, had a maximum of four years and a minimum of zero years, with the mean of 2.62 years.

**Table 2**

*Descriptive Statistics for Grade Point Average, Number of Activities, and Intensity*

	Grade Point Average	Number of Co-Curricular Activities	Intensity (Number of Years)
N	971	971	971
Mean	3.42	1.92	2.62
Median	3.48	1.00	4.00
Std. Dev	0.44	2.59	1.79
Minimum	1.10	0	0
Maximum	4.55	19	4

Table 3 presents the findings on academic performance broken out for males and females. Female students, on average, had higher GPAs. Male students earned average GPAs of 3.35, as compared to 3.48 for females. Females were also involved in more activities and were involved for a longer time than males. Females participated in about 2.48 activities, as compared to 1.26 for males. The intensity of involvement (number of years of ACCAP over the high school career) was, on average, 2.97 years for females and 2.20 years for males.

**Table 3***Descriptive Statistics by Gender*

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Grade Point Average	Female	527	3.48	0.437	0.019
	Male	444	3.35	0.441	0.021
Number of Co-Curricular Activities	Female	527	2.48	2.750	0.120
	Male	444	1.26	2.206	0.105
Intensity (Number of Years)	Female	527	2.97	1.626	0.071
	Male	444	2.20	1.884	0.089

The averages for academic achievement and the number of co-curricular activities by ethnicity and intensity are depicted in Table 4. The average GPA for white students was 3.50, that for Asian students was 3.53, that for Hispanic students was 3.38, that for Black students was 3.06, and that for other students was 3.40. We also dichotomized ethnicity into two groups – white versus non-white (Asian, Hispanic, Black, and Other), and the overall differences between the two groups are shown in Table 5. White students are engaged in more ACCA activities ( $M = 2.12$ ) than non-whites ( $M = 1.60$ ). Similarly, the average GPA (3.50) for white students is slightly higher than that for non-white students (3.29).

**Table 4***Descriptive Statistics by Ethnicity*

Ethnicity		N	Mean	Std. Deviation
White	Grade Point Average	598	3.50	0.371
	Number of Co-Curricular Activities	598	2.12	2.794
	Intensity	598	2.65	1.804
Black	Grade Point Average	149	3.06	0.565
	Number of Co-Curricular Activities	149	1.07	1.989
	Intensity	149	2.07	1.853
Asian	Grade Point Average	93	3.53	0.376
	Number of Co-Curricular Activities	93	1.94	2.293
	Intensity	93	2.86	1.639
Hispanic	Grade Point Average	109	3.38	0.399
	Number of Co-Curricular Activities	109	2.16	2.249
	Intensity	109	3.18	1.479
Other	Grade Point Average	22	3.40	0.567
	Number of Co-Curricular Activities	22	1.05	1.731
	Intensity	22	1.64	1.733

---

**Table 5**

*Descriptive Statistics by Ethnic Groups: White and Asian and Not White (Hispanic, Black, and Other)*

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White versus Not White		N	Mean	Std. Deviation
Not white	Grade Point Average	373	3.29	0.514
	Number of Co-Curricular Activities	373	1.60	2.182
	Intensity	373	2.57	1.765
White	Grade Point Average	598	3.50	0.371
	Number of Co-Curricular Activities	598	2.12	2.794
	Intensity	598	2.65	1.804

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Looking at the average GPA by school type, the 182 students attending a female Catholic school have slightly better academic performance GPA ( $M = 3.53$ ) than the 169 students attending a male Catholic high school ( $M = 3.49$ ) and the 620 students attending a coeducational Catholic high school ( $M = 3.36$ ). The average number of ACCA is highest for the students at female Catholic schools ( $M = 2.29$ ) and lowest for students at male Catholic schools ( $M = 0.67$ ). The average number of ACCA for the students at coeducational Catholic schools ( $M = 2.15$ ) is more similar to that for the students at female Catholic schools (Refer to Table 6).

**Table 6***Descriptive Statistics for GPA and ACCA by School Type*

School Type		N	Mean	Std. Deviation
Male	Grade Point Average	169	3.49	0.277
	Number of Co-Curricular Activities	169	0.67	1.724
	Intensity	169	1.33	1.888
Female	Grade Point Average	182	3.53	0.446
	Number of Co-Curricular Activities	182	2.29	2.319
	Intensity	182	3.23	1.562
COED	Grade Point Average	620	3.36	0.470
	Number of Co-Curricular Activities	620	2.15	2.755
	Intensity	620	2.79	1.655

Because schools are also compared by type, Table 7 organizes the data for both single-sex and COED Catholic high schools. Students attending a coeducational Catholic high school had a slightly lower average GPA ( $M = 3.36$ ,  $N = 620$ ) as compared to the 351 single-sex Catholic high school students' GPA (3.51). In contrast, the students at coeducational schools participated, on average, in more ACCA activities ( $M = 2.15$ ) than students at the single-sex schools ( $M = 1.51$ ).

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**Table 7***Descriptive Statistics by School Type*

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School Type – Single sex versus COED		N	Mean	Std. Deviation
COED	Grade Point Average	620	3.3641	0.46977
	Number of Co-Curricular Activities	620	2.15	2.755
	Intensity	620	2.79	1.655
Single Sex	Grade Point Average	351	3.5124	0.37486
	Number of Co-Curricular Activities	351	1.51	2.206
	Intensity	351	2.31	1.969

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**RESULTS FOR RESEARCH QUESTION 1**

Research Question 1 was as follows: To what extent does student engagement in co-curricular activities influence students' academic learning? To determine the extent of the relationship between co-curricular activities and student learning, a regression analysis was conducted. First, the assumptions of the regression analysis were checked for outliers, normality, and homoscedasticity. The distribution of GPA is centered at 3.42 (SE = 0.0142) and is left-skewed. Ninety-five percent of the sample is within the interval (3.39, 3.44), with only a few extreme outliers having GPAs of less than 1.5. The distribution of the number of activities is centered at 1.92 (SE = 0.083) and is right-skewed. Ninety-five percent of the sample is within the interval (1.76, 2.08), with only six students reporting more than 13 activities. The normality of residuals

is necessary for regression. The residuals for the regression model, which include GPA and the number of activities, are approximately normally distributed. Thus, this assumption was not violated. Regarding homoscedasticity, the variability of the number of activities should be similar to the variability of GPA. Therefore, the assumption of homoscedasticity has not been violated.

A regression analysis (Table 8) was conducted to determine whether one could predict a student's GPA from the number of activities in which he or she participated. The regression model explained 10.1% of the variance in GPA. The regression model is significant ( $F(1, 969) = 108.81, p < 0.001$ ). The number of co-curricular activities participated in had a positive impact on GPA. The regression model for predicting  $GPA = 3.313 + 0.054(\text{Number of Activities})$  indicates that a unit increase in the number of activities will result in a GPA increase of 0.054 grade points ( $t(971) = 10.43, p < 0.001$ ).

**Table 8**

*Coefficients<sup>a</sup> for the regression model using number of activities*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.313	.017		197.003	.000
	Number Co-Curricular Activities	.054	.005	.318	10.431	.000

a. Dependent Variable: Grade Point Average

## RESULTS FOR RESEARCH QUESTION 2

Research Question 2 was as follows: How does the intensity (time dimension) of involvement moderate the relationship between academic co-curricular activity participation and student learning? A regression analysis was conducted to test the conditional hypothesis that the effects of co-curricular activity on GPA varied based on how long students have been participating in these activities. The regression model (Table 9) included three predictors: the number of co-curricular activities, intensity, and the interaction between intensity and the number of activities. The number of co-academic curricular activities has a positive effect on GPA ( $B = .120$ ). An increase in the number of activities is likely to result in an increase in academic performance. While the effect of intensity is not significant, that of the interaction term was ( $t = 3.730, p < .000$ ). The positive beta suggests that the effect of the number of co-curricular activities on GPA is positively associated with the length of time a student participated in these activities. In other words, the longer students have been involved in academic co-curricular activities, the more likely it is that an increase in the number of these activities will result in an improvement of their GPA by about .013 points.

**Table 9**

*Coefficients for the regression model using number of activities and intensity, with interaction terms*

Model	B	Unstandardized	Standardized	t	Sig.
		Coefficients	Coefficients		
		Std.	Beta		
		Error			
1 (Constant)	3.321	.025		135.336	.000
Number of Co-Curricular Activities	.021	.010	.120	1.988	.047
Intensity Interaction Effect	.013	.004	.247	3.730	.000

### RESULTS FOR RESEARCH QUESTION 3

Research Question 3 was as follows: How does the association between participation in ACCA and learning (GPA) vary based on student gender and ethnicity? To determine whether there are significant relationships between gender, GPA, and number of activities, the point-biserial correlation was used. The correlation between gender and GPA is significant,  $r(971) = -0.148$  ( $p < 0.001$ ). There is a weak negative correlation, which indicates that the male students would have slightly lower GPAs as compared to female students. There is also a significant negative correlation between gender and number of activities ( $r(971) = -0.236$ ,  $p < 0.001$ ),

indicating that the number of activities engaged in by male students is less than that for female students. Furthermore, when the correlations were run separately for females and males, it was found that the correlation between GPA and ACCA for female students is 0.323 and that same value for male students is 0.258 (refer to Table 10).

**Table 10**

*Correlations between grade point average and number of co-curricular activities by gender*

Gender			Number of Co-Curricular Activities
Female	Grade Point Average	Pearson Correlation	.323**
		Sig. (two-tailed)	0.000
		N	527
Male	Grade Point Average	Pearson Correlation	.258**
		Sig. (two-tailed)	0.000
		N	444

\*\* . Correlation is significant at the 0.01 level (two-tailed).

In determining whether gender moderated the effect of the number of academic co-curricular activities on academic performance, a multiple regression model was run. As seen in Table 11, gender is not a significant moderator of this relationship.

**Table 11**

*Coefficients<sup>a</sup> for the regression model using number of activities and gender*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.304	.024		136,118	.000
	Number Co-Curricular Activities	.058	.006	.338	9.972	.000
	Interaction with Gender and ACCA	-.013	.009	-.046	-1.363	.173

a. Dependent Variable: Grade Point Average

The results of a series of point-biserial correlations indicate that there is a significant relationship between GPA and ethnicity  $r(971) = 0.229, p < 0.001$ , suggesting that GPA is higher for White and Asian students (as a group) than for Hispanic, Black, or other students (considered as another group). There is also a significant correlation between ethnicity and the number of activities  $r(971) = 0.098, p = 0.002$ , indicating that the number of activities is slightly higher for Whites and Asians than for students whose backgrounds were African-American, Hispanic, or other. As shown in Table 12, when controlling for ethnicity, that is, estimating the correlation between GPA and ACCA for the two groups separately, stronger coefficients were

obtained for students who were Hispanic, Black, or other ( $r(373) = 0.413$ ) than for those who were white or Asian ( $r(598) = 0.252$ ).

**Table 12**

*Correlations of grade point average with number of co-curricular activities by ethnicity (white vs. non-white)*

White versus Non-White			Number of Co- Curricular Activities
Non-white	Grade Point Average	Pearson Correlation	.413**
		Sig. (two-tailed)	0.000
		N	373
White	Grade Point Average	Pearson Correlation	.252**
		Sig. (two-tailed)	0.000
		N	598

Table 13 shows the effect of intensity on GPA moderated by race. Intensity alone does not have a significant impact on GPA ( $p=.725$ ) but the interaction of intensity and race is significant ( $p=.000$ ). Involvement in ACCA among white students for a longer time period resulted in a 0.040 increase in GPA.

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**Table 13**

*Impact of Intensity on GPA moderated by race*

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Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.344	.025		134.558	.000
	Intensity	.003	.010	.014	.352	.725
	Interaction of White and Intensity	0.040	.009	.172	4.350	.000

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a. Dependent Variable: Grade Point Average

Table 14 summarizes the correlations between GPA and the number of academic co-curricular activities by ethnicity.

**Table 14***Correlations of grade point average and number of co-curricular activities by ethnicity*

Ethnicity			Number of Co-Curricular Activities
White	Grade Point Average	Pearson Correlation	.252**
		Sig. (two-tailed)	0.000
		N	598
Black	Grade Point Average	Pearson Correlation	.409**
		Sig. (two-tailed)	0.000
		N	149
Asian	Grade Point Average	Pearson Correlation	.411**
		Sig. (two-tailed)	0.000
		N	93
Hispanic	Grade Point Average	Pearson Correlation	.408**
		Sig. (two-tailed)	0.000
		N	109
Other	Grade Point Average	Pearson Correlation	0.124
		Sig. (two-tailed)	0.581
		N	22

Because there are significant relationships between ethnicity, GPA, and number of activities, a regression was conducted to determine if there is a significant regression model that can predict GPA using both number of activities and ethnicity. The regression model determined 14% of the variability in GPA. The model in Table 15 is significant in predicting GPA ( $F(2, 968) = 79.067, p < 0.001$ ) and was  $GPA = 3.208 + 0.051(\text{Number of Activities}) + 0.182(\text{White})$ .

**Table 15***Coefficients<sup>a</sup> for the regression model using number of activities and ethnicity*

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.208	.023		140.461	.000
	Number Co-Curricular Activities	.051	.005	.298	9.957	.000
	White versus Not White	.182	.027	.200	6.667	.000

a. Dependent Variable: Grade Point Average

**RESULTS FOR RESEARCH QUESTION 4**

Research Question 4 was as follows: How does school type moderate the relationship between ACCAP and student learning? The analysis determined whether the conditional hypothesis that school type moderates the relationship between ACCAP and student learning could be confirmed. In testing this hypothesis, an interaction term for the number of activities and school type was entered into the regression analysis. In this analysis, school type was a dummy coded as “0” for co-education and “1” for single-sex education. The analysis included co-curricular participation and the interaction term for school type and the number of co-curricular activities. The number of co-curricular activities had a positive impact on GPA (see Table 16). For each additional co-curricular activity a student participated in, his or her GPA was improved by .048 points on average. The interaction term is significant ( $p=.003$ ). In single-sex schools, as the number of ACCA increases, so does student GPA. The positive interaction between school type and the number of ACCA in Table 16 suggests that the impact of the

number of ACCA on GPA is conditional on school type. With each additional ACCA, a .029 increase in GPA is seen in single-sex schools on average.

**Table 16**

*Coefficients for the regression model using number of activities and school type*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.231	.021		154.013	.000
	Number of Co-Curricular Activities	.048	.006	.279	8.200	.000
	Interaction between School Type and Number of ACCA	.029	.010	.099	2.959	.003

## SUMMARY

Administrators from six northeastern state Catholic high schools provided unidentified data from SIS for use in this study. Four research questions were posed as the basis for analyzing the collected data. These questions were answered using descriptive statistics. The results support the notion that academic co-curricular participation influences student learning, as measured by GPA.

Grade point average is positively influenced by ACCAP among both girls and boys. The resulting GPA values are slightly higher for girls than for boys. There is no significant effect on the part of the intensity of involvement in ACCAP on GPA. There is a significant correlation between GPA and gender. The above-mentioned effect was lower for males than for females. Ethnicity had a significant correlation with student learning. For white students, the correlation was positive. There was a correlation between GPA and school type. Attending coeducational schools had a positive correlation with GPA. Students who attended all-female high schools had better GPAs than students who attended all-male high schools.

The following chapter will offer conclusions, implications, and recommendations based on the key findings of this study.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### INTRODUCTION

Chapter Five includes a summary of the findings and analysis previously presented in Chapter Four. A summary of the significant findings from this study on the influence of ACCAP on student learning among Catholic high school seniors is presented in relation to findings from the existing literature. These findings are noteworthy for school leaders, researchers, students, and educational policy makers in that they provide a basis for decision making about school program offerings. Chapter Five also includes recommendations for future research as a vehicle to achieve an even greater understanding of the importance of academic co-curricular participation as it relates to improved student learning.

The purpose of this study was to examine the impact of Catholic secondary students' involvement in academic co-curricular activities on their academic performance. The research cited earlier in this dissertation included studies of college students, who have developmental differences from the students considered in the present study. There were also studies of students in multi-cultural settings with ethnic backgrounds that were different from the typical American suburban Catholic high school student. There are transferable lessons that provide a foundation for this study. The question of whether participation in academic co-curricular activities had a positive influence on student learning is explored. It was proposed that student learning is likely to be higher for those students who do participate in ACCA than for those who do not. This research examined the academic performance of 971 Catholic high school seniors from the Class of 2017 and their involvement in academic co-curricular activities.

The analyses focused on several questions. First, student engagement, or the number of activities in which the students participated, was examined to determine its impact on GPA. Second, intensity of involvement, or the number of years students participated in ACCA, was studied as both an independent variable and as a moderator in terms of its impact on GPA. Third, the association between ACCAP and GPA and the differences associated with gender and ethnicity was calculated. The study explored whether school type moderated the relationship between academic co-curricular activity participation and student learning.

## **SUMMARY OF FINDINGS**

The findings in this study provide evidence that there is a positive relationship between academic co-curricular activity participation and student learning, as noted by Zehner (2011). Zehner concluded that co-curricular activity participation resulted in higher student engagement and that engaged students earn higher GPAs (Zehner, 2011). The results are in alignment with the findings of a study in India that demonstrated that in schools in which students participate in more activities, student performance in mathematics is likely to be better than those schools in which the opposite is true (Chudgar, Chandra, Iyengar, & Shanker, 2015).

An examination of the number of co-curricular activities, intensity, and the interaction between intensity and number of activities revealed that the number of co-academic curricular activities has a positive effect on GPA. An increase in the number of activities is likely to result in an increase in academic performance. These findings buttress the results of an earlier study conducted by Reeves (2008). Reeves examined the participation of high school students in co-curricular activities in a midwestern state. Reeves found that as ACCAP increased, so did

academic performance and the high school graduation rate (Reeves, 2008). While intensity, by itself, was not significant in the present study, the interaction between intensity and ACCA participation was. The effect of the number of co-curricular activities on GPA was positively conditioned on the length of time a student participated in these activities. The longer students were involved in academic co-curricular activities, and as the number of these activities increased, it is likely to result in an improvement of GPA of .013 points. The present study does not allow us to fully understand these findings. There is a need for additional research to explore this relationship. It would be useful to provide a more accurate understanding of the mechanism through which the number of activities and intensity of participation influence academic outcomes.

A study of Australian schools by Hickey cautions against drawing definitive overall conclusions about the impact of ACCAP (2009). Hickey contends that it cannot be assumed that all students would benefit because outcomes vary from student to student (Hickey, 2009). This presents an opportunity for future research. The association between gender and GPA in the present study was significant. Male students had lower GPAs than female students. It was also revealed that females had a higher likelihood of participating in activities than males. These results align with the results obtained in a study of high school students in Kenya (Kimenzi, Kiptula, & Okero, 2014).

The number of activities in which students participated also varied by race. White students participated in more activities than other students. The association between participation and academic outcomes was stronger for non-whites. These results are partially supported by a study by the US Department of Education of Hispanic Students suggesting that programs and

activities must be culturally relevant to improve academic outcomes (Weiner, Leighton, & Funkhauser, 2000).

## **IMPLICATION OF FINDINGS**

This study was designed to examine the impact of Catholic secondary students' involvement in academic co-curricular activities on their academic performance. Some practical implications have emerged. First, minimal prior data existed for this population of students. This study adds to the limited research on student interdisciplinary participation in academic co-curricular activities and their academic achievement. It should be noted that a significant portion of total education funding is dedicated to ACCA programs in high schools globally. These decisions are being made with very little information. This study provides findings that should be used by administrators and other decision makers considering the investment of resources in such programs. Students can also be confident that their time and energy spent on ACCA will positively affect academic outcomes.

The positive interaction between school type and the number of ACCA suggests that the impact of the number of co-curricular activities in which a student participates on GPA is based on school type. Especially, ACCAP should be encouraged in male schools. A balance between participation in ACCA and athletics will result in more successful academic outcomes. Students making choices about where they will attend Catholic high school can include this information in making decisions about whether to attend a single-sex high school versus a coeducational institution. Catholic high school administrators should set goals for marketing campaigns that

highlight academic co-curricular activity offerings and the positive relationship between participation and improved GPAs.

The GPA values for female students who participated in ACCA were higher than those for male students. Female students also had greater intensity of participation than males. Principals and guidance counselors should examine the factors that prevent male students from participating in ACCA. They should counsel male students when making choices about how they allocate their time for co-curricular activities.

White students participated in a higher number of ACCA and had higher GPAs than their non-white classmates. Administrators must understand the reasons why non-white students are not as involved in ACCA. They should provide additional guidance to non-white students and encourage their ACCAP. Programs that include activities of interest for and are culturally relevant to non-white students must be part of high school offerings.

## **RECOMMENDATIONS FOR FUTURE RESEARCH**

Given the limitations and findings of this study, the following prospects for further research are recommended:

1. Replicate this study with a larger sample that includes students from a larger geographical area.
2. A study in the public high school setting could be conducted to see if comparable results are obtained.

3. A qualitative study to collect information from educators and students regarding their observations and opinions about how academic co-curricular activity participation impacts their learning and sense of engagement in school would be worthwhile.
4. Research as to why non-white students are not as involved in ACCA as their white counterparts would be useful to administrators and students alike.
5. A study of the relationship between co-curricular activity participation and graduation rate would be useful.
6. A study investigating why male students have lower participation in ACCA and subsequently earn lower GPAs than female students is needed.

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