THE IMPACT OF PARTICIPATION IN CO-CURRICULAR ACTIVITIES ON ACADEMIC PERFORMANCE AND RETENTION UTILIZING DATA COLLECTED FOR THE CO-CURRICULAR TRANSCRIPT

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ON ACADEMIC PERFORMANCE AND RETENTION UTILIZING DATA
COLLECTED FOR THE CO-CURRICULAR TRANSCRIPT

A dissertation proposal submitted in partial fulfillment
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ABSTRACT

THE IMPACT OF PARTICIPATION IN CO-CURRICULAR ACTIVITIES ON ACADEMIC PERFORMANCE AND RETENTION UTILIZING DATA COLLECTED FOR THE CO-CURRICULAR TRANSCRIPT

Harry Mars

The purpose of this study was to determine the impact that participation in co-curricular activities has on the academic performance and retention of students at an urban community college. This study utilized archived data to make quantitative analyses of the impact of participation in co-curricular activities on GPA scores and one-semester retention.

The study included all of the students at Metro Community College who participated in one of the following activities during the 2018-2019 academic year: club member, club leader, leadership training, and mentee by a peer. Multiple regression was run to test the impact of participation in these activities on grade point average and a binomial logistic regression was run to test the impact of participation on one-semester retention.

The study supported the previous research that found that participation in co-curricular activities impacted GPA scores and one-semester retention. These results strengthen previous research by analyzing data, verified by the institution, from all of the students who participated in co-curricular activities rather than utilizing student responses in surveys.
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CHAPTER 1: INTRODUCTION

The need to improve retention and persistence at two-year colleges is important to all students particularly those with economic disadvantages who are academically underprepared. Retention is defined in the present study as continued enrollment within the same higher education institution in the fall terms of a student’s first and second years. (National Student Clearinghouse Research Center, 2020). According to the National Center for Education Statistics (NCES) (2020), at 2-year degree-granting institutions, the retention rate for first-time, full-time degree-seeking undergraduate students who enrolled in fall 2017 was 62 percent, however, only a third of first-time, full-time undergraduate students who began seeking a certificate or associate’s degree in fall 2015 attained it within three years.

Identifying successful practices that improve student retention is a priority in higher education. Tinto (2016), a leading theorist in the field of college student retention, identifies self-efficacy and a sense of belonging among the motivators for student persistence that can potentially be attained through co-curricular participation, and support degree completion. The present study investigated whether improved retention and GPA scores could result from co-curricular participation.

Student-initiated activities go back to the early years of higher education in the United States. Extra-curricular or co-curricular activities appeared as debate clubs and literary societies as early as 1753 at Yale University (Rudolph, 1990). The usefulness of these activities was cited as helping boys become adults and ready for the world of work. While early extra or co-curricular activities at elite colleges did not have to address
student retention, as this had not been identified as a critical issue, they have been viewed as a tool for student engagement and retention in recent years.

Extra or co-curricular activities lack a generally accepted definition in the literature. Bartkus, Nemelka, Nemelka, and Gardner (2012) provide a working definition appropriate for higher education:

Extracurricular activities can be considered from the perspective of a continuum that ranges from direct to indirect. A direct extracurricular activity is more closely associated with the student’s major or curriculum. An indirect extracurricular activity is relatively unrelated to the student's major or curriculum (p. 699).

A report by Hanover Research (2014) which looked at retention practices of higher education institutions in the United States and Canada identified seven areas that could influence student retention: academic advising, social connectedness, student involvement, faculty and staff approachability, business procedures, learning experiences, and student support services. The Hanover Research report (2014) described Trent University’s retention initiatives as an example. Trent University developed four strategies for improving retention rates at the institution, two of which involved student engagement outside of the classroom: (a) provide high-quality, student-centered education, (b) review and redesign scholarship/bursary programs, (c) improve support to students and enhance student life programs, (d) enhance opportunities for engaging in student organizations and activities (Hanover Research, 2014). It is important to note that two of the four Trent University strategies referred to participation in co-curricular activities. Their strategies call for the entire institution to support an emphasis on encouraging freshmen to participate outside of the classroom. Trent University raised its
first-year retention rate from 2007-2011 from 80.6 percent to 84.1 percent (Hanover Research, 2014).

Hanover Research (2014) also reported that the University of Wisconsin-Green Bay (UW-Green Bay) implemented a new first-year seminar whose course requirements included: (a) significant interaction with faculty, peer mentors, and other students, (b) required participation in co-curricular activities on campus (c) information on, and the opportunity to practice, the knowledge and skills necessary to be successful in college (e.g., effective note-taking, time management skills, choosing a major) (d) the use of engaging, active-learning pedagogy, (e) an introduction to the interdisciplinary, problem-focused mission of the university. UW-Green Bay’s approach differed from Trent University's by focusing on their first-year seminar course to reach the same outcomes. Among all students in their 2010 cohort at UW-Green Bay, seminar participants had nearly a 10% higher retention rate from the first year to the second year than non-participants (Hanover Research, 2014).

These two examples of cases from the research prioritized student connectedness and identified participation in co-curricular activities as an important strategy. This supports the goals of the present study which will examine the impact of participation in co-curricular activities on retention and academic achievement.

Studies on student retention in college have demonstrated that student engagement is an important component in retaining students and promoting academic success (Kinzie, Gonyea, Shoup & Kuh, 2008; Kuh, Cruce, Shoup & Kinzie, 2008; Wang & Shiveley, 2008).
A study that sought to identify community college management practices that promote student success found that among several other conclusions, high-impact institutions had student support services that were well designed and aligned (Jenkins, 2006). The study used longitudinal, transcript-level data on 150,000 students in three cohorts of first-time college students who enrolled in degree programs in the fall of 1998, 1999, or 2000 with Florida community college students to estimate the effect that each of 28 institutions had on the probability of its students’ completing a certificate or degree, transferring to a state university or persisting at the college. Each of the high-impact institutions offered a variety of extra-curricular activities and demonstrated an ability to actively engage students (Jenkins, 2006).

According to Hanover Research (2014), several studies have found that students are more reluctant to leave an institution after joining a campus organization. Elevating the status of co-curricular activities by recognizing them on a transcript presents a clear message of the value of the activities in both supporting student success while at the institution as well as supporting their career success once they graduate. The co-curricular transcript (CCT) documents each student’s participation in outside-of-the-classroom activities. The CCT is beneficial in several ways, (1) a student can request to send the CCT as a part of their transfer application from a community college to a senior college, (2) a student can include the CCT in scholarship applications to demonstrate their participation, (3) a student can use the information on the CCT to articulate their experience and qualification in interviews for transfer, employment and scholarship opportunities, (4) the college benefits by having comprehensive data of student
engagement outside of the classroom that can be utilized to more effectively allocate resources and develop programming.

The recording of students’ co-curricular activities is not commonly practiced in higher education. The manner in which student data has been collected about student engagement both inside and outside of the classroom has been through surveys. Since 2001, the Community College Survey of Student Engagement (CCSSE) has used survey data to help to improve student learning and student retention. Between 2004 and 2014, 853 public two-year colleges in the United States, served almost 6.4 million students and 85% of U.S. community college students. During this period, they monitored the following benchmarks: active and collaborative learning, student effort, academic challenge, student-faculty interaction, and learner support. For each of these survey items, engagement has increased or remained the same for all students during this period (CCCSSE, 2015). The CCSSE survey was built on the premise that student engagement is significantly related to student learning, persistence, and academic attainment. (McClenney, Marti & Adkins, 2012)

The National Survey of Student Engagement (NSSE) is given to first-year and fourth-year students at senior colleges. The survey includes five scales of engagement: academic challenge, active learning, interactions, enriching educational experiences, and supportive learning environment (Kahu, 2013). Responses to the NSSE are self-reported by students without verification by the institutions that they attended.
Purpose of the Study

The purpose of this non-experimental ex post facto study was to determine if co-curricular activities at an urban community college influence first and second-year students’ grade point average (GPA) scores and retention rates.

Previous studies obtained responses from students about their activities by utilizing national student engagement surveys to gather data about students’ activities outside of the classroom. This study utilized archived data at Metro Community College (MCC), an urban community college that tracks its students’ co-curricular activities on a Co-Curricular Transcript (CCT). This is an official document of the college that records activities in eleven categories: athletics, workshops & seminars, civic engagement/community service, research, global experience, performance and art exhibitions, leadership training, clubs/organizations, assessments/certifications, professional activities, honors/awards.

For the present study, the following co-curricular activities were used as independent variables: total activities, club officer, club member, leadership trainee, mentee by a peer and participated in co-curricular activities (yes/no). The dependent variables were the students’ GPA scores and retention rates after the fall 2018 semester and after the spring 2019 semesters. The independent variables were used to determine existing relationships with the dependent variables.

Theoretical Framework

The theoretical framework that guided this study was the Student Involvement Theory (Astin, 1999). Astin’s theory describes the impact and benefit realized by involved students. The theory has five basic assumptions involvement (1) requires a
physical and psychosocial effort (2) is continuous and it is different for different students (3) can be both qualitative and quantitative (4) benefits are proportional to the effort made by the student (5) its level correlates to academic performance.

This theory was used to inform the data selection for the current study that included activities that required sustained effort for a semester and activities that required both large and small amounts of effort. An analysis of the impact of participation in multiple activities was also included.

**Significance of the Study**

The present study will add to the research connecting participation in co-curricular activities with student retention and academic achievement by examining the potential impact of specific programs that focus on (a) participation in student clubs as leaders and members; (b) leadership development; and (c) peer mentorship. This study examined the impact that student participation in these areas had on GPA scores and one-semester retention. Prior research focused on student connectedness, academic preparedness, and retention.

In comparison to research based on national survey (i.e., CCSSE and NSSE) responses, the present study will not depend on students’ self-reported activities and academic performance but rely on data as officially recorded by the college. The current study used the information submitted to the co-curricular transcript application (CCT app) to measure the impact on grade point average and semester-to-semester retention as recorded in the MCC student information system (SIS). This adds to the validity of the data and thus supports stronger inferences.
Connection to Social Justice

Students who participate in co-curricular activities receive leadership training, take on leadership roles, and work outside of the classroom to advance common interests. These experiences challenge students to navigate bureaucracies, promote social awareness, and value service to the community. This can contribute to their awareness of their ability to impact local, national, and global issues.

Research Questions

The research questions for the present study are:

*RQ 1:* Is there a significant difference in students’ one-semester change in GPA after the a) fall 2018 semester, and b) spring 2019 semester?

*RQ 2:* How does participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee, or mentee by a peer influence GPA scores of community college students for the a) fall 2018 semester, and b) spring 2019 semester?

*RQ 3:* How does participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee or mentee by a peer influence a one-semester retention of community college students after the a) fall 2018 semester, and b) spring 2019 semester?
CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

The literature review presented in this chapter summarized articles that investigated how student engagement impacts retention and academic success. The theoretical framework that informed and guided the study was presented first. This was followed by a review of the relevant literature related to college connectedness, impact on retention and persistence, impact on academic achievement, research limitations, and considerations, and relationship to prior and present study. Articles that included student engagement directly related to coursework and that were for academic credit were not included in this study.

Theoretical Framework

The present study utilized as its guide, Astin’s theory of student involvement, which argues that for a curriculum, to be effective it must elicit sufficient student effort and energy from a student to be successful (Astin, 1999). Thus, the more involved the student is in their education, the more likely they are to succeed.

The theory of student involvement has five basic assumptions regarding involvement:

1. Involvement requires a physical and psychosocial effort.
2. Involvement is continuous and it is different for different students.
3. Involvement can be both qualitative and quantitative.
4. The benefits of involvement are proportional to the effort made by the student.
5. Academic performance correlates to the level of student involvement (Astin, 1999, p. 519).

The theory of student involvement was derived from a longitudinal study that showed that students who participated in extracurricular activities of almost any type were less likely to drop out. Several studies have utilized Astin’s (1999) student involvement theory as a framework for the study of the impact of student involvement (Bergen-Cico & Viscomi, 2012; Foubert & Grainger, 2006; Jorgenson, Farrell, Fridge & Pritchard, 2018; Leung, Ng & Chan, 2011; Mikulec & McKinney, 2014; Ullah & Wilson, 2007).

Astin’s theory shows that students must make both physical and psychosocial investments and effort to be involved. This may include attending meetings, engaging others, or completing projects. The theory makes it clear that each student may have a different experience throughout the time spent on an activity. This theory also presents a model for highlighting the commitment and time required when students participate in co-curricular activities. The commitment represents the qualitative aspect and time refers to the quantitative aspect. Development and learning are factors of the degree of effort and energy demonstrated by students in the classroom or while participating in co-curricular activities. Astin’s theory indicates that students will get out of these experiences what they put into them.

The current research studied the relationship between participation in various activities, for one semester, and its impact on students’ GPA scores and their retention the semester after the activity.
Related Research

The search process to identify research literature relevant to the present study included the use of JSTOR, EBSCO, ERIC, ProQuest, and Google Scholar search engines. The keywords utilized in the search for peer-reviewed articles in these databases included: student activities, student learning, co-curricular activities, learning outside of the classroom, extra-curricular activities, leadership training, and leadership development. The following keywords were added to the search: community college learning, retention, academic achievement, academic success, and student engagement, based on their alignment with Astin’s theory related to student involvement. These searches yielded articles related to retention, academic achievement, and co-curricular activities at community and senior colleges. A thorough search of the articles was made to see if any reference was made to learning outside of the classroom. Some of the studies reviewed in this chapter used the Community College Survey of Student Engagement (CCSSE) and the National Survey of Student Engagement (NSSE) to measure the impact of student engagement on retention, persistence, and academic outcomes.

Importance of College Connectedness

Since student participation in extra-curricular or co-curricular activities was first documented in the United States in the mid-eighteenth century (Rudolph, 1990), views on these activities have developed and expanded. Sociologists have examined the developmental process of students and have further examined the impact of participation in student activities on student success.
In general, the research around co-curricular activities stems from different student development theories that expound on the factors that affect students as they pursue a college degree (Astin, 1993; Astin, 1999). More recently research around participation in co-curricular activities has focused on effects on college connectedness, academic success, retention, and career readiness (Bergen-Cico, & Viscomi, 2012; Elias & Drea, 2013; Jorgenson, Farrell, Fudge, & Pritchard, 2018; Kinzie, Gonyea, Shoup, & Kuh, 2008).

Community colleges face challenges in making connections between faculty, staff, and students, including fostering a campus culture of student success, scaling up innovative and successful programs, collecting and sharing data that improve the college experience, and utilizing technology that best serves student needs (CCSSE, 2009).

Barnett (2011) conducted a study at a Midwest community college that is part of an urban community college system. This study used quantitative methods to investigate the meaning of validation and the relationship between validating experiences, a sense of academic integration, and intent to persist in college. A survey instrument was developed after a review of the literature. The study sample was 333 students, 61% female, 39% male; 30% African-American, 24% White, 20% Hispanic, 20% Asian or Pacific Islander, and 6% other. The study results of a multiple linear regression indicated that higher levels of faculty validation predicted stronger expressions of students’ intent to return to college. Four sub-constructs of faculty validation emerged through principal components analysis, with items loading onto the following components: students known and valued, caring instruction, appreciation for diversity, and mentoring.
Garcia, Graza and Yeaton-Hromada’s (2019) study that focused on international students found that socio-academic integration was instrumental for a sense of belonging and to a lesser, though significant extent, social integration. Utilizing the 2014 Community College Survey of Student Engagement (CCSSE), the dataset contained 108,509 responses from community college students from 674 colleges in 46 states in a 3-year cohort. International students comprised 6,043 of the sample or 5.6% of the overall CCSSE dataset. The study also utilized structural equation modeling (SEM), which included three measurement models to incorporate the sense of belonging construct in relation to persistence and withdrawing. The findings suggest that international students who have higher levels of interactions with administrators and instructors were more likely to have an increased sense of belonging.

Glass and Gesing (2018) conducted a study that focused on international students and their involvement in campus organizations. Seven hundred and sixty-one international students, from a major U.S. research university, were surveyed and 35% responded (N=266). Chi-square and analysis of variance (ANOVA) found no significant differences between respondents who were involved and those who were not involved in campus organizations based on their region, gender, level of study, locations, years in the United States, grade point average, proficiency in English and academic performance. However, the results of the study found that there were statistically significant differences in overall composition and strength of social networks between international students who participated in campus organizations and those who did not participate in campus organizations. These results show that college connectedness can benefit international students’ sense of belonging.
Thompson, Clark, Walker and Whyatt (2013) conducted a mixed-methods study at Lancaster University in the U.K. investigating students engaged in extra-curricular activities and their perceived value. The study included in-depth, semi-structured interviews with seven recent graduates and 30 in-depth semi-structured interviews with undergraduates recruited through a quantitative questionnaire. The study found that students felt that participation in extra-curricular activities was fun, a way of coping, a way to contribute to society, and a way to develop skills and learning. The results showed that students were aware of the value of extra-curricular activities on employability, developing confidence, character, social skills, planning, and organization.

Research shows that successful efforts to engage students help to improve college connectedness. Jorgenson, Farrell, Fudge, and Pritchard (2018), conducted research at a midwestern land-grant university that contained two studies to determine how students perceive college connectedness. The first study consisted of four semi-structured focus groups of 31 first-year undergraduate students (19 females and 11 males; 80% of the students were white and 20% identified as Hispanic, Asian and African-American). Each group consisted of five to ten students to identify themes and perspectives. A key finding from these groups was that belonging to groups and actively participating in campus life are positive indicators of student success and that social and institutional connectedness appear to influence one another in helping the student to feel connected at the college.

Jorgenson, Farrell, Fudge, and Pritchard’s (2018) second study utilized an online survey given to first-year undergraduate students from a university-wide course using purposive sampling, where the researchers selected a sample that they believed would
provide an appropriate sample of the population (Fraenkel, Wallen & Hyun, 2015). A total of 256 students participated, 115 males and 136 females with five students not identifying their sex. The participants consisted of 228 White students, 19 non-White, and nine who did not identify their ethnicity. 194 students lived on campus, 57 lived off-campus and five did not report their residence. A chi-square test was used to compare distributions of biological sex, age, ethnicity, and residence. The results indicated that the participants who responded to the survey were generalizable to the university’s undergraduate student population. The results of the second study found that student connectedness varied based on student age and frequency of trips home. Students valued old friends, new friends, and the qualities of friends. Also, while faculty can facilitate connectedness among students they do not have as much influence on students’ connectedness with old and new friends (Jorgenson, Farrell, Fudge & Pritchard, 2018).

These studies indicate that participation in co-curricular activities has a positive impact on achieving college connectedness.

**Impact of Co-curricular Participation on Retention and Persistence**

A major aspect of the intended study is the impact of participation in co-curricular activities on retention. Research has found that in the first year, students’ participation in purposeful activities positively affects their grades and has a positive effect on persistence between the first and second years of college (Jorgenson, Farrell, Fudge & Pritchard, 2018; Kinzie, Gonyea, Shoup, & Kuh, 2008; Wang & Shiveley, 2008).

A review of literature conducted by the Community College Research Center at Teachers College, Columbia University (Karp, 2011) found that programs that had a positive impact on student persistence and degree attainment included one or more of the
following mechanisms: (1) creating social relationships, (2) clarifying aspirations and enhancing commitment, (3) developing college know-how, and (4) making college life feasible. Participation in student clubs, leadership training, and peer mentors create the environment for these mechanisms to occur.

Kuh, Kinzie, Buckley, Bridges and Hayek (2006) conducted a review of literature of over 500 articles from as early as 1960 up to 2005 on student success for the National Postsecondary Education Cooperative and had the following relevant conclusions. They reported that participation in co-curricular activities was positively related to persistence. However, they observed that more than 40% of students at senior college and 84% of students at community colleges did not participate in these activities at all. Each institution should challenge itself to promote these activities more effectively.

Kinzie, Gonyea, Shoup, and Kuh (2008) utilized the National Survey of Student Engagement (NSSE) involving 6,200 first-year students and 5,227 seniors at eighteen diverse colleges, which included four historically black colleges and universities (HBCUs) and three Hispanic serving institutions (HSIs). The study utilized ordinary least squares and logistic regression to estimate models for the effects of engagement in educationally purposeful activities, including working with faculty members on co-curricular activities. Their results had four findings:

1. Student engagement had a positive, statistically significant effect on persistence.

2. Whether students spend time on academic or non-academic tasks did not affect their probability of returning to the same institution for the second year.
3. Students with high school grades of mostly B averages had a higher probability of returning for the second year than students with high school grades of mostly A’s or C’s.

4. The effects of engagement on persistence to the second year vary for students from different racial backgrounds. For example, African-American students at the lowest levels of engagement are less likely to persist than their White counterparts.

A quantitative study by Wang and Shiveley (2008) of 14,932 freshmen and 19,115 undergraduate transfer students at Sacramento State University from 2002 and 2007 compared students who responded to the National Survey of Student Engagement (NSSE) survey and indicated that they participated in at least one activity during their college career, identified as participants, with non-participants who did not report engagement in any extra-curricular activity. The participant freshmen sample consisted of 922 freshmen (6.2% of the sample) including full-time student residential, commuter, and remediation students. The mean high school GPA and SAT score for participants was 3.30 and 995, respectively. The non-participant freshman sample was 14,009 freshmen (93.8% of the sample). The results showed that freshmen students who participated in at least one activity performed better than non-participants in terms of retention, six-year graduation rate, and grade point average.

Students who take remedial courses and commuter students benefited from participating in co-curricular activities as well and out-performed non-participants in grade point average and retention. Moreover, the retention rate of students who did not participate in activities was not only much lower than those of the participants but they
found that it decreased sharply over time. There was a 9.6% drop from year one to year two for non-participants compared to 2.7% for participants. Similar results across the varied types of freshmen support the impact of participation in co-curricular activities has on college success. It further showed that the lack of participation in co-curricular activities had a negative impact on retention. This study, however, did not include any socio-economic characteristics of the students and there was a significant difference in sample size between participants and non-participants and a difference in variance as well (Wang & Shiveley, 2008).

In a study to determine the relationships between student behaviors and institutional practices that foster student success, Kuh, Cruce, Shoup, and Kinzie (2008) utilized the NSSE responses from 18 senior colleges with a total of 6,193 students. The dependent variables were time spent studying, time spent in co-curricular activities, working off-campus, grade point average, persistence from first to second year of college, and a global measure of engagement in effective educational practices. The data were analyzed using logistic regression. The study found that in the first year, student participation in purposeful activities positively affected their grades and had a positive effect on persistence between the first and second years of college. Each of the purposeful activities including studying, co-curricular activities, and working off-campus showed a statistically significant positive effect.

Studies that focus on retention strategies consistently include student involvement as a key component. The retention studies demonstrate that student involvement is an important component in retaining students and promoting academic success (Kinzie,
According to Hanover Research (2014), several studies have found that students are more reluctant to leave an institution after joining a campus organization. However, the prior research has been unable to provide clear guidance for present-day administrators due to several limitations of sampling, research design, and context.

While these studies focus on the first semester and freshmen students, the current study will not be limited to freshmen but will include all students who participated in the fall 2018 or spring 2019 semester.

**Impact of Co-curricular Participation on Academic Achievement**

In addition to examining the impact of participation in co-curricular activities on retention, this study probed how this participation impacts academic performance through changes in grade point average from semester to semester.

Rugutt and Chemosit (2005) conducted a study at a Midwestern doctoral university. The sample had 537 students drawn from a random sample of seniors who responded to the National Survey of Student Engagement (NSSE). The researchers sought to determine the influence of student learning strategies, internet and campus technology, quality of instruction and overall college experience, and student-faculty interaction on student academic achievement by utilizing a post hoc correlation design. The results of the study showed that student-faculty interaction was a contributor to significantly predicting student academic achievement. Student participation in co-curricular activities in this study provided opportunities for student-faculty interactions outside of the classroom.
Kezar and Kinzie (2006) conducted a study whose purpose was to focus on the institutional mission and its role in understanding how institutions might approach the process of creating student engagement on campus. Student engagement is defined in the article as the time and energy that students devote to educationally purposeful activities and the extent to which the institution gets students to participate in activities that lead to student success. This was a qualitative study that included 20 institutions (9 private, 11 public). Four data collection techniques were used: document analysis, interviews, focus groups, and observation. The sample included over 80 college employees including upper-level administrators, mid-level administrators, staff, faculty, and students. The study documents differences based on the college’s mission that can be used to guide institutions to create congruence between their mission and the practices that promote student learning and to better implement approaches to student engagement. The study found that institutions that are successful in engaging students align their mission with student engagement policies and practices.

Price and Tovar (2014) used the 2007 administration of the Community College Survey of Student Engagement (CCSSE) to explore the statistical relationships between student engagement, as measured by the CCSSE, and institutional graduation rates reported to the Integrated Postsecondary Education Data System (IPEDS). The data for this study was obtained through the 2007 administration of the CCSSE where 261 community colleges (representing 166,031 student records) out of 279 met the criteria for inclusion by reporting their 2009 graduation rates in their annual Integrated Postsecondary Education Data System (IPEDS). Using bivariate correlations and
hierarchical multiple regression analyses the results of the study indicated that student engagement was an important predictor of college completion.

Ullah and Wilson (2007) conducted research at a Midwestern public university using three years of data from the NSSE. The participants included 2,160 undergraduate students (1,122 first-year students and 1,038 seniors). There were 1,474 females and 686 were males; 88.6% were Caucasian, 5.4% African-American, 2.3% Hispanic, 1.9% Asian, and 1.8% belonged to other ethnic groups. To determine correlations among variables, Pearson r correlations were used, followed by a predictive regression analysis. There was a statistically significant positive correlation between GPA and ACT scores ($r = 0.23$). There was a moderately positive correlation between GPA and students’ age ($r = 0.46$). Students’ relationships with faculty had a significant positive correlation with GPA ($r = 0.16$). And there was a low positive correlation between GPA and relationship with peers. The findings were further supported in the regression analysis. The relationship with faculty was particularly important as faculty play a key role in establishing co-curricular activities, encouraging enrollment, and acting in a mentorship role.

A study in California by Willis (2010) examined whether extracurricular activities helped the retention and persistence of African American students at California State University, Sacramento. The study used a qualitative approach with semi-structured interviews. Fifteen African American students were interviewed: four began school in fall 2005, six began in fall 2007, four began in fall 2008, and one began in fall 2009. The study found that the participants felt that through their involvement in extracurricular activities they obtained a sense of belonging, made friends, and succeeded academically.
when they were engaged in these activities. In addition, they shared that they were motivated by their extracurricular activities while excelling in their classes.

A study at Purdue University, utilizing NSSE survey results between fall 2008 and spring 2011 examined 182,666 records and compared 7,392 students who stated they were engaged in co-curricular activities with students who did not report engagement. They found that engaged students earned higher grade point averages and earned more credit hours than unengaged Purdue students (Zehner, 2011).

Another study that analyzed the GPAs of 3,147 students and tracked their attendance at co-curricular activities found that students who attended between five and fourteen events (e.g., speakers, musicians, plays) over the four years had significantly higher GPAs than students who attended fewer than five events or students who attended more than fourteen events (Bergen-Chico & Viscomi, 2012). These results suggest a relationship between attendance at campus programs and grades. The researchers suggest that understanding this association may contribute to our understanding of the habits of successful students, assist in identifying students at risk, and, explore and design co-curricular activities that intentionally contribute to student success.

Robinson (2016) conducted a study at a large northeastern university from 1988 to 2002. The collected data included two instruments, the Achieving Styles Inventory, which is a self-reported instrument where nine leadership styles are measured using a 7-point Likert scale, and Kolb’s Learning Styles Inventory, a self-reported instrument where participants are required to rank order four phrases that are each a variation of ‘I learn best when’. There were 3,600 students who completed the two inventories, including 1,127 males and 2,471 females (two respondents were missing gender
information); 3,390 U.S. citizens; 2,682 White, 387 African American, 230 Asian, 128 Hispanic, and 16 American Indian; 97% were never married; and 98% were full-time students. The results of the study found that in regard to leadership development, college students self-report that they rely on direct leadership, specifically power and intrinsic motivation to accomplish their tasks.

Mulrooney (2017) studied second and third-year students at Kingston University in London from two undergraduate health programs to identify their reasons for participating or not participating in co-curricular activities. One program focused on nutrition and the other on exercise, and all students could be in one of three levels (levels 4, 5, or 6) of their programs. Students were asked to record if they had participated in co-curricular activities or not up to that point. Each student completed the Academic Motivation Scale (AMS) and the Motivated Strategies for Learning Questionnaire (MSLQ) to explore different types of motivation. The study included 68 students- 34 level 4, 17 at level 5, and 17 at level 6 of university study. A chi-square test found a statistically significant difference in the co-curricular participation between the two programs, favoring nutrition students to be more likely than exercise students to have participated. Mann-Whitney U tests, a nonparametric inferential statistic used to determine whether two uncorrelated groups differ significantly, found no statistical significance between those who responded ‘Yes’ to participating and those who responded ‘No’ on the AMS. Intrinsic motivation and goal orientation were significantly higher for nutrition students compared to exercise students. Another Mann-Whitney U test showed that extrinsic goal orientation was significantly higher in the participating students compared with the non-participating students on the MSLQ.
Perez (2020) conducted a quantitative study with a sample population of 2,099 sophomore students at a large research institution in Louisiana. Out of 752 responses, there were 426 usable surveys. The factors studied included among other things: social connectedness, faculty-student interaction, student involvement, and psychological sense of community. The data analysis included descriptive analysis, frequency analyses for survey items, Pearson’s and bivariate correlations among variables, and multiple regressions. One of the major findings was that the psychological sense of community was a strong predictor of student success outcomes. While the study indicates that student involvement had correlations with factors like engaged learning and academic determination it was not found to be a statistically significant predictor of student success outcomes.

Conclusion

Clegg, Stevenson and Willott (2010) conducted a case study of 18 administrators in the United Kingdom and found that there were inconsistencies and a lack of coherence in how staff defined curricular and co-curricular activities. This underscores the need for the proposed study, which seeks to demonstrate the value of co-curricular activities. If the definition of co-curricular activities is different for different institutions or is defined differently within an institution, then making an accurate analysis of the impact of participation in these activities becomes more difficult. The present study will assist in attaining consensual definitions of activities and activity types that can be used to construct transcripts.

Literature concerning co-curricular transcripts (records) is sparse. Articles include the value of utilizing a co-curricular transcript to motivate students to participate,
to help students to recall and utilize their activities to tell their story, and to include competencies that students may have been exposed to as a result of their activities (Elias & Drea, 2013; Stirling & Kerr, 2015). These articles do not address the value of the data that is stored in the application.

This chapter reviewed several studies that indicated that student involvement and participation in co-curricular activities have a positive effect on both retention and academic performance. However, much of the research relied on self-report survey data (Jorgenson, Farrell, Fudge & Pritchard, 2018; Kinzie, Gonyea, Shoup & Kuh, 2008; Rugutt & Chemosit, 2005; Wang & Shiveley, 2008; Kuh, Cruce, Shoup & Kinzie, 2008) using instruments such as the CCSSE and the NSSE. Self-reported responses by volunteers can be potentially biased as respondents may want to present socially desirable information. Further, the findings from large-scale surveys are aggregated across too many diverse institution types to allow for application to specific sites.

The current study presents a model where the collection of data on co-curricular activities is collected each semester and can be used with validity by students in to pursue their academic and career goals.
CHAPTER 3: METHODOLOGY

Introduction

This chapter provides details of the methods and procedures utilized for the current study. This study utilized archival data from the CCT application and the student information system at Metro Community College.

Methods and Procedures

Research Questions and Hypotheses

RQ 1: Is there a significant difference in students’ one-semester change in GPA after the a) fall 2018 semester, and b) spring 2019 semester?

Ho: There will be no significant difference in students’ one-semester change in GPA after the a) fall 2018 semester, and b) spring 2019 semester.

RQ 2: How does participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee, or mentee by a peer influence GPA scores of community college students for the a) fall 2018 semester, and b) spring 2019 semester?

Ho: There will be no significant relationship between participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee or mentee by a peer and GPA scores of community college students for the a) fall 2018 semester, and b) spring 2019 semester.
RQ 3: How does participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee or mentee by a peer influence one-semester retention of community college students from a) fall 2018 to spring 2019, and b) spring 2019 to fall 2019?

H0: There will be no significant relationship between participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee or mentee by a peer and students’ one-semester retention from a) fall 2018 to spring 2019, and b) spring 2019 to fall 2019.

While the institution offers several different co-curricular activities (see Appendix C), for this study six roles within three activities were identified as those with the highest and most consistent participation. These roles comprised the predictor variables in this study and they were the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee, mentee by a peer, and participation in co-curricular activities. The dependent variables were (1) post-fall 2018 and post-spring 2019 GPA scores and (2) one-semester retention after fall 2018 and spring 2019.

Reliability and Validity of the Research Design

To offset the possibility of low statistical power, the researcher included co-curricular activities with a high number of student participants to include in this study. Due to the threat of regression to the mean and the threat of selection bias, a random sample of students who did not participate in these co-curricular activities were included
in the study. The validity and reliability of the source of the archived data are discussed in the next section.

*Validity and Reliability of Records*

The Lumina Foundation grant allowed the college to fund the development of an in-house application to house data regarding the outside-of-the-classroom activities of the students. The co-curricular transcript application (CCT app) was completed in 2017. The college decided to collect data going back to the fall 2016 semester and each semester thereafter to include it in the CCT app database. The college created a CCT approval committee that determined the eligibility for activities to be included on the co-curricular transcript comprising of administrators, faculty, and student representatives. These activities were tracked through the Co-Curricular Transcript (CCT). This study focused on the fall 2018 and spring 2019 semesters in the categories of leadership training, workshops & seminars (as pertains to mentoring), and clubs & organizations.

The CCT app currently has eleven categories: (1) leadership training, (2) workshops & seminars, (3) honors & awards, (4) athletics, (5) research, (6) global experience, (7) professional activities, (8) performances & art exhibits, (9) community service, (10) clubs & organizations, (11) assessments & certifications.

The CCT app included hundreds of programs managed by faculty, staff, and students. Included in these were research programs, over 70 student clubs, athletic teams, several workshop series, leadership development programs, peer mentoring programs, performance, art exhibits, training and certifications, and more.
The role that a student played while participating in the program was clearly defined. Including member, senator, president, vice president, treasurer, secretary, participant, mentor, mentee, and more.

The CCT app also had fourteen (14) competencies: (1) diversity and inclusiveness, (2) leadership, (3) communication, (4) technology, (5) assessment, evaluation, and research, (6) critical thinking/problem solving, (7) career management & professionalism, (8) collaboration, (9) social & civic responsibility, (10) self-awareness, (11) budget management, (12) event management, (13) project management, and (14) conflict management.

The CCT app was designed with appropriate mapping as illustrated in Figure 1. The competencies were mapped to the specific roles; the roles were mapped to the specific programs, and the programs were mapped to the relevant eleven categories.

**Figure 1**

*CCT App Mapping*
Before the data could be successfully entered into the application, checks were made to ‘clean’ the data, as illustrated in Figure 2. The cleaning process included ensuring that the information was appropriate and aligned with the parameters included in the application. The application downloaded a file from the MCC student information system each day. Student names were checked against their identification number for accuracy. Programs were checked to ensure that they aligned with appropriate roles and competencies. Any deviation even misspelled words, led to the rejection of the entry.

**Figure 2**

*Data Cleaning Process*

Facilitators from over thirty offices around the college submitted excel tables to the Office of Student Activities (OSA) that included the student’s name, college ID number, semester, and role provided by the facilitator. These college administrators
certified that their submissions were made of the students who had completed or participated in the related activity. The OSA received the names, ID numbers, activities, and roles of the students from each facilitator of the respective programs. The OSA formatted the students' names, ID numbers, categories, activities, and roles. This information was sent to the college computer center. The computer center entered and cleaned the data. For example, students without ID numbers or students with identical ID numbers were flagged. Activities that were not in the CCT database were flagged. Activities that were linked to incorrect categories were flagged. All flagged items were sent back to OSA for correction or verification. OSA resent flagged data that were corrected and verified to the computer center. Any data that could not be corrected or verified was not inserted into the CCT database.

Some program names had to be changed on the CCT for clarity. For example, a well-known program that included the college mascot in the name had to be changed for the CCT program because an employer or admissions officer would have no idea of the nature of the program. For example, on the CCT a particular program was listed under First Generation Student Mentoring Program to ensure that the reader understands the nature of the program. As of this writing, the application contained over 26,000 student activities with over 17,000 unique students. There was access to run reports that determined the impact on retention, graduation rates, and more.

**Research Design and Data Analysis**

The present research study was non-experimental ex post facto, which was designed to determine if leadership co-curricular activities at an urban community college influenced first and second-year students’ grade point average (GPA) scores and one-
semester retention rates. Astin’s (1999) theory highlights the importance of student effort and that involvement is both qualitative and quantitative. With this in mind, the researcher selected the students who participated in co-curricular activities by extracting the following data from the co-curricular transcript application (CCT app) for the fall 2018 semester and the spring 2019 semester. Students were (1) club officers, (2) club members, (3) leadership trainees, and (4) peer mentees. The researcher then tabulated the total number of activities for each student and indicated that each student participated in at least one activity.

The researcher then utilized the student information system (SIS) to select a similar number of students who did not participate in any co-curricular activities during the fall 2018 semester or the spring 2019 semester. The data from the CCT app and the data from SIS comprised the data set for this study. The data obtained were tabulated using Microsoft Excel and was inputted and analyzed via the SPSS software (Kirkpatrick & Feeney, 2012). The obtained data were first examined for missing and extreme values. Due to the large number of activities expected to be included in the independent variable, students with missing data were excluded from the study. After the completion of these examinations and necessary data, exclusions were made and the data set was prepared for analysis (Coladearci & Cobb, 2013).

The dependent variables were one-semester retention after the fall 2018 semester and after the spring 2019 semester as is shown in Table 1.
Table 1

Dependent Variables

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Operational Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-fall 2018 and post-spring 2019 GPA scores</td>
<td>Grade point average at the end of each semester</td>
</tr>
<tr>
<td>One semester retention</td>
<td>Yes or No</td>
</tr>
</tbody>
</table>

The independent variables were total co-curricular activities, club officer, club member, leadership trainee, mentee by a peer, and participation in co-curricular activities (yes or no) as is shown in Table 2.

Table 2

Independent Variables

<table>
<thead>
<tr>
<th>Independent Variables (IV)*</th>
<th>Role</th>
<th>Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Activities Club</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Club Officer</td>
<td>Office of Student Activities confirms one semester of service</td>
<td></td>
</tr>
<tr>
<td>Club Club Member</td>
<td>Member</td>
<td>Student signs into the CCT application to record attendance at the required number of meetings.</td>
</tr>
<tr>
<td>Leadership training Member</td>
<td>Staff program facilitator confirms completion of requirements for the semester</td>
<td></td>
</tr>
<tr>
<td>Mentorship Mentee N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Note: *IVs will be measured as completed “1” or did not complete “0”

Different analyses were used to test the stated hypotheses. Listwise deletion was used to address any missing data.
Hypothesis 1

Ho: There will be no significant difference in students’ one-semester change in GPA after the a) fall 2018 semester, and b) spring 2019 semester.

Mixed ANOVAs were utilized for hypotheses (1a) and (1b). This is the appropriate approach to compare the mean differences of GPA change between students who participated in co-curricular activities and a random sample of students who did not participate. The outcome dependent variables (1a) fall 2018 GPA change and (1b) spring 2019 GPA change) were measured on a continuous scale. The within-subject factors (time) consisted of two related groups pre-semester GPA and post-semester GPA. The between-subjects factor (participated in co-curricular activities) consisted of two levels (yes or no) ($p<.001$).

The researcher tested the following assumptions, (1) the dependent variable measured on a continuous level, (2) the within-subjects factor consisted of at least two categorical related groups, (3) the between-subjects factor consisted of at least two categorical independent groups, (4) there were not significant outliers in any group, (5) the dependent variable was normally distributed for each combination of the groups of the two factors, (6) there was homogeneity of variances for each combination of the groups of the two factors, and (7) the sphericity or variances of the differences between the related groups of the within-subject factor for all groups of the between-subjects factor.

Hypothesis 2

Ho: There will be no significant relationship between in participation in co-curricular activities, the total number of activities participated in, or specific co-curricular
leadership activity of club officer, club member, leadership trainee or mentee by a peer and GPA scores of community college students for the a) fall 2018 semester, and b) spring 2019 semester.

Multiple regressions were utilized for hypotheses (2a) and (2b). A regression enables the researcher to make predictions about what one variable will do based on the scores of some other variables. The outcome dependent variable was (2a) post-fall 2018 GPA scores and (2b) post-spring 2019 GPA scores, respectively, the predictor independent variables for both were total activities, club officer, club member, leadership trainee, mentee by a peer and participated in co-curricular activities for (2a) fall 2018 semester and (2b) spring 2019 semester ($p<.05$).

The researcher tested the following assumptions, (1) the relationship between the independent variables and the dependent variable was linear, (2) there was no multicollinearity in the data, (3) the values of the residuals were independent, (4) the variance of the residuals was constant, (5) the values of the residuals were normally distributed, and (6) no influential cases were biasing the model.

**Hypothesis 3**

Ho: There will be no significant relationship between participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee or mentee by a peer and students’ one-semester retention after the a) fall 2018 semester, and b) spring 2019 semester.

Binomial logistic regressions were utilized for hypotheses (3a) and (3b). This was an appropriate statistical analysis to use when an observation falls into one of two
categories of a dichotomous categorical dependent variable based on independent variables which can be either continuous or categorical. The predictor independent variables, which were participation in co-curricular activities, or specific co-curricular leadership activity of club officer, club member, leadership trainee, or mentee by a peer, were coded as 0 = No and 1 = Yes. The other predictor independent variable was the total number of activities participated in, which was a continuous variable. The outcome dependent variable, which was the retention of community college students after (3a) the fall 2018 semester and after (3b) the spring 2019 semester, was coded as 0 = No and 1 = Yes ($p<.05$).

The researcher tested the following assumptions, (1) the dependent variable was measured on a dichotomous scale, (2) there were one or more independent variables that could be either continuous or categorical, (3) observations were independent, for each independent variable participants only belonged to one group and the dependent variable had only two categories, which were exclusive of one another, (4) there was a linear relationship between any continuous independent variables and the logit transformation (log odds) of the dependent variable, (5) there was a reasonable ratio of cases to variables included in the analysis, (6) a goodness-of-fit test was made to assess the fit of the model to the data, and (7) there was no multicollinearity among the independent variables.

Scatterplots were used to test for linear relationships, auto-correlation, and homoscedasticity. A histogram was produced to test the normality of the data. A correlation matrix was performed to determine the value of Pearson’s Bivariate correlations among all independent variable coefficients.
Target Population and Sample

The setting for this study is Metro Community College (MCC), a pseudonym for a college in a major U.S. city. As of fall 2019, the college enrolled over 25,500 students, comprised of 57% females, and 43% males. Seventy percent of students enrolled were full-time and thirty percent attend part-time. The college was ethnically diverse: 39% Hispanic, 33% Black, 15% Asian, and 13% White. The college had 50 majors, with the largest number of students in liberal arts (5,401), criminal justice (2,463), and business administration (1,901) (Community college website, n.d.). The college had over 70 student clubs and seven leadership programs.

The target populations were the first year and second-year students who had participated in co-curricular activities outside of the classroom. Only the students who had completed the requirements of the activity, as determined by its staff or faculty facilitator were recorded.

Students who participated as club members, club officers, leadership training, or peer mentees served as part of the cohort for this study. The remaining students were randomly drawn from among the students who did not participate in these activities. Table 4 reports on the number of activities and student participants in the years to be included in the present study. There were 4,059 total activities in the CCT app database for fall 2018 and 4,516 total activities for spring 2019 as is shown in Table 3.

Table 3

MCC Co-Curricular Student Participation

<table>
<thead>
<tr>
<th>Semester</th>
<th>Completed Activities</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2016</td>
<td>2,399</td>
<td>1,643</td>
</tr>
<tr>
<td>Spring 2017</td>
<td>2,796</td>
<td>1,946</td>
</tr>
<tr>
<td>Summer 2017</td>
<td>118</td>
<td>114</td>
</tr>
</tbody>
</table>
Fall 2017  2,724  1,774  
Spring 2018  2,914  2,003  
Summer 2018  317  272  
Fall 2018  4,059  2,347  
Spring 2019  4,516  2,771  
Summer 2019  221  217  
Fall 2019  5,206  3,036  
Spring 2020  3,401  2,213  
Summer 2020  46  46  
Fall 2020  3,146  1,898  
Spring 2021  2,959  1,790  
**TOTAL**  **34,822**  **22,070**  

**Instruments**

*History of Co-Curricular Database*

According to Hutt (2016), the evolution of the academic transcript in higher education goes back to the 1800s, but it was the adoption of the Carnegie unit in 1906 that helped to bring uniformity to the student record with the establishment of the academic credit system. Thus, the academic transcript recorded student grades and credits earned. The development of a co-curricular transcript originated in the 1970s to document the outside-of-the-classroom learning experience (Cosgrove & Marino, 1997).

Metro Community College (MCC) tracked its students’ co-curricular activities on a Co-Curricular Transcript (CCT). In 2009, the Division of Student Affairs at MCC embarked on a mission to establish a co-curricular transcript that would document student activities outside of the classroom (Wienhausen & Elias, 2017). A search of the internet at the time revealed relatively few institutions of higher learning that even referred to such a document. Those that were found were managed by different offices on campus and none were supported by the college as a whole.
MCC selected a vendor called OrgSync to provide the database to manage the information. OrgSync had an underdeveloped module for extra-curricular activities. MCC helped them to develop the module according to their needs. However, students were required to input their activities, and administrators could not enter any data at all. This led to frustration on the part of both the students and the college. Program facilitators would be required to verify the students’ participation in the activity on a case-by-case basis.

In 2015, MCC was approached by the National Association of Student Affairs Professionals in Higher Education (NASPA) at a conference and asked to join a group of twelve schools that were participating in a grant from the Lumina Foundation. The Lumina grant was being managed by NASPA and the American Association of Collegiate Registrars and Admissions Officers (AACRAO), to develop a comprehensive student record that merged the academic record with the co-curricular record. One school had dropped out of the grant and MCC was asked to join halfway into a one-year grant. The grantors agreed that MCC could participate while having separate academic and co-curricular records.

MCC accepted the proposal and brought in the vice presidents of student affairs and technology; deans of academic affairs and student affairs, the registrar, the director and assistant director of student activities, and the best software programmer at MCC.

Funding from the grant enabled MCC to hire consultants to build an application to manage the data and to attach expected competencies to the activities and roles that students participated in at the college. A partnership was established between Student Activities, which housed the transcript, and the main offices that helped students to
transition out of MCC: Academic Advisement, Career Development, and the Scholarship office.

The co-curricular transcript at MCC started with six categories of activities: athletics, clubs & organizations, community service & civic engagement, honors & awards, leadership training, and workshops & seminars. Students have an array of activities in which to participate at MCC. These include cohort programs like mentoring, leadership development, and student organizations. The Lumina Foundation grant allowed MCC to add five new categories to the CCT: professional activities, global experience, research, performances and art showcases, and assessments & certifications. Students may participate in athletics, social activities (i.e., cultural clubs, academic activities (i.e., academic-related clubs, and career-related activities (i.e., professional-related clubs). Students perform plays, display their art, and participate and present their research. They participate in workshop series and attend certified training such as Cardiopulmonary (CPR) training. They can study abroad and travel to countries that include Spain, Italy, China, Argentina, Peru, Brazil, Greece, and the Dominican Republic. Many students are participating in research with faculty members outside of the classroom.

The grant also allowed MCC to link expected competencies to the roles and activities in which students participated. Developing competencies are an important component of student development (Chickering & Reisser, 1993). These competencies are listed on the co-curricular transcript along with the activities and roles, respectively. MCC developed fourteen competencies derived from competencies developed by the National Association of Campus Activities (NACA) and the National Association of
Colleges and Employers (NACE) that included: diversity & inclusiveness, leadership, communication, technology, critical thinking, career management, collaboration, social responsibility; assessment, evaluation & research; self-awareness, budget management, event management and conflict management (National Association of Colleges and Employers, 2014; National Association of Campus Activities, 2009).

The Office of Student Activities (OSA) collected the data from the staff and faculty facilitators of the activities. The facilitators provided a list of names, id numbers, programs, and roles of the students who successfully met the requirements of their programs at the end of each semester. The OSA inputted this data into the co-curricular transcript application.

**Procedures for Collecting Data**

The researcher applied for and received IRB approval for this study from St. John’s University through the Cayuse application system. Then IRB approval was applied for and approved for this study from Metro Community College. Then, the researcher requested and received permission to access archived data in the co-curricular application (CCT app) and the student information system (SIS).

The archival data in the CCT application served as the first data instrument for this research. This study focused on the fall 2018 and spring 2019 semesters at MCC and included the following targeted activities, students who were: club members, club officers, leadership training, peer mentees. These activities were selected because they consistently have the highest number of students involved. All of the students who completed these activities in the fall 2018 and spring 2019 semesters were obtained from the CCT application.
The student information system at MCC was managed by the Registrar’s office. A report from the student information system provided the data for the dependent variables in the study. Data that was collected from the MCC student information system was:

1. End of semester cumulative grade point average for the cohort students for spring 2018, fall 2018, and spring 2019 semesters.
2. The one-semester retention of the cohort students from fall 2018 to spring 2019 and from spring 2019 to fall 2019.

The sample cohort was obtained from the MCC Co-curricular Transcript application (CCT App). Reports were run to obtain the following data:

1. The co-curricular activities of all students who served as club leaders, club members, leadership trainees, and peer mentees during the fall 2018 semester.
2. The co-curricular activities of all students who served as club leaders, club members, leadership trainees, and peer mentees during the spring 2019 semester.

**Research Ethics**

The present study utilized only archived data from the co-curricular application and the student information system. To maintain confidentiality after all of the names and individual identifiers were removed from the original data files and saved under a different name the data was triple protected. The original data files were password-protected, saved on a separate drive, and stored in a locked box in a separate location.
Conclusion

In the next chapter, the researcher collected the archival data from the CCT app and the student information system and then analyzed the data in IBM SPSS in accordance with the dependent variables described in this chapter. Chapter 4 will review the test of assumptions, analyses, and results for the three research questions.
CHAPTER 4: RESULTS

Introduction

This chapter includes a description of the analysis of the data relevant to the research questions of this study. The chapter first presents the descriptive information of the sample cohort. This will be followed by a discussion of each of the research questions that include data screening, statistical analysis chosen, the assumption tests that were run, and the results of the statistical analysis.

Results

The sample participants for the current study were drawn from the co-curricular application at Metro Community College, an urban community college in a large metropolitan city in the northeastern part of the United States. A Microsoft Excel file was exported from the co-curricular transcript application (CCT app). The results of this query yielded the following: for the fall 2018 semester, there was a total of 1,175 activities and for the spring 2019 semester, there was a total of 1,394 activities. Both semesters consist of club officer, club member, leadership trainee, and mentee by a peer as is shown in Table 4.

Table 4

Total Activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Fall 2018 Total Activities</th>
<th>Spring 2019 Total Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Club officer</td>
<td>285</td>
<td>300</td>
</tr>
<tr>
<td>Club member</td>
<td>215</td>
<td>484</td>
</tr>
<tr>
<td>Leadership trainee</td>
<td>349</td>
<td>443</td>
</tr>
<tr>
<td>Mentee</td>
<td>326</td>
<td>167</td>
</tr>
<tr>
<td>Total</td>
<td>1,175</td>
<td>1,394</td>
</tr>
</tbody>
</table>
Students completed from one to five activities each semester as is shown in Table 5.

Table 5  

**Completed Activities**

<table>
<thead>
<tr>
<th>Completed Activities</th>
<th>Fall 2018 Unique Students</th>
<th>Spring 2019 Unique Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>One activity</td>
<td>769</td>
<td>1,022</td>
</tr>
<tr>
<td>Two activities</td>
<td>137</td>
<td>146</td>
</tr>
<tr>
<td>Three activities</td>
<td>34</td>
<td>21</td>
</tr>
<tr>
<td>Four activities</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Five activities</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>947</td>
<td>1,193</td>
</tr>
</tbody>
</table>

Of the 947 unique students in the fall 2018 semester and the 1,193 unique students in the spring 2019 semester, 333 students completed at least one activity in both semesters.

The 947 unique students in fall 2018 and the 1,193 unique students in spring 2019 derived from these reports constituted the sample cohort for this study. The list of student identification numbers of this cohort was then inputted into the student information system to gather the following descriptive and covariate information of each of the students in the cohort:

- cumulative grade point average prior to the fall 2018 semester
- cumulative grade point average prior to spring 2019 semester
- cumulative grade point average prior to fall 2019 semester
- enrollment status in spring 2019
- enrollment status in fall 2019

The results of this query for fall 2018 resulted in 32 missing records and for spring 2019 there were 35 missing records. These incomplete records were omitted from
the study. The results of the query also revealed that the high school grade point average was not collected by the university and was not available for most of the students, thus this information was not be included in the analysis. The final study included 915 unique students for fall 2018 and 1,158 unique students for spring 2019.

A random sample of a similar number of students as the study cohort, who did not have co-curricular transcripts was collected from the student information system to compare to the retention and academic success of the cohort collected from the CCT app. For fall 2018 there were 916 students and for spring 2019 there were 1,144 students. The data collected from the CCT application and the student information system were numerically formatted in preparation for transfer to the IBM SPSS software for analysis.

**Research Question 1**

Is there a significant difference in students’ one-semester change after the a) fall 2018 semester, and b) spring 2019 semester?

Ho: There will be no significant difference in students’ one-semester change in GPA after the a) fall 2018 semester, and b) spring 2019 semester.

H1: There will be a significant difference in students’ one-semester change in GPA after the a) fall 2018 semester, and b) spring 2019 semester.

For an analysis of the difference in one-semester change in grade point average mixed ANOVAs that compared the mean difference between groups and within groups were chosen for the (1a) fall 2018 semester and the (1b) spring 2019 semester. The rationale for this choice was that a mixed ANOVA compares the mean difference between groups that have been split into two factors where one factor is a ‘within-subjects’ factor which was a change in grade point average over one semester, a) fall
2018 and b) spring 2019. The other factor is a ‘between-subjects’ factor which was whether the subjects participated in co-curricular activities. The primary purpose of a mixed ANOVA is to understand if there is an interaction between these two factors on the dependent variable (p<.05).

**Mixed ANOVA for the Fall 2018 Semester**

Before analyzing the data for a) the fall 2018 semester, the researcher screened the data. There were no missing values or miscoded items. There were 39 outliers as shown by analyzing the z scores of the dependent variable, that were removed from the dataset.

The assumption tests were then conducted. The dependent variable (GPA change) was measured on a continuous scale. The within-subjects factor (time) consisted of two related groups (pre-fall 2018 GPA and post-fall 2018 GPA) represented by continuous scores. The between-subjects factor (participated in co-curricular activities) consisted of two levels (yes or no). The dependent variable was normally distributed for each combination of the groups of the two factors. There was no equality of covariance matrices as the Box’s M test was significant, $F(3,210571134.7) = 15.044, p < .001$. The Box M test is very sensitive to non-normality and since there were large sample sizes that were unequal, with skewed distributions the significant result will not prove fatal to the analysis (Tabachnick & Fidell, 2007). Mauchly’s Test of Sphericity was not calculated as the within-subjects factor only had two levels. Therefore, sphericity was assumed, and the assumption was met.

The two-way mixed ANOVA was then performed, and the results are shown in Table 6. There was a significant main effect of time, $F(1,934) = 18.310, p < .001$, with
an effect size of $\eta^2 = .019$, which is considered to be small. The interaction effect of time x participated was not significant, $F(1,934) = .740, p = .390$. The main effect for the between-subject effect, participated, was significant, $F(1,934) = 113.858, p < .001$, with an effect size of $\eta^2 = .109$, which is considered to be medium as is shown in Table 6.

Table 6

*Analysis of the Fall 2018 Mixed ANOVA Comparing the Mean Differences*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepost</td>
<td>.389</td>
<td>1</td>
<td>.389</td>
<td>18.310</td>
<td>.000*</td>
<td>.019</td>
</tr>
<tr>
<td>Participated</td>
<td>104.172</td>
<td>1</td>
<td>104.172</td>
<td>113.858</td>
<td>.000*</td>
<td>.109</td>
</tr>
<tr>
<td>Prepost*Participated</td>
<td>.016</td>
<td>1</td>
<td>.016</td>
<td>.740</td>
<td>.390</td>
<td></td>
</tr>
<tr>
<td>Within (Error)</td>
<td>19.860</td>
<td>934</td>
<td>.021</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note:* *p < .001*

Since the within-subjects main effect was significant, the post hoc Tukey analysis and the simple effects were run. The pairwise comparisons showed that for the GPA change group, there were significant mean differences between the pre-fall 2018 GPA and the post-fall 2018 GPA ($MD = .029, SE = .007, p < .001$).

When viewing the interaction effect in the plot, as is shown in Figure 3, it is evident that there was no interaction effect between those who participated in co-curricular activities (Yes) and those who did not participate (No) although each group had a similar decrease in grade point average. Since the changes from pre-fall 2018 GPA to post-fall 2018 GPA were essentially identical for those who participated and those who did not there was no interaction. Furthermore, it indicates that those who participated began the fall 2018 semester with a significantly higher grade point average than those who did not participate as is shown in Figure 3.
The results were statistically significant for the main effect of time and between-subjects effect. Thus, the difference between the pre and post-fall 2018 GPA was significant and there were significantly more students who participated in co-curricular activities than had not participated and these null hypotheses were rejected. The results for the interaction effect (time x participation) were not significant, thus participation had no effect on the change in GPA scores and the null hypothesis was retained.

Mixed ANOVA for the Spring 2019 Semester

Before analyzing the data for b) the spring 2019 semester, the researcher screened the data. There were no missing values or miscoded items. There were 58 outliers as shown by analyzing the z scores of the dependent variable, that were removed from the dataset.
The assumption tests were then conducted. The dependent variable (GPA change) was measured on a continuous scale. The within-subjects factor (time) consisted of two related groups (pre-spring 2019 GPA and post-spring 2019 GPA) represented by continuous scores. The between-subjects factor (participated in co-curricular activities) consisted of two levels (yes or no). The dependent variable was normally distributed for each combination of the groups of the two factors. There was no equality of covariance matrices as the Box’s M test was significant, $F(3,807518931.4) = 22.008, p < .001$. The Box M test is very sensitive to non-normality and since there were large sample sizes that were unequal, with skewed distributions the significant result will not prove fatal to the analysis (Tabachnick & Fidell, 2007). Mauchly’s Test of Sphericity was not calculated as the within-subjects factor only had two levels. Therefore, sphericity was assumed, and the assumption was met.

The two-way mixed ANOVA was then performed, and the results are shown in Table 1. There was a significant main effect of time, $F(1,1468) = 18.615, p < .001$, with an effect size of $\eta^2 = .013$, which is considered to be small. The interaction effect of time x participated was not significant, $F(1,1468) = 1.104, p = .294$. The main effect for the between-subject effect, participated, was significant, $F(1,1468) = 191.054, p < .001$, with an effect size of $\eta^2 = .115$, which is considered to be medium as is shown in Table 7.

**Table 7**

*Analysis of the Spring 2019 Mixed ANOVA Comparing the Mean Differences*

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>$F$</th>
<th>$p$</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepost</td>
<td>.865</td>
<td>1</td>
<td>.865</td>
<td>18.615</td>
<td>.000*</td>
<td>.013</td>
</tr>
<tr>
<td>Participated</td>
<td>204.825</td>
<td>1</td>
<td>204.825</td>
<td>191.054</td>
<td>.000*</td>
<td>.115</td>
</tr>
<tr>
<td>Prepost*Participated</td>
<td>.051</td>
<td>1</td>
<td>.051</td>
<td>1.104</td>
<td>.294</td>
<td></td>
</tr>
<tr>
<td>Within (Error)</td>
<td>68.188</td>
<td>1468</td>
<td>.046</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Note. * $p < .001$

Since the within-subjects main effect was significant, the post hoc Tukey analysis and the simple effects were run. The pairwise comparisons showed that for the GPA change group, there were significant mean differences between the pre-spring 2019 GPA and the post-spring 2019 GPA ($MD = .034, SE = .008, p < .001$).

When viewing the interaction effect in the plot, as is shown in Figure 4, it is evident that there was no interaction effect between those who participated in co-curricular activities (Yes) and those who did not participate (No) although each group had a similar decrease in grade point average. Since the changes from pre-spring 2019 GPA to post-spring 2019 GPA were essentially identical for those who participated and those who did not there was no interaction. Furthermore, it indicates that those who participated began the spring 2019 semester with a significantly higher grade point average than those who did not participate.

**Figure 4**

*Spring 2019 Interaction Effects of Participated in Co-Curricular Activities and Time*
The results were statistically significant for the main effect of time and between-subjects effect. Thus, the difference between the pre and post-spring 2019 GPA was significant and there were significantly more students who participated in co-curricular activities than had not participated and these null hypotheses were rejected. The results for the interaction effect (time x participation) were not significant, thus participation had no effect on the change in GPA scores and the null hypothesis was retained.

**Research Question 2**

How does participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee, or mentee by a peer influence GPA scores of community college students for the a) fall 2018 semester, and b) spring 2019 semester?

**Ho:** There will be no significant relationship between in participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee or mentee by a peer and GPA scores of community college students for the a) fall 2018 semester, and b) spring 2019 semester.

**H1:** There will be a significant relationship between participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee or mentee by a peer and GPA scores of community college students for the a) fall 2018 semester, and b) spring 2019 semester.

For an analysis of the relationship between variables multiple regressions were used for both (2a) fall 2018 semester and (2b) spring 2019 semester. A regression
enables the researcher to make predictions about what one variable will do based on the scores of some other variables. The dependent variable was (2a) post-fall 2018 GPA and (2b) post-spring 2019 GPA, respectively, the independent variables for both were total activities, club officer, club member, leadership trainee, mentee by a peer and participated in co-curricular activities for (2a) fall 2018 semester and (2b) spring 2019 semester (p<.05).

**Multiple Regression for the Fall 2018 Semester**

A multiple regression enables the researcher to make predictions about what one variable will do based on the scores of some other variables. Before running the multiple regression analysis, the six assumption tests were conducted for a) fall 2018 to spring 2019. The relationship between the independent and the dependent variable (post-fall 2018 GPA) was linear, as was demonstrated with scatterplots. The test for multicollinearity showed that there were no correlations of more than 0.8 in any of the independent variable’s interactions except for one as is shown in Table 8. However, the correlation between total activities and participation in activities (y/n) should be interpreted with caution.

**Table 8**

*Correlations Among Variables for Fall 2018 Semester (N=915)*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Post-Fall 2018 GPA</td>
<td>-</td>
<td>.291***</td>
<td>.092**</td>
<td>.048</td>
<td>.321***</td>
<td>.058*</td>
<td>.314***</td>
</tr>
<tr>
<td>2. Total Activities</td>
<td>.291***</td>
<td>-</td>
<td>.430***</td>
<td>.311***</td>
<td>.570***</td>
<td>.461***</td>
<td>.876***</td>
</tr>
<tr>
<td>3. Club Officer</td>
<td>.092**</td>
<td>.430***</td>
<td>-</td>
<td>-.136***</td>
<td>-.127***</td>
<td>.055*</td>
<td>.465***</td>
</tr>
<tr>
<td>4. Club Member</td>
<td>.048</td>
<td>.311***</td>
<td>-.136***</td>
<td>-</td>
<td>-.077**</td>
<td>.008</td>
<td>.338***</td>
</tr>
<tr>
<td>5. Leadership Trainee</td>
<td>.321***</td>
<td>.570***</td>
<td>-.127***</td>
<td>-.077**</td>
<td>-</td>
<td>.018</td>
<td>.555***</td>
</tr>
<tr>
<td>6. Mentee by a Peer</td>
<td>.058*</td>
<td>.461***</td>
<td>.055*</td>
<td>.008</td>
<td>.018</td>
<td>-</td>
<td>.241***</td>
</tr>
<tr>
<td>7. Participated in Activities</td>
<td>.314***</td>
<td>.876***</td>
<td>.465***</td>
<td>.338**</td>
<td>.555***</td>
<td>.241***</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note. *p≤.05, **p≤.01, ***p≤.001.*
The values of the residuals were independent as were noted by the Durbin-Watson statistic, which was close to 2 (Durbin-Watson = 1.530). The variance of the residuals was constant, which was identified by the plot showing no signs of funneling, which suggests the assumption of homoscedasticity has been met. The values of the residuals were normally distributed, as the data points are close to touching the line at all indicating that values of the residuals are normally distributed. Finally, there were no influential cases of biasing or outliers evident in the data, which was verified by calculating Cook’s Distance values, which were all under 1.00.

The multiple regression analysis was run using SPSS and the correlations of the independent variables, total activities, club officer, club member, leadership trainee, and participation in co-curricular activities were significantly correlated with the dependent variable post-fall 2018 GPA. A significant regression equation was found F (6, 908) = 24.512, \( p < .001 \), and accounted for approximately 13.9% of the variance of post-fall 2018 GPA (R²=.139, adjusted R²=.134). The following independent variables predicted post-fall 2018 GPA, total activities (\( \beta = -.338, \ p = .009, \ sr^2 = .6\% \)), club officer (\( \beta = .282, \ p = .002, \ sr^2 = .9\% \)), club member (\( \beta = .201, \ p = .006, \ sr^2 = .7\% \)), leadership trainee (\( \beta = .515, \ p = .001, \ sr^2 = 2.3\% \)), mentee by a peer (\( \beta = .167, \ p = .008, \ sr^2 = .7\% \)), while participated in co-curricular activities did not make significant contributions (\( \beta = .085, \ p = .291 \)) as is shown in Table 9.

Results predicted post-fall 2018 GPA were equal to the regression equation of:

Predicted post-fall 2018 GPA = 2.829 + (-.360*Total Activities) + (.539*Club Officer) + (.487*Club Member) + (.884*Leadership Trainee) + (.542*Mentee by a Peer). Thus, the null hypothesis was rejected for total activities, club officer, club member, leadership
trainee, and mentee by a peer. And the null hypothesis was retained for participation in co-curricular activities.

Table 9

Summary of Multiple Regression Analysis for Variables Predicting Post-Fall 2018 GPA (N=908)

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>s²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total activities</td>
<td>-.360</td>
<td>.138</td>
<td>-.338**</td>
<td>.006</td>
</tr>
<tr>
<td>Club officer</td>
<td>.539</td>
<td>.173</td>
<td>.282**</td>
<td>.009</td>
</tr>
<tr>
<td>Club member</td>
<td>.487</td>
<td>.178</td>
<td>.201**</td>
<td>.007</td>
</tr>
<tr>
<td>Leadership Trainee</td>
<td>.884</td>
<td>.180</td>
<td>.515***</td>
<td>.023</td>
</tr>
<tr>
<td>Mentee</td>
<td>.542</td>
<td>.205</td>
<td>.167**</td>
<td>.007</td>
</tr>
<tr>
<td>Participation</td>
<td>.122</td>
<td>.115</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. *p<.05, **p<.01, ***p<.001.

Multiple Regression for the Spring 2019 Semester

A multiple regression enables the researcher to make predictions about what one variable will do based on the scores of some other variables. Before running the new multiple regression analysis, the six assumption tests were conducted for the b) spring 2019 semester. The relationship between the independent and the dependent variable (post-spring 2019 GPA) was linear, as was demonstrated with scatterplots. The test for multicollinearity showed that there were no correlations of more than 0.8 in any of the independent variable interactions except for one as is shown in Table 10. However, the correlation between total activities and participation in activities (y/n) should be interpreted with caution. The values of the residuals were independent as were noted by the Durbin-Watson statistic, which was close to 2 (Durbin-Watson = 1.610). The variance of the residuals was constant, which was identified by the plot showing no signs
of funneling, which suggests the assumption of homoscedasticity has been met. The values of the residuals were normally distributed, as the data points are close to touching the line at all indicating that values of the residuals are normally distributed. Finally, there were no influential cases of biasing or outliers evident in the data, which was verified by calculating Cook’s Distance values, which were all under 1.00.

**Table 10**

*Covariances Among Variables for Spring 2019 Semester (N=915)*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Post-Fall 2018 GPA</td>
<td>-</td>
<td>.316***</td>
<td>.160***</td>
<td>.041</td>
<td>.311***</td>
<td>.001</td>
<td>.329***</td>
</tr>
<tr>
<td>2. Total Activities</td>
<td>.316***</td>
<td>-</td>
<td>.383***</td>
<td>.520***</td>
<td>.544***</td>
<td>.224***</td>
<td>.920***</td>
</tr>
<tr>
<td>3. Club Officer</td>
<td>.160***</td>
<td>.383***</td>
<td>-</td>
<td>-.088**</td>
<td>-.068**</td>
<td>.028</td>
<td>.357***</td>
</tr>
<tr>
<td>4. Club Member</td>
<td>.041</td>
<td>.520**</td>
<td>.088***</td>
<td>-</td>
<td>-.139**</td>
<td>-.021</td>
<td>.497**</td>
</tr>
<tr>
<td>5. Leadership Trainee</td>
<td>.311***</td>
<td>.544***</td>
<td>-.068**</td>
<td>-.139**</td>
<td>-</td>
<td>.033</td>
<td>.556***</td>
</tr>
<tr>
<td>6. Mentee by a Peer</td>
<td>.001</td>
<td>.224***</td>
<td>.028</td>
<td>-.021</td>
<td>-.033</td>
<td>-</td>
<td>.173***</td>
</tr>
<tr>
<td>7. Participated in Activities</td>
<td>.329***</td>
<td>.920***</td>
<td>.357***</td>
<td>.497**</td>
<td>.556***</td>
<td>.173***</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note. *p≤.05, **p≤.01, ***p≤.001.*

The multiple regression analysis was run using SPSS and the correlations of the independent variables of total activities, club officer, club member, leadership trainee, and participation in co-curricular activities were significantly correlated with the dependent variable post-spring 2019 GPA. A significant regression equation was found F (6, 1414) = 39.517, p<.001, and accounted for approximately 14.4% of the variance of post-spring 2019 GPA (R²=.144, adjusted R²=.140). The following independent variables predicted post-spring 2019 GPA, leadership trainee (β=.209, p=.026, sr²=.3%), and participated in co-curricular activities (β=.169, p=.024, sr²=.3%), while total activities (β=.023, p=.833), club officer (β=.104, p=.124), club member (β=.018,
mentee by a peer (β = -0.029, p = 0.456) did not make significant contributions as is shown in Table 11.

Results predicted post-spring 2019 GPA were equal to the regression equation of:

Predicted post-spring 2019 GPA = 2.702 + (0.406 * Leadership Trainee) + (0.265 * Participated in Co-Curricular Activity). Thus, the null hypothesis was rejected for leadership trainees and participated in co-curricular activities. The null hypothesis was retained for total activities, club officer, club member, and mentee by a peer.

### Table 11

*Summary of Multiple Regression Analysis for Variables Predicting Post-Spring 2019 GPA (N=1414)*

<table>
<thead>
<tr>
<th>Model</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>sr²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total activities</td>
<td>.030</td>
<td>.141</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Club officer</td>
<td>.277</td>
<td>.180</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Club member</td>
<td>-.037</td>
<td>.188</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Leadership Trainee</td>
<td>.406</td>
<td>.182</td>
<td>.209*</td>
<td>.003</td>
</tr>
<tr>
<td>Mentee</td>
<td>-.151</td>
<td>.202</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Participation</td>
<td>.265</td>
<td>.117</td>
<td>.169*</td>
<td>.003</td>
</tr>
</tbody>
</table>

*Note. *p < .05.*

#### Research Question 3

How does participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee, or mentee by a peer influence a one-semester retention of community college students after the a) fall 2018 semester, and b) spring 2019 semester?
Ho: There will be no significant relationship between participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee or mentee by a peer and students’ one-semester retention after the a) fall 2018 semester, and b) spring 2019 semester.

H₁: There will be a significant relationship between participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee or mentee by a peer and students’ one-semester retention after the a) fall 2018 semester, and b) spring 2019 semester.

In preparing the original data sets to conduct an analysis of one-semester retention for (3a) fall 2018 and (3b) spring 2019 the following students were removed: (1) for the fall 2018 semester, 113 students who graduated after the semester, and (2) for the spring 2019 semester, 130 students who graduated after the semester.

Binomial logistic regressions were run to predict the probability that participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee, or mentee by a peer would influence one-semester retention of community college students after (3a) the fall 2018 semester and the (3b) spring 2019 semester. This was an appropriate statistical analysis to use when an observation falls into one of two categories of a dichotomous categorical dependent variable based on independent variables which can be either continuous or categorical. The predictor independent variables, which were participation in co-curricular activities, or specific co-curricular leadership activity of
club officer, club member, leadership trainee, or mentee by a peer, were coded as 0 = No and 1 = Yes. The other predictor independent variable was the total number of activities participated in, which was a continuous variable. The outcome dependent variable, which was the retention of community college students after the (3a) fall 2018 semester and (3b) spring 2019 semester, was coded as 0 = No and 1 = Yes.

**Binomial Logistic Regression for the Fall 2018 Semester**

To determine if the data were appropriate to use with a binomial logistic regression, seven assumption tests were run. The dependent variable was measured on a dichotomous scale (0, 1). There were five categorical independent variables, and they were dummy coded (0, 1). And there was one continuous independent variable. There was independence of observations as the participants could only belong to one group in the dependent variable (0=No, 1=Yes). There was a linear relationship between the continuous independent variable and the logit transformation of the dependent variable. The sample size was more than adequate as there were 886 total students. Since logistic regression relies on a goodness-of-fit test as a means of assessing the fit of the model to the data, a crosstabs analysis was run. Each of the cells had a count of (n > 5). Logistic regression is very sensitive to multicollinearity. The collinearity statistics showed that the assumption was met as the VIF score was well below 10 (statistic = 1.000) and the Tolerance score was above .20 (statistic = 1.000).

A standard binary logistic regression was performed to ascertain the effect of participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee, or mentee by a peer on the likelihood of those participants retention for one semester
after the fall 2018 semester. A significance level of $(p < .05)$, results indicated that the regression model was statistically significant, $x^2(1) = 31.413$, $p < .001$. The model explained 5% (Nagelkerke $R^2$) of the variance in participants’ retention and correctly classified 73% of the cases. Students who participated in co-curricular activities were (1.475 times more likely) to exhibit retention in community college for one semester than those students who did not participate in leadership co-curricular activities as is shown in Table 12.

**Table 12**

*Binary Logistic Regression Results of the Factor Predicting One Semester Retention*

*(Fall 2018-Spring 2019)*

<table>
<thead>
<tr>
<th>Model</th>
<th>$B$</th>
<th>$SE$</th>
<th>$Wald X^2$</th>
<th>$Df$</th>
<th>Sig.</th>
<th>$Exp (B)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total activities</td>
<td>1.075</td>
<td>.505</td>
<td>4.526</td>
<td>1</td>
<td>.033*</td>
<td>.341</td>
</tr>
<tr>
<td>Club officer</td>
<td>.591</td>
<td>.703</td>
<td>.707</td>
<td>1</td>
<td>.401</td>
<td>1.806</td>
</tr>
<tr>
<td>Club member</td>
<td>1.152</td>
<td>.726</td>
<td>2.520</td>
<td>1</td>
<td>.112</td>
<td>3.164</td>
</tr>
<tr>
<td>Leadership Trainee</td>
<td>1.834</td>
<td>.741</td>
<td>6.122</td>
<td>1</td>
<td>.013*</td>
<td>6.260</td>
</tr>
<tr>
<td>Mentee</td>
<td>1.677</td>
<td>.843</td>
<td>3.960</td>
<td>1</td>
<td>.047*</td>
<td>5.348</td>
</tr>
<tr>
<td>Participation</td>
<td>.389</td>
<td>.516</td>
<td>.566</td>
<td>1</td>
<td>.452</td>
<td>1.475</td>
</tr>
</tbody>
</table>

*Note.* The dependent variable was retention for one-semester fall 2018 to spring 2019 with retention (yes) as the reference category or no retention as the target category; participation in leadership co-curricular activities was the focus group of the participation variable; Nagelkerke $R^2 = .050$.

The total number of activities participated in were .341 times more likely, specific co-curricular leadership activity of club officer was 1.806 times more likely, club member was 3.164 times more likely, leadership trainee was 6.260 times more likely and mentee by a peer was 5.348 times more likely to exhibit retention in community college.
for one semester than those students who did not participate in leadership co-curricular activities. This analysis indicated that the null hypothesis was rejected as the total number of activities participated in, leadership trainee and mentee by a peer significantly influenced retention in community college from fall 2018 to spring 2019.

**Binomial Logistic Regression for the Spring 2019 Semester**

To determine if the data were appropriate to use with a binomial logistic regression, seven assumption tests were run. The dependent variable was measured on a dichotomous scale (0, 1). There were five categorical independent variables, and they were dummy coded (0, 1). And there was one continuous independent variable. There was independence of observations as the participants could only belong to one group in the dependent variable (0=No, 1=Yes). There was a linear relationship between the continuous independent variable and the logit transformation of the dependent variable. The sample size was more than adequate as there were 1,308 total students. Since logistic regression relies on a goodness-of-fit test as a means of assessing the fit of the model to the data, a crosstabs analysis was run. Each of the cells had a count of \((n > 5)\). Logistic regression is very sensitive to multicollinearity. The collinearity statistics showed that the assumption was met as the VIF score was well below 10 (statistic = 1.000) and the Tolerance score was above .20 (statistic = 1.000).

A standard binary logistic regression was performed to ascertain the effect of participation in co-curricular activities, the total number of activities participated in, or specific co-curricular leadership activity of club officer, club member, leadership trainee, or mentee by a peer on the likelihood of those participants retention for one semester after the spring 2019 semester. Based on a significance level of \((p < .05)\), results
indicated that the regression model was statistically significant, $x^2(1) = 74.416, p < .001$. The model explained 8% (Nagelkerke $R^2$) of the variance in participants’ retention and correctly classified 75% of the cases.

Students who participated in co-curricular activities were 2.448 times more likely to exhibit retention in community college for one semester than those students who did not participate in leadership co-curricular activities as is shown in Table 13.

**Table 13**

*Binary Logistic Regression Results of the Factor Predicting One Semester Retention (Spring 2019-Fall 2019)*

<table>
<thead>
<tr>
<th>Model</th>
<th>$B$</th>
<th>$SE$</th>
<th>Wald $X^2$</th>
<th>df</th>
<th>Sig.</th>
<th>Exp (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total activities</td>
<td>-.018</td>
<td>.614</td>
<td>.001</td>
<td>1</td>
<td>.976</td>
<td>.982</td>
</tr>
<tr>
<td>Club officer</td>
<td>-.529</td>
<td>.753</td>
<td>.493</td>
<td>1</td>
<td>.483</td>
<td>.589</td>
</tr>
<tr>
<td>Club member</td>
<td>.017</td>
<td>.797</td>
<td>.000</td>
<td>1</td>
<td>.983</td>
<td>1.017</td>
</tr>
<tr>
<td>Leadership Trainee</td>
<td>.674</td>
<td>.769</td>
<td>.767</td>
<td>1</td>
<td>.381</td>
<td>1.961</td>
</tr>
<tr>
<td>Mentee</td>
<td>.425</td>
<td>.868</td>
<td>.239</td>
<td>1</td>
<td>.625</td>
<td>1.529</td>
</tr>
<tr>
<td>Participation</td>
<td>.895</td>
<td>.487</td>
<td>3.374</td>
<td>1</td>
<td>.066</td>
<td>2.448</td>
</tr>
</tbody>
</table>

*Note.* The dependent variable was retention for one-semester spring 2019 to fall 2019 with retention (yes) as the reference category or no retention as the target category; participation in leadership co-curricular activities was the focus group of the participation variable; Nagelkerke $R^2 = .082$.

The total number of activities participated in were .982 times more likely, specific co-curricular leadership activity of club officer was .589 times more likely, club member was 1.017 times more likely, leadership trainee was 1.961 times more likely and mentee by a peer was 1.529 times more likely to exhibit retention in community college for one semester than those students who did not participate in leadership co-curricular activities.
The results show that participation in co-curricular activities was the strongest predictor of retention, however, none of the independent predictor variables were statistically significant predictors of retention. This analysis indicated that the null hypothesis is retained for all the independent variables.

**Conclusion**

Chapter 4 presented the findings of the analyses of archived data that reported the students’ participation in co-curricular activities as they related to change in grade point average and to one-semester retention. The researcher discusses how these findings corroborate the theoretical framework and related literature in chapter 5.
CHAPTER 5: DISCUSSION

Introduction

The purpose of the current study was to determine the impact of participation in co-curricular activities on academic performance and retention. This chapter discusses and interprets the major findings in Chapter 4 and how these findings are evidence of Astin’s (1999) student involvement theory. This chapter also includes a discussion of the connections between the findings of the current study, the theoretical frameworks, and prior research. The researcher will also indicate the study’s limitations, and make several recommendations for future researchers and practitioners.

The results of the first research question showed that there was a significant negative difference between the pre and post GPAs for both the fall 2018 and spring 2019 semesters. It also showed that there was a significant difference in the pre-GPA between students who participated in co-curricular activities and students who did not participate. However, the impact of participation in co-curricular activities on pre and post GPA for both the fall 2018 and the spring 2019 semesters was not significant.

The results of the second research question showed that participation in co-curricular activities had a statistically significant impact on post-fall 2018 and spring 2019 GPA scores. In particular, the impact of the total number of activities had a negative impact, and club officer, club member, leadership trainee, and mentee by a peer each had a positive impact on post-fall 2018 GPA scores. The impact of leadership trainee and participation in at least one co-curricular activity each had a positive impact on post-spring 2019 scores.
The results of the third research question regarding the relationship between participation in co-curricular activities and one-semester retention had mixed results. For both the fall 2018 semester and the spring 2019 semester the overall regression model was statistically significant that participation in co-curricular activities positively impacted one-semester retention. For the fall 2018 semester, total activities, leadership trainee and mentee by a peer each had a statistically significant impact on one-semester retention, however, for the spring 2019 semester, none of the independent variables were significant.

Implications of Findings

The current study analyzed the impact of participation in co-curricular activities on GPA scores and one-semester retention. The results of multiple regression and binomial logistic regression support the theoretical framework of this study. Astin’s theory of student involvement had among its five basic assumptions that academic performance correlates to the level of student involvement (Astin, 1999).

The first assumption of Astin’s (1999) theory stated that involvement requires physical and psychosocial effort. The results of the multiple regression strongly supported this assumption as being a club officer, club member, leadership trainee, and mentee by a peer all required attendance at weekly meetings and a focused effort. The students who participated in these activities did so voluntarily and were resilient enough to continue for an entire semester.

The second assumption of the theory stated that involvement was continuous and different for different students. Each of the activities included in the study required a commitment to a semester of participation while each student may benefit in various
ways from their shared experiences. For example, students who are mentees have varied experiences based upon their interaction with their mentor. The third assumption stated that involvement could be both quantitative and qualitative. Each of the activities included in the study required a commitment to the activity (qualitative) and time spent doing the activity (quantitative). For example, as a quantitative measure, club members were required to attend half of the club meetings each semester, while club officers did more than attend meetings, they worked with faculty, completed projects, and interacted with administrators, thus having a more complex experience.

The fourth assumption of Astin’s theory stated that benefits were proportional to the effort made by the student and the fifth assumption stated that academic performance correlates to the level of student involvement. The results of this study showed that the total number of activities in which students participated had a negative impact on GPA scores in the fall 2018 semester. This may indicate that participating in more than one activity during the semester affects academic performance.

**Relationship to Prior Research**

Students who participated in the activities included in this study attended weekly meetings in person, communicated electronically with their fellow students, and regularly interacted with faculty and administrators. These interactions helped students connect to the college outside of the classroom and contributed to a sense of belonging to the institution supporting the studies of Garcia, Graza, and Yeaton-Hromada (2019) and Glass and Gesing (2018).

Garcia and colleagues (2019), utilized the results of the 2014 Community College Survey of Student Engagement (CCSSE) and found that higher levels of interactions with
administrators and instructors likely increased a students’ sense of belonging. College connectedness can also benefit students’ sense of belonging (Garcia, Graza & Yeaton-Hromada 2019), and participation in campus organizations strengthened the social networks of students (Glass & Gesing, 2018). The current study supported this research showing that participation positively impacted one-semester retention. Students build relationships with faculty, administrators, and students outside of the classroom through participation. They also contribute to organizing activities and events that advance shared interests. Thus, participation in co-curricular activities should be better promoted to students by faculty and staff as an avenue to connect to the college and achieve a sense of belonging.

A report by Hanover Research (2014) showed that colleges that required students to participate in student life programs and co-curricular activities had significant increases in retention rates. Several studies found that participation in co-curricular activities was positively related to retention and persistence. Barrett (2011) found that students who were validated by faculty strongly expressed intent to return to the college. Students’ survey responses showed that working with faculty members on co-curricular activities was one of the factors that had a positive effect on persistence (Kinzie, Gonyea, Shoup & Kuh, 2008). The results of a study by Wang and Shiveley (2008) align more closely with the result of the current study and found that freshmen students who participated in at least one activity performed better than non-participants in terms of retention, grade point average, and graduation rate. Similarly, first-year students who participated in activities, including co-curricular activities had a positive effect on persistence after the first year of college (Kuh, Cruce, Shoup & Kinzie, 2008).
The overall results of this study support this research for both fall 2018 and spring 2019 semesters and particularly for total activities, leadership trainee, and mentee by a peer in the fall 2018 semester. Wang and Shiveley (2008) went further and showed that a lack of participation in co-curricular activities had a negative impact on retention. The present study strengthens previous research regarding the impact of participation on retention with the use of data of all students who participated that was collected for the co-curricular transcript.

In relation to GPA scores, several studies (Willis, 2010; Zehner, 2011) found that participation in co-curricular activities had a positive impact on GPA and success academically. A qualitative study of African-American students in California (Willis, 2010) supported the results of the current study and found that students felt that their participation in extra-curricular activities helped them to succeed academically. Zehner (2011) found that students engaged in co-curricular activities earned higher GPAs. The current study showed similar results overall but also showed that after the fall 2018 semester, as the total number of activities a student participated in increased their GPA scores decreased. This shows that students may benefit from reducing the number of activities that they participate in simultaneously so that their GPA is not negatively impacted.

Bergen-Chico and Viscomi (2012) found that students who attended between five and fourteen events on campus had higher grade point averages than students who attended less than five or more than fourteen events. The present study strengthens previous research regarding the impact of participation on grade point average with the
use of data of all students who participated that was collected for the co-curricular transcript.

Limitations of the Study

There are several limitations to the current study. The sample size was sufficient for the statistical analyses used for the study, however, the random sample selected for non-participating students was not specifically aligned with the participating students in credits earned and courses taken.

Statistical Conclusion Validity

A possible threat to statistical conclusion validity is low statistical power. MCC offers dozens of activities with varying levels of student participation. To control for this threat the researcher selected activities with the highest number of participants like participation in student clubs and leadership training. There may also have been a violation of assumptions in the first research question where the Box’s M test was significant for both fall 2018 and spring 2019. However, since there were large sample sizes that were unequal, with skewed distributions the significant result would not prove fatal to the analysis (Tabachnick & Fidell, 2007).

Internal Validity

A threat to internal validity may be simultaneous events. This study included several independent variables, some of which were derivations of the others, such as total activities and participation in activities. This may have been the cause of the negative correlations between some of the independent variables like club officer and club member.
**External Validity and Generalizability**

Conducting this study at only one college could be a limitation. Since students’ co-curricular activities are not collected widely at colleges and universities. It is difficult to ascertain if the results of this study are comparable to other institutions.

**Recommendations for Future Practice**

Karp (2011) observed that more than 40% of students at senior college and 84% of students at community college did not participate in these activities at all. Each institution should challenge itself to promote these activities more effectively as suggested by the Hanover Research report (2014). These co-curricular activities should be recorded by the institution. The data for this study was collected from the co-curricular transcript database. While faculty, staff, and students all value their co-curricular experiences, very few institutions track students’ co-curricular activities. Regardless of whether an institution would like to provide their students with a co-curricular transcript data regarding students’ activities outside of the classroom should be recorded. The present study presents a model where the collection of data on co-curricular activities is trustworthy and can be used with validity by students to advance their career and academic goals, with faculty for their knowledge of the whole student, with staff to help direct students with their co-curricular activity choices and with researchers to use as a reliable source of data.

Institutions that opt to provide a co-curricular transcript benefit in several ways:

1. Engaged students can better recall their activities and utilize them to highlight their experiences and demonstrate their accomplishments.
2. Faculty and staff have a resource of information about their students’ co-curricular activity to include in evaluating and recommending their students.

3. Researchers and administrators have an accurate data set of students’ co-curricular activities to analyze and to more effectively allocate resources.

The results of the current study should encourage higher education institutions to further examine how to deploy university resources in a way that meets the mission and goals of a college and maximizes administrative efforts toward student success. Co-curricular activities have long been solely supported by fluctuating student fees. Administrators should measure the impact of participation in different programs on retention and academic success and seek to scale up the programs that have a positive effect on these areas.

**Recommendations for Future Research**

The findings from this quantitative study supported the literature that finds a correlation between participation in co-curricular activities and academic success and retention. The results of a 2012 study suggest a relationship between attendance at campus programs and grades (Bergen-Chico & Viscomi, 2012). These researchers suggest that understanding this association may contribute to our understanding of the habits of successful students, assist in identifying students at risk, and, explore and design co-curricular activities that intentionally contribute to student success.

Future researchers should consider using one year to measure the impact on GPA change and fall-to-fall retention. This current research studied both the fall and spring semesters, this researcher recommends further research that studies the different impacts
of participation in the same activities on GPA scores and retention. In addition, researchers can also analyze whether the nature of the activity has different impacts on change in grade point average and retention by analyzing the impact of different co-curricular roles.

Future researchers should include the impact of student demographics like ethnicity/race, gender and socioeconomic status as covariates in an analysis of how participation in co-curricular activities impacts retention and academic success. Astin (1999) spoke to the developmental needs of students, however, there needs to be more research that identifies activities that promote the assumptions of the theory and research that explores the effectiveness of participation in co-curricular activities in contributing to this development. Qualitative studies should be made to determine the skills and competencies learned by students, and to what degree, who participated in co-curricular activities.

Bergen-Chico and Viscomi (2012) found that students who attended between five and fourteen events (e.g., speakers, musicians, plays) over the four years had significantly higher GPAs than students who attended fewer than five events or students who attended more than fourteen events (Bergen-Chico & Viscomi, 2012). Researchers should duplicate this study at a community college to determine the impact of attending activities over one or two years. Along this vein, researchers should analyze the impact of the number of co-curricular roles that students participate in simultaneously in one semester and its impact on GPA scores and retention.
Conclusion

Previous literature and the results of this study indicate that participation in co-curricular activities affects academic success and student retention. Designing the students’ experience in college to include participation in co-curricular activities is a worthwhile principle. Previous studies utilized student responses from national surveys to collect data on students’ co-curricular activities. This data received a response from a fraction of the students surveyed and relied on the veracity of their responses. The current study utilized data collected for the co-curricular transcript that was validated by the college and reflected the activities of all the students who participated in co-curricular activities at the college. Colleges should seriously consider making it a standard that this data is collected and utilized for the benefit of their students and for their use in assessing effective strategies for retention and academic success.
APPENDIX A: SJU IRB Approval

Federal Wide Assurance: FWA00009066

Jun 15, 2021 12:06:18 PM EDT

PI: Harry Mars
CO-PI: Rene Parmar
Dept: Ed Admin & Instruc Leadership

Re: Initial - IRB-FY 2021-352 ANALYZING THE IMPACT OF PARTICIPATION IN CO-CURRICULAR ACTIVITIES ON ACADEMIC PERFORMANCE UTILIZING THE DATA IN THE CO-CURRICULAR TRANSCRIPT

Dear Harry Mars:

The St John's University Institutional Review Board has rendered the decision below for ANALYZING THE IMPACT OF PARTICIPATION IN CO-CURRICULAR ACTIVITIES ON ACADEMIC PERFORMANCE UTILIZING THE DATA IN THE CO-CURRICULAR TRANSCRIPT.

Decision: Exempt

PLEASE NOTE: If you have collected any data prior to this approval date, the data must be discarded.

Selected Category: Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording). The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects.

Sincerely,

Raymond Giuseppe, PhD, ABPP
Chair, Institutional Review Board
Professor of Psychology

Maria Napolitano, Ed.D.
IRB Coordinator
APPENDIX B: BMCC IRB Approval

February 15, 2022

St. John’s University
Department of Administrative and Instructional Leadership

To Whom It May Concern:

On behalf of Borough of Manhattan Community College (BMCC), I grant the following request of Harry Mars, doctoral student in the Department of Administrative and Instructional Leadership at St. John’s University, to complete research for his doctoral dissertation:

1. Access to BMCC co-curricular transcript application (CCT app) to collect information for students who participated in clubs, leadership training and mentor programs for the fall 2018 and spring 2019 semesters.
2. Access to BMCC student information system (CUNYFirst) to collect high school grade point averages, remedial needs, major, and gender for the cohort of students above.
3. Access to BMCC student information system (CUNYFirst) to collect the grade point average at the end of spring 2018, fall 2018, and spring 2019 for the cohort of students above.
4. Access to BMCC student information system (CUNYFirst) to collect the retention status for the fall 2018, spring 2019 and fall 2019 for the cohort of students above.

Mr. Mars has agreed to keep the information confidential and anonymous. Please feel free to contact me at 212-220-8160 if you require any further information.

Sincerely yours,

Michelle Ronda
BMCC Acting HRPP Coordinator
From: Christopher Shults

Sent: Monday, June 21, 2021 11:52 AM

To: Siddharth Ramakrishnan; Harry P. Mars

Subject: RE: REMINDER: RECEIVED: St. John's University IRB approval

We are good to go from an IEA perspective. Harry, please send a meeting request to Musa and I so that we are on the same page and can provide the support needed. Be well.

-Chris

Christopher Shults, Ph.D.
Dean of Institutional Effectiveness and Strategic Planning
Middle States Accreditation Liaison
Borough of Manhattan Community College

From: Siddharth Ramakrishnan <sramakrishnan@bmcc.cuny.edu>

Sent: Monday, June 21, 2021 11:34 AM

To: Harry P. Mars <hmars@bmcc.cuny.edu>

Cc: Christopher Shults <cshults@bmcc.cuny.edu>

Subject: Re: REMINDER: RECEIVED: St. John's University IRB approval

Thanks Harry. The IRB looks good and you can go ahead with data collection if Dean Shults is okay with it

Good luck!

Siddharth

Siddharth Ramakrishnan, Ph.D.
Director of Research
Office of Academic Affairs S715J
Borough of Manhattan Community College
City University of New York
199 Chambers Street
New York, NY 10007
P. 212-776-7208
Good Afternoon,

My name is Harry Mars. I am a Doctoral Candidate to earn my Ed.D. in the Department of Administrative and Instructional Leadership at St. John’s University. My dissertation will be looking at the impact of participation in co-curricular activities on academic performance as documented in the co-curricular transcript.

Please let me know if I would have to complete the CUNY IRB process prior to receiving the required permission letter for the St. John's process.

I am completing the IRB approval process at St. John’s University and they require documentation of permission to access the required data in the Borough of Manhattan Community College (BMCC) CCT application and student information system (CUNYFirst). I am requesting the following:

1. Access to BMCC co-curricular transcript application (CCT app) to collect information for students who participated in clubs, leadership training and mentor programs for the fall 2018 and spring 2019 semesters.
2. Access to BMCC student information system (CUNYFirst) to collect high school grade point averages, remedial needs, major, and gender for the cohort of students above.
3. Access to BMCC student information system (CUNYFirst) to collect the grade point average at the end of spring 2018, fall 2018, and spring 2019 for the cohort of students above.
4. Access to BMCC student information system (CUNYFirst) to collect the retention status for the fall 2018, spring 2019 and fall 2019 for the cohort of students above.

No student names will appear in the study and all of the information collected will be kept confidential and anonymous.

Attached you will find a draft of the letter that can be printed on BMCC letterhead. Please make any required adjustment to the draft.

Thank you in advance for your time and consideration.

Harry Mars
## APPENDIX C: List of Co-Curricular Activities

### MCC List of Co-Curricular Activities

<table>
<thead>
<tr>
<th>MCC List of Co-Curricular Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0 Achievers Club</td>
</tr>
<tr>
<td>Academic Scholars of the LRC</td>
</tr>
<tr>
<td>Accelerated Study in Associate Programs (ASAP)</td>
</tr>
<tr>
<td>Accounting Club</td>
</tr>
<tr>
<td>Acentos Latinos</td>
</tr>
<tr>
<td>African Descent Students Association</td>
</tr>
<tr>
<td>African Students Association</td>
</tr>
<tr>
<td>Alternative Spring Break - Dade City, Florida</td>
</tr>
<tr>
<td>Alternative Spring Break - Ft. Pierce, Florida</td>
</tr>
<tr>
<td>Alternative Spring Break - Orlando, Florida</td>
</tr>
<tr>
<td>Alternative Spring Break - Week of Service</td>
</tr>
<tr>
<td>Alternative Winter Break - Orlando, Florida</td>
</tr>
<tr>
<td>Alternative Winter Break - Week of Service</td>
</tr>
<tr>
<td>America Needs You</td>
</tr>
<tr>
<td>America Needs You Club</td>
</tr>
<tr>
<td>American Sign Language Club</td>
</tr>
<tr>
<td>American Student Government Association Conference - Jersey City, New Jersey</td>
</tr>
<tr>
<td>American Student Government Association Leadership Conference</td>
</tr>
<tr>
<td>Animation Club</td>
</tr>
<tr>
<td>Anime Club</td>
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<td>Arab Student Association</td>
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<td>ASEZ - Save The Earth</td>
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<td>Association of Students of African Descent</td>
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<td>Badminton Club</td>
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<td>Bangladeshi Student Association</td>
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<td>Baseball Team</td>
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<td>Beyond the Limits</td>
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<td>Breast Cancer Awareness Month</td>
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<td>Breast Cancer Walk – NYC</td>
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<td>Broke-ology</td>
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<td>Building a Brighter African Diaspora</td>
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<td>Burkinbi Students Association</td>
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<td>Business and Entrepreneur Club</td>
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<td>Cardiopulmonary Resuscitation (CPR)/Automatic External Defibrillator (AED)/First Aid Training</td>
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<td>Career Development Workshops</td>
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<td>Caribbean Radio Play Series</td>
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<td>Center Stage Club</td>
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<td>CERT Certification</td>
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<td>Chess Club</td>
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<td>Chi Alpha Epsilon Honor Society</td>
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<td>Child Abuse &amp; Mandated Reporter Training</td>
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<td>Child Abuse Prevention Training</td>
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<td>Chinese and Japanese Calligraphy Club</td>
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<td>Chinese Christian Fellowship</td>
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<td>Chinese Cultural Association</td>
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Chinese Culture Study Society
Chorus Club
City Harvest: Cook and Learn Program
CliftonStrengths Assessment
Climate Change Club
CNNY Black Male Initiative Conference
CNNY Malave Leadership Academy
CNNY Research Scholars Program (CRSP)
CNNY Service Corps - Puerto Rico
CNNY University Student Senate (USS)
CNNY Women’s Leadership Conference
College Completion and Career Institute for Men (C³IM)
College Discovery Club
Collegiate Science and Technology Entry Program (CSTEP)
Communication Studies Club
Computer Programming Club
Computer Science Club
Computer Technology Club
Confidence Club
Corporate Engagement Club
Cosplay & Coding Club
Crear Futuros
CREAR Futuros (College Readiness, Achievement and Retention) Program
Criminal Justice Club
Cybersecurity and IT Cert+ Club
Dance Club
Dance Plus Club
Debate Team
Degree Under Three
Digital Arts Club
Dignity Act Harassment, Bullying, Cyberbullying, and Discrimination in Schools
DISC Behavioral Assessment
Domestic Violence Awareness Month
Doubt
Dreamers Club
Dungeons & Dragons Club
Economics, Equality and Environment Club
Emergency Medical Service Club
Emergency Medication Administration Overview Training
Engineering Club
English Conversation Club
Entrepreneur Club
Equities and Economics Club
Equity, Inclusion, and Antiracism Workshop Series
Essence of Earth Club
Faculty Student Disciplinary Committee (FSDC)
Fashion Plus
Faster Club
Film Club
Finance and Banking Club
Financial Literacy Workshops
First Gen Club
First Generation Student Mentoring Program
First Love MCC Club
Fit Mind Workshops
French Speaking World
Freshmen Year Experience (FYE) Workshops
Friends of the Spartacus Youth Club
Gender-Based Violence Awareness Month
Geographic Information Systems
Girls Talk Weekly Empowering Workshop Series
Goldman Sachs College Leadership Collaborative
Good Deeds Day
Graphic Novel Club
Guardian Money Management for Life Scholarship
Guinean Students Association
Health and Wellness Club
Health Information Technology
Honor Society of Black Student Scholars
Human Services Club
Icarus Award
IMPACT Peer Mentor Retreat
IMPACT Peer Mentor Retreat - Claryville, New York
Inspiring, Motivating, People to Achieve in College Together (IMPACT)
International Students Club
International Youth Fellowship
Intimate Apparel
Investment Management Club
Ivorian Students Society
Jewelry Making Club
Jewish Club
Justice for All Club
Justice League Society
Korean Culture Club
Kustom Kickz Club
LGBT+ and Allies Club
LGBTQ Pride Month
Life Drawing Club
Louis Stokes Allied Minority Participation (LSAMP)
Make an IMPACT Club
Makerspace Art Club
Makerspace Club
Marisol
Math Club
MCC Academy of Leadership & Service: Building Outstanding Leaders of Tomorrow (BOLT) program
MCC Academy of Leadership & Service: Career Explorers program
MCC Academy of Leadership & Service: Civic Leadership program
MCC Academy of Leadership & Service: Coaching Officers to Acquire Critical Club Habits (COACH) program
MCC Academy of Leadership & Service: Partners Lending Universal Support (PLUS) program
MCC Academy of Leadership & Service: Refining Each Ascending Leader (REAL) program
MCC Accounting Workshop Series
MCC Accounting Workshops Series
MCC Ambassadors for Safety and Health
MCC CNNY Service Corps
MCC Economic Series
MCC eSports Program
MCC Foundation Fund for Undergraduate Research
MCC Intramural Sport Initiative
MCC Journal
MCC Learning Academy
MCC Learning Academy: Career Mapping Success Seminar Series
MCC Learning Academy: Design Your Own Success Seminar Series
MCC Learning Academy: Educational Technology Success Seminar Series
MCC Learning Academy: Graduate Advantage Success Seminar Series
MCC Learning Academy: Professional Writing Success Seminar Series
MCC Learning Academy: Second Semester Student Success Seminar Series
MCC Learning Academy: Social Justice Success Seminar Series
MCC Learning Academy: Study Smart Success Seminar Series
MCC Learning Academy: Transfer Exploration Success Seminar Series
MCC Society of Leadership & Success
MCC Virtual Tour Video
MCC Welcome Ambassador
MCC/NYU Pipeline Opportunity for Intercollege STEM Education Program (POISE)
MCC-Gallatin Undergraduate Initiative for Discovery in Education (GUIDE)
Meditation Club
Men's Basketball
Men's Soccer
Mental Health First Aid Training
Microsoft Excel Workshop Series
Minority Science Engineering Improvement Program
Modern Engineering Solutions
Moneymarks: Financial Literacy Workshops
Music Club
Music, Fashion, Art, Creativity and Culture Club
Muslim Students Association
Myers-Briggs Type Indicator
National Society of Minorities in Hospitality
Neuroscience Club
New Student Programs
New York State Education Department Approved Training in the Needs of Children with Autism
Night, Mother
NY Tribeca Campus Lions Club
Off the Top Club
Office of Accessibility Tutor Program
ONE at MCC
One Gen Club
Organization for Student Veterans
Our Lady of 121st
Out in Two Club
Painting Club
Panthers Cheerleaders
Parents Club
Peer Mentor Program
Phi Theta Kappa Honor Society
Photo Club
Pre-Dental Society
Pre-Law Society
Pride Power & Friends
Programming Club

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Psychology Club
Puzzle Masters Club
Racket and Tennis Club
Radio Club
Rainbow Panthers
Red Cross Club
Research and Nature Club
Respiratory Therapy Club
Resurgence in Christ Ministry
Robotics Club
Role Playing Games Club
Rowing Club
Salsa Ritmo Y Bembe Club
Save for Success
Scholarship Society
Science and Technology Entry Program
Science Club
Screenwriters Club
Sculpture Club
Self-Defense Club
Service Learning Leadership Club
Sister 2 Sister Mentoring Program
Sisterhood Society
Socialist Students
Society of Motion Pictures and Television Engineers (SMPTE)
Sociology Club
Soka Nichiren Buddhist Club
Sonnets for an Old Century Staged Reading for Program's Tribute to Latinx Heritage
South Asian Cultural Club
Strive for Success
Strong Interest Inventory
Student Alliance for Equity and Rights (SAFER) Program
Student Election Review Committee
Student Government Association
Student Leadership Retreat
Student Leadership Retreat - Honors Haven Resort, Ellenville, New York
Student Leadership Retreat - Norwalk Inn & Conference Center, Norwalk, Connecticut
Student Nurses Association
Student Success Workshop Series
Student Women's Leadership Conference & Retreat - Fairview Lake, New York
Student Women's Leadership Conference and Retreat
Students Without Borders
Study Abroad – Argentina
Study Abroad – Brazil
Study Abroad – China
Study Abroad – France
Study Abroad – Germany
Study Abroad – Greece
Study Abroad – Indonesia
Study Abroad – Italy
Study Abroad – Mexico
Study Abroad – Peru
Study Abroad - South Korea
Study Abroad – Spain
Study Abroad - United Kingdom
Sustainable Economics and Environment Club
Swimming Panthers Club
SwipeRight Club
Syndicate for the Professional Economic Press
Table Tennis Club
Talent Club
Talk-Show Club
Teacher Education Club
Tennis Club
The Idea of Me
The Immoralist
The Mourning After
The National Society of Leadership and Success (NSLS)
Theater Department
Theater Works & Drama Club
Toastmasters Club
Transfer Review Application Connection (TRAC)
Travel & Tourism Club
Trifles & Plumes
UndocuALLY Training
Urban Male Leadership Academy
Urban Mentors and Leaders Association
Valedictorian
Value Creation Club
Veterans Services
Video Game Club
Video Production Club
Volleyball
Volunteer Income Tax Assistant Preparer (VITA) Training
Web Design Club
Wolf's Den Boxing Club
Women in Science Club
Women of Color Association
Women's Basketball
Women's Herstory Month
Women's Herstory Month Conference
Women's Resource Center Workshops
Women's Soccer
Writer's Guild
Xtreme Sports Club
Year Up: Workforce Development Program
REFERENCES


Center for Community College Student Engagement (CCSE) (2015). *Engagement rising: A decade of CCSSE data shows improvements across the board*. Austin, TX: The University of Texas at Austin, Program in Higher Education Leadership. Engagement_Rising.pdf (ccsse.org)


Green, T. & Parnell, A. (2017). *Comprehensive Student Record Final Report*. A joint report from American Association of Collegiate Registrars and Admissions Officers (AACRAO) and Association of Student Personnel Administrators


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https://www.academia.edu/24968511/co-curricular_activities_and_student_learning_outcomes
<table>
<thead>
<tr>
<th>Name</th>
<th>Harry Mars</th>
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<tbody>
<tr>
<td>Baccalaureate Degree</td>
<td>Bachelor of Arts, The City College of New York, New York, NY, Black Studies</td>
</tr>
<tr>
<td>Date Graduated</td>
<td>September, 1992</td>
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<tr>
<td>Other Degrees and Certificates</td>
<td>Master of Science, Baruch College, New York, NY, Higher Education Administration</td>
</tr>
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<td>Date Graduated</td>
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