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Effectiveness of Peer Mentoring in First-Year Program Classrooms

Katherine Casey
San Jose State University

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EFFECTIVENESS OF PEER MENTORING
IN FIRST-YEAR PROGRAM CLASSROOMS

A Thesis

Presented to

The Faculty of the Department of Psychology

San José State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Katherine Casey

May 2013

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The Designated Thesis Committee Approves the Thesis Titled

EFFECTIVENESS OF PEER MENTORING
IN FIRST-YEAR PROGRAM CLASSROOMS

by

Katherine Casey

APPROVED FOR THE DEPARTMENT OF PSYCHOLOGY

SAN JOSE STATE UNIVERSITY

May 2013

Dr. Ronald F. Rogers

Department of Psychology

Dr. Andrew Wood

Department of Communication Studies

Dr. Cary Feria

Department of Psychology

ABSTRACT

EFFECTIVENESS OF PEER MENTORING IN FIRST-YEAR PROGRAM CLASSROOMS

by Katherine Casey

First-year programs (FYPs) for college students offer extended orientation to campus resources and provide first-time freshmen with essential skills for academic success, and many believe that the effectiveness of FYPs increases with the presence of peer mentors. The present study measured the added effectiveness of peer mentoring in FYP classrooms with knowledge of campus resources as a dependent measure. Ninety one first-year students in nine sections of FYP classes participated in this quasi-experimental study. Seven of the classes had peer mentors ($n = 70$), and the two control classes ($n = 21$) did not have peer mentors in the classroom. A 30-item questionnaire regarding the use and location of several campus resources was administered in the first two weeks of the Fall 2009 semester and again in the last two weeks of the semester. A repeated measures analysis of variance (ANOVA) revealed a main effect of time (change between Testing Time 1 and Testing Time 2) and an interaction effect of time and group (students with peer mentors, controls without peer mentors), on knowledge of campus resources. Students with a peer mentor started out with less knowledge of campus resources, and finished the semester with a similar level of knowledge, when compared to controls. The results only partially supported the research hypothesis that students with peer mentors in their FYP classes learned more about campus resources when compared to students without peer mentors. GPA scores for the first semester at the university did not differ between groups.

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My sincere appreciation extends to the San José State University peer mentors, who assist students with their multi-faceted and dynamic needs in a complex metropolitan university environment. Equal appreciation is extended to student mentees who sought out and confided in peer mentors, along with the Metropolitan University Scholars' Experience First-Year Program (FYP) students with and without a peer mentor in their FYP classroom.

Dr. Ronald Rogers provided me with practical and effective guidance as my advisor. His commitment to educational research gave meaning and purpose to my research interests. Similarly, Dr. Andrew Wood, the former Peer Mentor Program Director, provided support for the present research study to run smoothly and the guidance to collect qualitative data from the peer mentors to formulate the knowledge of campus resources questionnaire. Dr. Cary Feria provided assistance so that I could adhere to the highest writing standards. I appreciate you all as mentors and as stewards of student success and well-being.

TABLE OF CONTENTS

LIST OF FIGURES	viii
LIST OF TABLES	ix
INTRODUCTION	1
First-Year Programs	4
Mentoring Programs	5
Peer Mentors in First-Year Program Classrooms	9
Knowledge of Campus Resources	11
Overview of the FYP and Peer Mentor Program	12
Effect of Peer Mentoring on Knowledge of Campus Resources in FYP Classrooms	12
METHOD	13
Participants	13
Design	16
Setting and Apparatus	17
Knowledge of Campus Resources Questionnaire.....	18
Pretest Survey	20
Posttest Survey	21
Procedure	21
RESULTS	23
Analysis	23

Descriptive Statistics	24
Evaluation of the FYP and Peer Mentors	26
Knowledge of Campus Resources Findings	28
Correlations among Variables	31
DISCUSSION	33
Implications for Peer Mentoring in University Settings	40
Mentoring Target Populations	41
Training Peer Mentors and FYP Faculty	43
Limitations	45
Sampling	47
Methodology	49
Design	51
Importance of Research Question	52
Future Research	53
Conclusions	55
REFERENCES	57
APPENDICES	
A. Testing Time One Survey	61
B. Testing Time Two Survey: Participants With a Peer Mentor	67
C. Testing Time Two Survey: Participants Without a Peer Mentor	74
D. Rubric	80

LIST OF FIGURES

FIGURE 1. Main effect of time and interaction effect of time and group on knowledge of campus resources in the sample of 91 first-year students	29
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LIST OF TABLES

TABLE 1. Evaluation of the Metropolitan University Scholars' Experience (MUSE) FYP.....	27
TABLE 2. Evaluation of Peer Mentors	28
TABLE 3. Descriptive Statistics and Correlations among Variables	33

Introduction

To the dismay of educators, fewer than half of incoming students graduate from many public universities within a six- and eight-year time frame (Henry & Knight, 2003; San José State University Office of Institutional Research, 2008). The United States' population could benefit socially and professionally from higher college graduation rates, as only 19% of Americans had completed a bachelor's degree in 2009 (US Census Bureau, 2009). High attrition rates and low graduation rates are detrimental to students who invest in their education, cause decreased efficiency in public higher education, and equate to heavy costs for taxpayers who pay for much of students' educational costs.

Furthermore, there is an increasing gap in workforce demands and the skill set of potential employees that poses a great threat nationwide and at the state level. Based on current trends, California's economy will experience a shortage of one million college graduates by the year 2025 (Johnson & Sangupta, 2009). Johnson and Sangupta project that in 2025, 41% of jobs in California will require workers to have at least an undergraduate degree, whereas only 35% of the population will attain a college degree. The researchers assert that our country needs to increase the effectiveness of the educational process by strengthening pathways from different institutional levels (e.g., from secondary education to higher education) and by increasing admission and graduation rates. The authors estimate that if California can raise the attendance rates at universities, increase transfer rates from community colleges, and improve CSU graduation rates, the state could produce more than 500,000 more college graduates by 2025 and close the education-to-profession gap by approximately 50%. Here we will

investigate a few strategies to increase retention and graduation rates adopted by San José State University (SJSU), a large state-funded public institution for higher education.

Over half (51%) of SJSU students discontinue their course of study within a 10-year time frame without earning their degrees (San José State University Office of Institutional Research, 2008). At the time the present research was conducted, more than 46% of incoming freshmen discontinued their studies before their sixth year, and by their eighth year 48% had left without a degree (results based on findings from the 1997-2001 cohorts of incoming freshmen). These attrition rates are alarming when compared to the graduation rates of only 40.2% and 48.6% within the same six- and eight-year timeframe for the 1997-2001 cohorts, respectively (San José State University Office of Institutional Research, 2008). For example, in the 1997 cohort of incoming freshmen, only 39.3% of undergraduate students had completed degrees after six years. The Fall 2004 cohort of first-year freshmen demonstrated a six-year graduation rate of 47.8% (San José State University Office of Institutional Research, 2011). In recent years graduation rates have increased at SJSU, possibly due to impaction. The Fall 2006 cohort of first-time frosh exhibited a six-year graduation rate of 45.4% (San José State University Office of Institutional Effectiveness & Analytics, 2013). The restriction of seats may have led to the university accepting students who were better prepared and may have influenced students to persist at the university at higher rates. The percentage of students in good standing increased from 80.4% in Fall 2006 to 98.2% in Fall 2012, which aligns with the hypothesis that university admissions has been accepting better prepared students. Even

though graduation rates have increased slightly in the past six years, there is much room for improvement in public higher education retention and graduation rates.

Educators hope to see an increase in retention and graduation rates and a decrease in attrition rates among university students as a result of providing campus resources for students and implementing student success programs such as First-Year Programs (FYPs) and peer mentor programs. Preliminary retention data is promising; San José State University students who enrolled in a FYP classroom with a peer mentor had a higher retention rate (84.7%) when compared to students in a FYP without a peer mentor (76.9%) (San José State University Office of Institutional Research, 2008). Student success initiatives have focused on the first-year experience of freshmen due to the fact that approximately 20% of first-time freshmen do not return for their sophomore year (San José State University Office of Institutional Research, 2008). The loss of such a large percentage of students within the first year has led the majority of United States universities to implement FYPs to ease the transition to the university setting and help incoming freshmen strengthen the academic skills needed to complete their degrees (Gahagan, 2002; Gordon, 1989; Skipper, 2002). Similarly, universities have implemented mentoring programs to boost academic success, retention, and graduation rates (Budge, 2006; Campbell & Campbell, 1997; DuBois, Doolittle, Yates, Silverthorn, & Tebes, 2006; Jacobi, 1991; Terrion & Leonard, 2007). While past researchers have examined either FYP effects on academic success or peer mentoring effects on academic success, the present research studied the combined effort of FYP classes and peer mentoring by conducting a quasi-experiment to determine the added value of peer

mentoring in FYP classrooms for first-year freshmen at a large metropolitan university. Specific outcomes were knowledge of campus resources and GPA scores from the students' first semester at the university.

First-Year Programs

FYPs for incoming first-time college students offer extended orientation to university resources and enhance vital skills needed for academic success (Gahagan, 2002), a dynamic construct that involves writing skills, mathematics skills, study skills, interpersonal skills, time management skills, and stress management skills, among others (Light, 2001). Another contributing factor to academic success is how well students can navigate and utilize campus resources (Bhatia, 2006; Harvey-Smith, 2002; Terrion & Leonard, 2007). Academic success is frequently measured by examining retention and graduation rates as well as GPA; however is not entirely dependent on cognitive factors or mental processes, such as attention and memory needed for academics (Tracey & Sedlacek, 1986). Tracey and Sedlacek (1986) found that non-cognitive factors such as academic self-confidence, motivation, and community service were predictive of graduation rates for first-time freshmen, whereas SAT scores were not predictive of graduation rates. FYPs may be critical to boost students' cognitive *and* non-cognitive skills in their first year at the university, as many of these programs focus on both academic skills and interpersonal skills to increase student success (for an overview of research conducted at specific universities, see Tobolowski, Cox, & Wagner, 2005).

Most FYPs offer seminar-style rather than lecture-style classes in an attempt to increase retention and graduation rates by providing students with knowledge of campus

resources and by improving students' self-confidence; the goal of FYPs is to help students make a smoother transition to the university setting, often by knowing how to utilize campus resources and by feeling confident in one's personal and academic abilities (Gahagan, 2002; Skipper, 2002; Tobolowsky et al., 2005). The majority of American universities have recognized and responded to the need for FYPs. Of 1,013 accredited universities in the United States who responded to a National Resource Center survey in 2000, 749 (73.9%) stated that first year seminar classes were offered for incoming first-time freshmen (Skipper, 2002). FYPs originated from the counseling movement in higher education, and the first university in the United States to implement first-year seminars was Boston University in 1888 (Gordon, 1989). By 1930, an estimated one third (33%) of American universities offered FYPs. In the 1960's, however, most universities employed a *sink or swim* paradigm of academic success, cutting back on funding and perceived importance of FYPs and placing complete responsibility for academic success on students. The *sink or swim* model soon proved to be inadequate and US universities again invested resources in FYPs beginning in the 1980's (Gahagan, 2002).

Mentoring Programs

Mentoring relationships have been documented since the ancient Greek myth of Odysseus, in which Mentor was an older and more experienced person who took a younger person under his wing as an apprentice (Jacobi, 1991). Ever since, mentoring has been common in several professional fields such as education, management, and psychology. Many universities have implemented mentoring programs to increase

student retention, graduation rates, and cross-cultural understanding (Budge, 2006; Campbell & Campbell, 1997; Redmond, 1991; Terrion & Leonard, 2007). Mentoring was traditionally regarded as a type of apprenticeship for graduate education; however, in recent years mentoring has been increasingly regarded as a strategy for undergraduate classroom enrichment and retention.

Although prevalence rates of FYPs in US universities is known, prevalence rates for mentoring programs that exist in US universities are not well known (Jacobi, 1991). Another obstacle is that there is limited empirical evidence of the effect of mentoring on student outcomes and many studies have focused on the processes of rather than the outcomes of mentoring (Budge, 2006; Jacobi, 1991). Although the positive effects of mentoring programs in educational settings have been praised, the programs are rarely evaluated in a systematic and empirical manner (DuBois et al., 2006). Furthermore, studies conducted in the field of mentoring have utilized very different, and sometimes conflicting, operational definitions of mentoring (Budge, 2006; DuBois et al., 2006; Jacobi, 1991). This issue becomes even more complex when one considers that there are many contexts in which mentoring occurs, such as in business, in athletics, in academics, and with foster youth, to name a few. Goals of mentoring also differ; some programs are focused on academic success and retention, some on prevention of various risk factors such as drug use or gang involvement. For the purposes of the present study, mentoring will be defined as “a form of professional socialization whereby a more experienced individual acts as a guide, role model, teacher, and patron of a less experienced protégé” (Moore & Amey, 1988, p. 45) and will be limited to the academic setting of a public

four-year university. Peer mentoring occurs when the above criteria are met, and when the mentor and mentee (or protégé) are part of the same cohort. The present study focuses on peer mentoring that took place between members of the same undergraduate cohort who were studying at San José State University simultaneously in their respective areas of study or concentrations. The goal of peer mentor efforts was to foster academic success and increase retention at the university.

Researchers have found two main functions of mentoring (Jacobi, 1991; Johnson & Huwe, 2003; Kram & Isabella, 1985). The first is a task or career function, which is an objective outcome of mentoring. The second is a psychosocial function, which is a subjective outcome of mentoring. The career function of mentoring incorporates sponsorship and promotion of the mentee, coaching of the mentee, and allowing the mentee to assist with complex assignments to enhance their professional development. The psychosocial function of mentoring incorporates role modeling by the mentor, mentor acceptance and confirmation of the mentee, the mentor's counseling of the mentee, and the sense of appreciation and trust between mentor and mentee.

Mentoring relationships should not be perceived to only provide benefits to mentees. While mentoring *is* beneficial to mentees, the relationship *also* induces a highly positive effect on mentors (Ender & Kay, 2001; Grant-Vallone & Ensher, 2000; Reynolds, 2003; Topping, 1996). Reynolds (2003) found that GPAs among undergraduate students improved after they became mentors to fellow students. Topping (1996) emphasized the importance of peer mentoring in the process of transforming knowledge to wisdom by citing the idiom "to teach is to learn twice" (p. 324). Topping

suggests that preparation to become a peer mentor increases cognitive processes such as motivation and attention to the academic subject matter. Thus, peer mentors as well as mentees acquire knowledge and practice wisdom as a result of the mentoring relationship. The present study, however, did not focus on mentor outcomes, but rather focused on the outcomes of the first-year freshmen mentees.

Faculty mentors are also beneficial for undergraduate academic success. Campbell and Campbell (1997) examined the differences between first-year undergraduates who had a faculty mentor and those who did not in terms of GPA scores, graduation rates, and attrition rates at San José State University. The authors found that students who had voluntarily enrolled in a faculty/student mentor program had higher GPA scores and a lower attrition rate, when compared to their counterparts who did not enroll in the faculty/student mentoring program. Furthermore, time spent with a faculty mentor was positively associated with GPA scores such that more time spent with mentors was linked to better academic performance. The graduation rate between both groups of students did not differ as a function of mentoring; thus, while students' GPA improved with a faculty mentor, the rate of graduation did not. Mentor-mentee gender matching did not make a difference in GPA scores or attrition rates, but did influence the frequency and total duration time of mentor-mentee meetings. Female matched mentors and mentees met more frequently and for more time than did male matched mentors and mentees. Ethnicity of mentees was also unrelated to student success and the effect of faculty/student matching for ethnicity on student success outcomes was not significant. These findings suggest that gender and ethnicity of mentors or mentees are not as

important as time spent with a mentor. One limitation of their study was that minimum criteria or structure to the mentoring relationship was lacking, although the authors did measure the number of meeting times and total time spent meeting.

Peer Mentors in First-Year Program Classrooms

Although the need for FYPs has been identified and seminar-type classes have been widely implemented in the US, researchers emphasize the importance of including peer mentors in first-year seminars as a liaison between students and faculty (Chester, Burton, Xenos & Elgar, 2013; Grant-Vallone & Ensher, 2000; Light, 2001; Reynolds, 2003; Skipper, 2002). Faculty are often perceived as authority figures, and this perception may discourage students from seeking help and guidance (Ender & Kay, 2001); the smaller difference in age and authority level present in the peer mentoring tends to result in more mutuality of interaction and longer lasting mentoring relationships (Kram & Isabella, 1985). Students often prefer to seek out peer mentors to ask important questions about succeeding in the FYP class that they do not feel comfortable asking faculty, who evaluate and grade the students. Light (2001) examined students' needs upon arrival at the university and found that a trusted confidant to ask unexpected questions was one of the most influential factors cited by students. Students who are involved in school-based mentorship initiatives such as FYPs and mentoring reported higher levels of cognitive and informational support, a more favorable impression of university educational goals, higher levels of self-confidence, and a higher commitment to lifelong learning, when compared to students who were not involved in FYPs or mentoring (Ferrari, 2004). Participation in a FYP with a peer mentor present may play an

important role in students' acculturation to the university setting, which in turn may equate to higher levels of student success.

Students have reported that individualized, relevant, and constructive feedback (especially concerning writing skills) was a factor that contributed to favorable university experiences (Light, 2001). Having small seminar classes with a peer mentor and faculty member is a way to provide this type of feedback to students (Topping, 1996). Topping (1996) also emphasized that peer mentoring can increase empathy, self-esteem, and self-confidence as a result of feedback delivery from peers. In addition to feedback, Light (2001) found that faculty, peer mentors, and advisors created meaningful connections between course content and students' personal goals. Community building is also a goal of peer mentoring in FYP classrooms; students from several universities across the nation mentioned the need for identification with a group to feel that they belonged at the university (Light, 2001).

Chester et al. (2013) examined the effectiveness of a peer mentor program on the transition of first year psychology students at a metropolitan university in Australia. The authors assessed 231 first year students who participated in the program by collecting pre and post data and measured four self-reported senses of student success (from Lizzo, 2006), learning approaches, psychological literacy, evaluation of peer mentors, and academic performance. Noteworthy findings were that students who participated in the FYP that involved peer mentors exhibited positive and significant change on three of the five senses of student success (connectedness, culture, and resourcefulness), an increase in deep learning (seeking meaning, relating ideas, and interest in ideas), and an increase

in psychological literacy. Furthermore, FYP students with peer mentors exhibited higher GPA scores when compared with previous cohorts that did not participate in the program. One limitation in this study was the lack of control group, which made it difficult to attribute student outcomes to the FYP. The research was a step in the right direction, and more research that examines the combined effect of FYPs and peer mentoring is needed.

Knowledge of Campus Resources

Knowledge and utilization of campus resources has been positively associated with increased academic success and increased efficiency in peer mentoring relationships (Harvey-Smith, 2002; Terrion & Leonard, 2007). A common challenge that first-year students encounter is identifying, locating, and utilizing campus resources (Bhatia, 2006). Although students pay for campus resources as part of their tuition, they may never actively seek out certain resources and benefit from their use. Harvey-Smith (2002) found that use of student services was associated with student retention and persistence. Higher ratings of perceived accessibility and availability of campus resources were associated with lower self-reported intentions of attrition, or dropping out. Knowledge of campus resources was chosen as a dependent variable in the present study due to the fact that it was the variable that peer mentors brought up the most in two focus group sessions held prior to the experimental semester.

Overview of the FYP and Peer Mentor Program

The Peer Mentor Program at San José State University worked in collaboration with the Metropolitan University Scholar's Experience FYP. Both programs aimed to help students adjust to campus life academically and socially, and in turn hoped to

decrease student attrition rates. In 2006, San José State University was one of few US universities to include peer mentors in its FYP classrooms as well as a Peer Mentor Center in a combined effort to support students (San José State University, 2006). Peer mentors worked in three different contexts with the FYP students. First, peer mentors attended each class session with the FYP students, and were recommended to lead the class for 10-15 min each class period. During this time peer mentors provided academic and interpersonal support via workshop-style presentations and discussion groups, among other methods. Second, peer mentors worked in the Peer Mentor Center, a drop-in help center in the same building as the FYP classrooms. Students who visited the Peer Mentor Center consulted with peer mentors concerning academic (English, Math, etc.) and interpersonal (working in groups, public speaking, and roommate problems, etc.) issues. Third, peer mentors led some of the FYP workshops, which were hour-long interactive presentations concerning first-year student issues such as time management, stress management, registering for classes, choosing a major, and so forth.

Effect of Peer Mentoring on Knowledge of Campus Resources in FYP Classrooms

There is a lack of empirical studies examining the effect of peer mentors in FYP classrooms on student success, knowledge of campus resources, or utilization of campus resources (Topping, 1996). Topping highlights the importance of quantitative research examining the effects of peer mentoring to validate the qualitative research that has praised the effect of peer mentors on their fellow students' academic success. FYPs and peer mentor programs have been implemented into many university systems in order to reduce attrition and foster academic success (Budge, 2006; Jacobi, 1991; Shotton et al.,

2007; Skipper, 2002; Topping, 1996); however, it seems to be more rare that universities implement both FYPs and peer mentor programs in a joint effort to boost social and academic support among first-year students. This study measured the effect of having a peer mentor in FYP classrooms on first-year student change in knowledge of campus resources in their first semester at the university and first semester GPA scores. Participants responded to questions that targeted their knowledge of the available university resources upon arrival at the university and at the end of their first semester at San José State University.

Predicted outcomes were that students in FYP classes with a peer mentor would score higher on a measure of knowledge of campus resources compared to students in FYP classes without a peer mentor at the conclusion of their first semester at the university as a result of having a peer mentor to ask for guidance. An additional predicted outcome was that students with a peer mentor would have higher GPA scores in their first semester when compared to students in a FYP class without a peer mentor.

Method

Participants

The original sample was comprised of $N = 166$ incoming first-time freshmen who voluntarily enrolled in nine sections of the Metropolitan University Scholars Experience FYP at San José State University participated in the study. Participants were all first-year undergraduate enrolled students during the Fall 2009 semester (their first semester at any university), and were from various majors of study within the university. An a priori power analysis (GPower v.3) with an estimated effect size of 0.25 and an alpha level of α

= 0.05 was conducted to determine the minimum estimated sample size needed to maintain sufficient power in the present study. The power analysis determined that using a one-way repeated measures analysis of variance (RM ANOVA) with two independent variables (testing time and group), two groups (PM and NPM), and a test-retest correlation of $r = .5$, a minimum of 98 total participants were needed to maintain a .80 power level (Faul, Erdfelder, Lang, & Buchner, 2007). Initially, 166 students in nine sections of FYP classrooms agreed to participate in the study. Of the 166 participants, 16 participants were not available for testing time two as their class session had been cancelled for the day, leaving a total of 150 participants. From testing time one (T1) to testing time two (T2), there was an overall attrition rate of 20.67%, such that at the end of the Fall 2009 semester, only 119 had completed both surveys at testing time one and two. The attrition rate (from the study) of participants with a peer mentor was slightly lower (20.17%) than the attrition rate of participants without a peer mentor (22.58%) in their FYP classroom. Attrition rates in the present study could reflect students dropping out of the course, leaving the university, or students' absence or tardiness at the second testing time. The reason for students not providing data on testing time two (T2) remains unknown. Of these 119 participants who were present at T1 and T2, 28 participants were under the age of 18. This was a detail that was overlooked in the planning phase of the research, and informed consent forms from these students' parents were not obtained and, therefore, their data were not included. In summary, participants had to be over age 18, be on time for class (measurements were conducted at the beginning of class sessions at time one and two), and be present at both class sessions to be included in the study.

Thus, the total sample consisted of 91 FYP undergraduate students over the age of 18 years who voluntarily enrolled in the Metropolitan University Scholars Experience FYP classes at San José State University without knowing if they would have a peer mentor in the classroom or not. Due to a lack of foresight regarding factors such as age requirements, faculty consent to participate, and attrition, the sample size did not reach the suggested number of participants ($n = 98$) to maintain statistical power in the present study.

Participant data regarding ethnicity and socioeconomic status was not recorded; however, the sample was expected to mirror the demographics of previous studies of incoming freshmen at San José State University. The WABASH National Study of Liberal Arts Education (Office of Institutional Research, 2008) found that San José State University students were more likely to have lower socioeconomic status, be more ethnically diverse, and have lower SAT scores when compared to their counterparts at other universities. In the Fall 2009 semester, there were 31,280 enrolled students at San José State University, and over half of the students were from a US minority or underrepresented background (52%) (San José State University Office of Institutional Research, 2009). The estimated number of Fall 2009 FYP students at San José State University was around 1,000 students. Approximately 758 students (75.8%) had a peer mentor in their FYP classroom and approximately 242 (24.2%) students did not have a peer mentor in their FYP classroom. The sample in the present study exhibited similar percentages; 70 students in the sample had a peer mentor (76.9%) and 21 students did not have a peer mentor in their FYP classroom (23.1%). The entire cohort of incoming

freshmen to San José State University were a very diverse group in the domains of socioeconomic status, ethnicity, and in level of academic preparedness (San José State University Office of Institutional Research, 2008; San José State University Office of Institutional Research, 2009). Furthermore, San José State University serves many students who are first-generation college students who may have few academic role models to guide their experience in higher education.

Design

In order to assess the impact of the Peer Mentor Program at San José State University when combined with the Metropolitan University Scholars' Experience FYP on student knowledge of campus resources, a repeated measures 2 x 2 mixed factorial design was utilized. The first independent variable was level of peer mentoring in the student's FYP class. There were two levels of peer mentoring as an independent variable: students who had a peer mentor in their FYP classroom (PM; $n = 70$), and students who did not have a peer mentor in their FYP classroom (NPM; $n = 21$). Testing time, the second independent variable, also had two levels: testing time one (T1) which occurred at the beginning of the semester and testing time two (T2) which occurred at the end of the Fall 2009 semester three months after T1. The main dependent variable was knowledge of campus resources, measured using questions developed by peer mentors and pretested for test-retest reliability. The secondary dependent variable was GPA scores for the Fall 2009 semester, including all classes taken, for participants who gave consent to measure this additional variable ($n = 67$).

Setting and Apparatus

FYP classrooms in the Metropolitan University Scholars' Experience program at San José State University were located in the Academic Success Center and were equipped with an LCD projector, a Smartboard© (interactive whiteboard and projector technology), and furniture that was easily configured to varying classroom layouts. Each course session had a faculty member who designed course content based on perceived needs of first-year students and included academic content that was intended to be fun and engaging. Each FYP seminar course was different in content and represented areas of study from different colleges (i.e., College of Social Sciences, College of Business, etc.). For example, the courses taught by professors from the Psychology Department (College of Social Sciences) in the sample were titled: (a) *American Identity*, (b) *Understanding Prejudice*, and (c) *Long Winding Road*. FYP classes for the Fall 2009 semester were scheduled in the Spring 2009 semester, and students enrolled in the classes via an online university website. Participants did not know if there was a peer mentor assigned to the FYP class before enrolling. Humanities Honors FYP classes were not included in the sample because these students may be a distinct population that differs from the general population of first-year students. Furthermore, Humanities Honors classes are more likely to have peer mentors than other FYP classes and were excluded in an attempt to partially control for selection threat to internal validity.

Peer mentors in the FYP classrooms in the present study ($n = 7$) were sophomores, juniors, and seniors. All peer mentors participated in and were required to pass a semester-long seminar training class to provide insight into the factors that

influence student success, and best practices for peer mentoring in academic settings. The training class was part of the larger service learning initiative, which reflected San José State University's culture of social justice and community involvement by engaging students to promote academic success among their peers. Training included interactive workshops regarding effective communication skills, writing tutoring skills, workshop presentation skills, Smartboard© (interactive whiteboard and projector technology) training, and dialogue facilitation in a multicultural environment, among others. The objective of the Peer Mentor Program was to provide peer mentors who model positive academic and professional behaviors, promote community-building, and provide information regarding campus resources, to the FYP students and other students who utilize the Peer Mentor Center. The Peer Mentor Program training course was research-based and focused on teambuilding and working effectively in groups (for an example of theory used, see Johnson & Johnson, 2009).

Knowledge of campus resources questionnaire. In two focus group sessions, peer mentors identified several challenges that incoming freshmen face when adjusting to university life at SJSU that they felt the FYP and peer mentoring within the classroom assisted first-year students to overcome. Among these factors, lack of knowledge of campus resources (i.e., help centers, counseling, health services, etc.), was the most salient. Furthermore, existing research (Harvey-Smith, 2002; Terrion & Leonard, 2007) and a news article from SJSU (Bhatia, 2006) indicated knowledge of campus resources as an important factor for first-year student success that peers could influence in a positive manner. Peer mentors developed the 30-item Knowledge of Campus Resources

Questionnaire based on information from a collection of informational pamphlets of various SJSU campus resources with multiple choice, open-ended, true / false (T/F), and checklist-style questions. Questions covered a variety of academic, financial, psychological, and interpersonal resources (see Appendices A-C). The Knowledge of Campus Resources Questionnaire was pretested in an undergraduate psychology class that took place in the Summer 2009 intersession ($n = 14$) and exhibited a Chronbach's alpha score of $\alpha = .757$, indicating that the questionnaire had acceptable internal consistency.

Questions were designed with varying difficulty in an attempt to control for floor or ceiling effects. There was a maximum of 35 points possible on the Knowledge of Campus Resources Questionnaire. Multiple choice, open-ended, and T/F questions yielded either a score of 0 (incorrect) or 1 (correct). Checklist-style questions were scored based on how many of the choices were correct (1 point each, with a 3 point maximum) and on how many of the choices were incorrect (-1 point for each incorrect response). This process was utilized to help control for participants' tendency to check off many responses without knowing the answer, which would lead to a ceiling effect for the checklist-style questions. An example of an item on the Knowledge of Campus Resources Questionnaire was: "Where is the counseling services center located?", with possible responses:

- a. Clark Hall
- b. Student Union
- c. Health Center
- d. Administration

An answer guide (see Appendix D) was used to standardize the scoring process. Participants were assigned a coding number at T1, and surveys were distributed accordingly. Coding made the survey more anonymous, as names were never written directly on each survey. The researcher kept a spreadsheet of participant names and their corresponding code number on a password protected computer that only she had access to. The researcher and two research assistants scored the coded questionnaires using the answer guide.

Pretest survey. In addition to the Knowledge of Campus Resources Questionnaire, participants answered general information questions regarding gender, age, estimated high school grade point average, estimated Fall 2009 grade point average, and permission to access GPA records for the Fall 2009 semester were obtained from the majority of participants who agreed to the additional request on the informed consent form before the study began. Of the 91 participants, 67 (73.63% of the total sample) agreed to allow the researcher to access their GPA scores for the Fall 2009 semester. All participants completed the questionnaire in Appendix A at testing T1 that contained the general information questions and the Knowledge of Campus Resources Questionnaire.

Posttest survey. Participants completed a second questionnaire at T2 that contained the general information questions, the Knowledge of Campus Resources Questionnaire, a four-item evaluation of the FYP (FYP Evaluation), a four-item evaluation of the peer mentor (for those who had a peer mentor in the classroom [PM Evaluation]), number of FYP class sessions missed, time spent commuting, hours employed per week, amount of time spent at university help centers outside of class, and

amount of time spent with peer mentors outside of the FYP class. Participants who had a peer mentor in their FYP classroom completed the questionnaire in Appendix B at T2. An example of one of the questions that evaluated the peer mentor who served in the FYP classroom was: “The Peer Mentor in my MUSE class was capable of helping students with issues they had”. Participants who did not have a peer mentor in their FYP classroom completed the questionnaire in Appendix C at T2. An example of one of the questions that evaluated the FYP experience was: “Taking a MUSE class helped me adjust to college life”. Both sets of evaluation questions were scored on a Likert-type scale with five response options that ranged from *strongly disagree* (1) to *strongly agree* (5). There were 20 total possible points for each set of evaluation questions (PM Evaluation, FYP Evaluation).

Procedure

The Peer Mentor Program Director sent an email describing the study to FYP instructors in the Summer 2009 intersession requesting cooperation in utilizing their classrooms for sampling and inviting their students to participate. Four FYP instructors responded and agreed to the request, providing 10 sections of FYP classes for sampling in the present study. Two instructors taught three sections each of the same FYP curriculum and the other two instructors taught two sections each of the same FYP curriculum. One class session was canceled at testing time two, and therefore the researcher was not able to collect the data and it was not included in the analysis. Thus, there were nine class sessions included in the sample. The researcher visited each classroom during the first 15 min of instruction time at both testing time one (T1) and

testing time two (T2). Participants completed an informed consent form at T1 that provided details regarding the procedures of the study, and responded to an additional voluntary request to allow the researcher to have access to their Fall 2009 GPA after the conclusion of the semester. Sixty seven participants (73.63%) allowed access to their Fall 2009 GPA records by checking “yes” to the question “Do you agree to allow the primary investigator (and no one else) to obtain GPA records from the appropriate campus official?”. Participants were informed that the survey was confidential and anonymous, due to the storage of hard copy documents in a locked drawer that only the researcher had access to, electronic documents on a password protected computer, and due to the coding system that was utilized so that their names were never directly associated with their data.

Test-retest measurements were conducted at the beginning and end of the Fall 2009 semester in order to assess before and after effects of the FYP and peer mentor experience. The researcher administered the questionnaires to all participants. All participants completed the paper and pencil knowledge of campus resources questionnaire during the first two weeks of the Fall 2009 semester, which was also their first semester at any university. Testing time two was conducted during the last two weeks of the Fall 2009 semester, after three months at the university. All testing was conducted in the first 15 min of the class sessions. GPA data was obtained for the 67 participants who agreed to allow the researcher to access their records from the SJSU Office of the Registrar and included in the analysis. Questionnaires at T1 were assigned a coding number and the researcher maintained a spreadsheet with participants’ names

and assigned coding number. The spreadsheet was kept on the researcher's computer that required a login username and password to access. The T2 surveys were assigned numbers and the researcher administered each survey to the appropriate participant, according to their coding number, as in T1. This process was used in the attempt to obtain the most honest and accurate responses possible from the participants and to protect their anonymity at testing time two.

Results

Analysis

Descriptive statistics were examined to provide information about participant gender, age, estimated high school and college GPA, Fall 2009 semester GPA, perceptions of the FYP, perceptions of peer mentors, number of FYP classes missed, time spent commuting per day, hours of employment per week, time spent at other academic success centers outside of class, time spent with peer mentors outside of class, knowledge of campus resources at testing time one, and knowledge of campus resources at testing time two. These variables were of interest to provide a detailed perspective of first-year student characteristics, expectations, evaluations, habits, and knowledge. Correlations between variables were computed to determine important associations. The recorded data from the knowledge of campus resources questionnaire represented the scores of beginning and end of semester knowledge of campus resources survey responses of the dependent measure. The data were analyzed using a within and between-subjects repeated measures analysis of variance (RM ANOVA) with testing time (T1, T2) as the within-subjects independent variable and group (PM, NPM) as the between-subjects

independent variable and knowledge of campus resources as the dependent variable. To determine if the groups had different levels of knowledge of campus resources at testing time one, an independent samples *t*-test was conducted. Fall 2009 GPA data were analyzed using an independent samples *t*-test with group (PM, NPM) as the independent variable and Fall 2009 GPA as the dependent variable. Independent samples *t*-tests were conducted to determine if the groups differed significantly regarding the general information questions to check for any existing between group differences at testing time one. An alpha level of .05 was used for all statistical tests.

Descriptive Statistics

There were more female participants ($n = 58, 63.7\%$) in the sample than males ($n = 33, 36.3\%$). The majority of participants were 18 years old ($M = 18.05, SD = .23$); 86 (94.5%) participants were 18 years old, and five (5.5%) participants were 19 years old. The average age was the same as in the larger population of San José State University students who were first-year freshmen in Fall 2009 (San José State University Office of Institutional Research, 2010). At the beginning of the Fall 2009 semester, participants reported an average estimated high school GPA (HS GPA) ($M = 3.32, SD = .34$) that was comparable to the average high school GPA of the population of SJSU first-year freshmen who were concurrently enrolled in the Fall 2009 semester ($M = 3.21$) (San José State University Office of Institutional Research, 2010). They also reported their estimated Fall 2009 GPA (Est. GPA) ($M = 3.35, SD = .36$) as a projected approximation. Participants felt that they would achieve roughly the same GPA in their first semester at the university as they had achieved in high school based on what they remembered of

their high school GPAs. Of the 91 participants, 67 (73.63% of the total sample) agreed to allow the researcher to access their GPA scores for the Fall 2009 semester. The 67 participants achieved a similar average GPA ($M = 3.18$, $SD = .64$) to what they estimated their high school GPA to have been and to their estimated projected GPA in their first semester at the university. Similarly, estimated high school GPA and estimated Fall 2009 GPA did not differ between groups. Participants estimated that the number of FYP class sessions they had missed (Classes Missed) was less than two classes for the semester ($M = 1.63$, $SD = 1.83$); the reported number of FYP classes missed did not differ between groups, $t(89) = .01$, $p = .992$, $d = 0.33$.

Thirty-nine participants lived on campus (42.9%), and 52 participants were commuters (57.1%). This finding was comparable to the larger SJSU first-year student population in that 45% of SJSU first-year students lived on campus and 55% commuted in the Fall 2009 semester. Twenty-seven participants spent 20 min or less commuting per day (29.7%), 16 participants spent between 21 and 50 min commuting (17.6%), seven participants spent between 51 and 80 min commuting (7.7%), one participant spent 90 min commuting (1.1%), and one participant spent 150 min per day commuting (1.1%). The overall sample, including commuters and non-commuters, reported spending an average of 17.87 min ($SD = 25.16$) commuting per day (Time Commute). Time spent commuting did not differ significantly between groups, $t(89) = 0.94$, $p = .352$, $d = 0.22$. At the end of the semester, participants responded to a question asking if they had worked over the course of the semester, and if so, how many hours per week. Forty participants had worked in the Fall 2009 semester (44%), and 51 had not (56%). Six participants

worked between four and eight hrs per week (6.6%), eight participants worked between nine and 14 hrs (8.8%), and four participants worked between 15 and 18 hrs per week (4.4%). Participants on average worked 8 hrs per week during the Fall 2009 semester (Hours Employed) ($M = 7.91$, $SD = 10.33$). Participants with a peer mentor did not work significantly more than participants without a peer mentor, $t(89) = 1.07$, $p = .678$, $d = 0.10$.

Participants reported spending less than four hours for the entire semester at university help centers outside of class (General Help) ($M = 3.55$, $SD = 7.99$). Participants reported that the amount of time spent with peer mentors outside of class (PM Time Outside Class) was less than two hours for the entire semester ($M = 1.22$, $SD = 3.97$). There were no significant differences between groups regarding time spent at university help centers outside of the FYP class, $t(89) = -1.22$, $p = .544$, $d = 0.17$, nor for time spent with peer mentors outside of class, $t(89) = -.72$, $p = .472$, $d = 0.22$.

Evaluation of the FYP and Peer Mentors

Participants evaluated the FYP somewhat neutrally ($M = 14.52$, $SD = 3.79$) as they gave the FYP an average of 14.52 out of 20 possible points, which would equate to 3.5 points per question, or between the neutral option and the *agree* option (see Table 1 for the results of the four individual questions). Participants who had a peer mentor rated the FYP the same ($M = 14.51$, $SD = 3.82$) as their counterparts without a peer mentor ($M = 14.52$, $SD = 3.78$), $t(89) = .01$, $p = .992$, $d = -0.003$. The 70 participants who had a peer mentor in the classroom (PM) rated their peer mentor positively ($M = 16.56$, $SD = 2.52$), as they gave the peer mentor an average of 16.56 out of 20 possible points, which

corresponded to the *agree* option for the four evaluation questions (see Table 2 for the results of the four individual questions).

Table 1
Evaluation of the Metropolitan University Scholars' Experience (MUSE) FYP

Statements (scored on a 5-point Likert scale)	<i>M</i>	<i>SD</i>
1. In general, taking a MUSE class helped me succeed in my first semester at SJSU.	3.69	1.09
2. Taking a MUSE class helped me obtain better grades in my other classes.	3.14	1.06
3. Taking a MUSE class helped me adjust to college life.	3.76	1.10
4. The MUSE class provided important information that was relevant to me as a first year student.	3.97	1.01
Overall evaluation of the FYP (of 20 possible points)	14.52	3.79

Table 2
Evaluation of Peer Mentors

Statements (scored on a 5-point Likert scale)	<i>M</i>	<i>SD</i>
1. In general, working with a Peer Mentor helped me succeed in my first semester at SJSU.	3.53	.91
2. The Peer Mentor in my MUSE class showed willingness to help me.	4.40	.75
3. The Peer Mentor in my MUSE class was capable of helping students with issues they had.	4.36	.72
4. The Peer Mentor in my MUSE class provided important information that was relevant to me as a first year student.	4.27	.76
Overall evaluation of peer mentors (of 20 possible points)	16.56	2.52

Knowledge of Campus Resources Findings

The repeated measures ANOVA results indicate that participants in both groups learned more about campus resources over the course of their first semester at the

university. Students with a peer mentor in their FYP classroom started out with significantly lower scores on the knowledge of campus resources questionnaire at the beginning of the semester ($M = 12.77, SD = 3.58$) than students who did not have a peer mentor in their FYP classroom ($M = 14.71, SD = 3.32$), $t(89) = 1.94, p = .029, d = -0.56$. Participants with a peer mentor in their FYP class finished with similar scores on the knowledge of campus resources questionnaire at the end of the semester ($M = 15.64, SD = 3.51$) as participants without a peer mentor ($M = 15.43, SD = 2.40$), $t(89) = -0.21, p = .794, d = 0.07$. There was a main effect of time (T1 to T2 change), $F(1,89) = 14.26, p < .001, d = 0.69$, on knowledge of campus resources. There was also an interaction effect of time and group (PM, NPM), $F(1,89) = 5.16, p = .026$, on knowledge of campus resources (see Figure 1). Students with a peer mentor (PM) scored significantly higher on the Knowledge of Campus Resources Questionnaire at T2 compared to their scores at T1, $t(69) = 6.29, p < .001, d = -0.81$, whereas the students without a peer mentor (NPM) did not score significantly higher at T2 when compared to T1, $t(89) = 0.86, p = .400, d = -0.25$. The effect of group (PM, NPM) on knowledge of campus resources was not significant, $F(1,89) = 1.51, p = .223$.

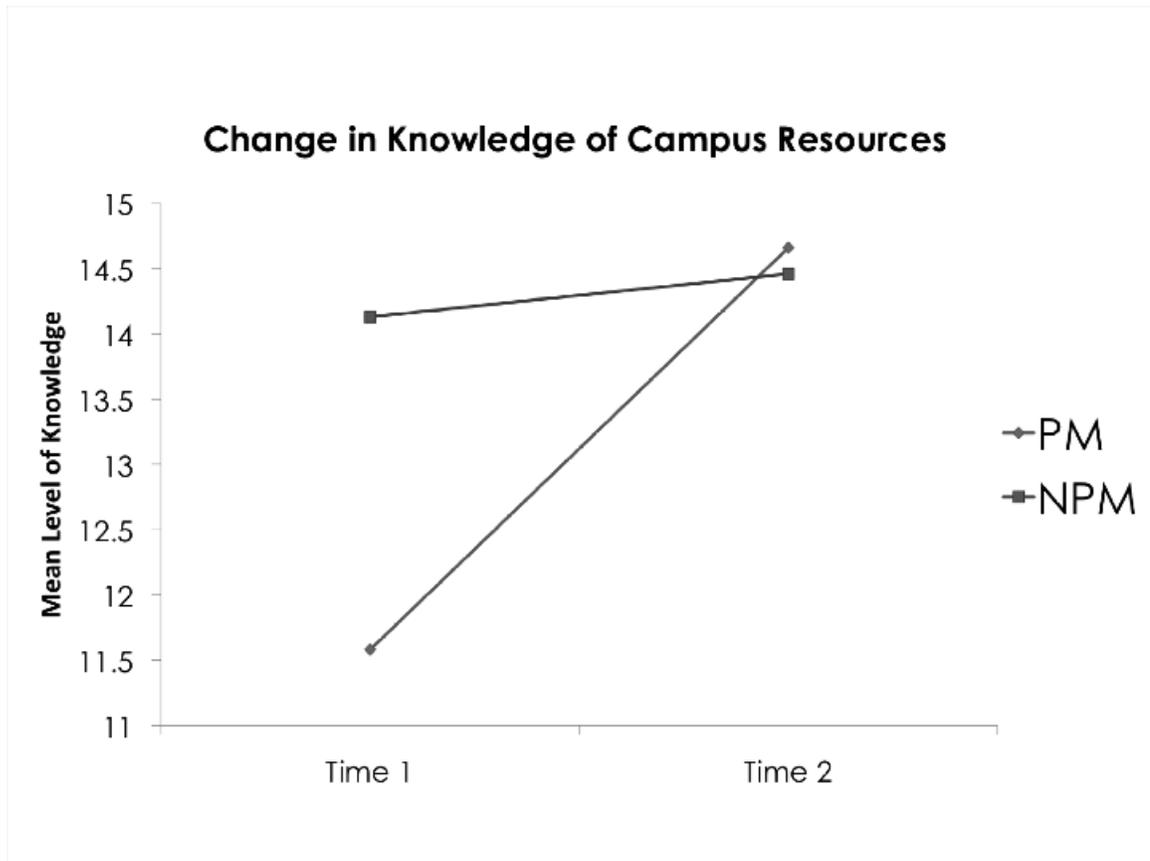


Figure 1. Main effect of time and interaction effect of time and group on knowledge of campus resources in the sample of 91 first-year students.

Partial eta squared values revealed that 13.8 % of the variability in knowledge of campus resources was accounted for by time, 5.5% by the interaction of time and group, and only 1.7% by group. Observed power was 0.96 for the difference scores in knowledge of campus resources questionnaire testing time (T1, T2), but only 0.61 for the interaction between group and time, and 0.23 for the difference scores in knowledge of campus resources and group (PM, NPM). Therefore, a minimum power of 0.80 was not attained for the interaction of group and time, nor for group. An independent samples *t*-

test determined that group means were significantly different at time one, $t(89) = 1.94$ $p = .029$, $d = -0.56$.

This between-groups difference at testing time one poses a threat to internal validity, and regression to the mean could possibly be present in the data. Also, the extreme scores in knowledge of campus resources at time one could have resulted in a type I error for the RM ANOVA tests. Therefore, a second analysis was conducted to exclude outliers who scored less than 30% correct on the Knowledge of Campus Resources Questionnaire at T1 from both groups. Those who scored below 10 points at T1 were excluded in the second analysis. Eleven participants scored below 10 points on the Knowledge of Campus Resources Questionnaire at T1 and were thus excluded from the second analysis. There were nine participants who had a peer mentor who were excluded from the analysis and two participants who did not have a peer mentor were excluded from the analysis. Although the outliers who scored less than 30% of the total possible points at T1 were excluded, the results were the same as the first analysis. There was a significant difference in Knowledge of Campus Resources at T1 between groups. Participants with a peer mentor ($n = 61$, $M = 13.57$, $SD = 3.04$) scored significantly lower on the Knowledge of Campus Resources Questionnaire at T1 compared to participants without a peer mentor ($n = 19$, $M = 15.47$, $SD = 2.41$) $t(78) = 2.49$, $p = .015$. As in the primary analysis, there was a main effect of time (T1 to T2 change), $F(1,78) = 7.29$, $p = .009$, on knowledge of campus resources. There was also an interaction effect of time and group (PM, NPM), $F(1,78) = 4.69$, $p = .033$, on knowledge of campus resources. The

effect of group (PM, NPM) on knowledge of campus resources was not significant, $F(1,78) = 1.72, p = .193$.

GPA scores did not differ between groups; participants with a peer mentor achieved similar GPA scores ($M = 3.19, SD = .62$) to their counterparts in the FYP who did not have a peer mentor ($M = 3.12, SD = .77$), $t(65) = -.07, p = .739, d = 0.10$. Similarly, self-reported high school GPA scores (HS GPA) did not differ between groups. Participants with a peer mentor reported similar HS GPA scores ($M = 3.31, SD = .34$) to their counterparts in the FYP who did not have a peer mentor ($M = 3.36, SD = .33$), $t(88) = .50, p = .62, d = -0.15$.

Correlations among Variables

Important associations between variables were examined. Significant correlations were found between self-reported HS GPA and estimated Fall 2009 GPA, $r = .26, p = .02$. HS GPA and university Fall 2009 GPA were positively associated, $r = .31, p = .01$. HS GPA was negatively correlated with classes missed, $r = -.23, p = .03$. HS GPA was also positively associated with time spent commuting, $r = .26, p = .02$. For participants who had a peer mentor, the FYP evaluation scores were positively correlated with the PM evaluation scores, $r = .53, p < .001$. Time spent commuting was negatively correlated with FYP evaluation scores, $r = -.21, p = .049$. Participants' Fall 2009 first semester grades were positively associated with time spent commuting, $r = .27, p = .03$. Participants' estimated first semester GPA was also positively associated with number of hours reported working, $r = .24, p = .04$.

Higher ratings of the FYP experience were associated with more time spent utilizing campus resources, $r = .27, p = .01$. Thus, those who felt that the FYP was more effective also reported utilizing campus resources the most. Similarly, those who rated peer mentor effectiveness higher reported spending more time utilizing campus resources during their first semester at the university, $r = .25, p = .04$. Time spent utilizing campus resources was positively correlated with time spent utilizing peer mentors $r = .74, p < .001$, a strong positive correlation. Self-reported time spent utilizing campus resources also had a positive association with knowledge of campus resources at T1, $r = .28, p = .008$, and with knowledge of campus resources at T2, $r = .27, p = .009$. Knowledge of campus resources at T1 was negatively correlated with time spent commuting, $r = -.23, p = .03$. Knowledge of campus resources at T1 was positively correlated with knowledge of campus resources at T2, $r = .36, p < .01$.

Table 3
Descriptive Statistics and Correlations among Variables

	<i>M(SD)</i>	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender													
Male	<i>n</i> = 33 (36.3%)												
Female	<i>n</i> = 58 (63.7%)												
2. Age	18.5 (.23)	-											
3. HS GPA	3.32 (.34)	.04	-										
4. Est. Fall 2009 GPA	3.35 (.36)	-.06	.26*	-									
5. Fall 2009 GPA	3.18 (.64)	.11	.31**	.21	-								
6. FYP Evaluation	14.52 (3.79)	.07	-.01	.10	-.04	-							
7. PM Evaluation	16.56 (2.52)	.09	.12	.08	.18	.53**	-						
8. Classes Missed	1.63 (1.83)	-.14	-.23*	-.04	-.12	-.17	-.23	-					
9. Time Commute	17.87 (25.16)	-.11	.26*	.03	.27*	-.21*	.02	-.01	-				
10. Hrs Employed	7.91 (10.33)	-.15	.17	.24*	.12	-.10	-.02	-.04	.11	-			
11. Univ. Help	3.55 (7.99)	-.03	.11	.01	.16	.27**	.25*	-.14	-.05	-.05	-		
12. PM Help	1.22 (3.97)	-.02	.19	.14	.07	.16	.14	-.15	-.11	-.11	.74**	-	
13. KCR T1	13.22 (3.60)	.01	.18	-.14	.11	.12	.16	-.12	-.23*	-.11	.28**	.20	-
14. KCR T2	15.60 (3.28)	.07	.08	-.07	.12	.20	.05	-.17	-.12	-.12	.27**	.20	.36**

Note. N=91

p*<.05, *p*<.01

Discussion

The results did not entirely support the hypotheses that presence of a peer mentor in FYP classrooms would lead to increased knowledge of campus resources and higher GPA scores when compared to FYP students without peer mentors. Ninety-one FYP students at San José State University participated in this quasi-experiment that examined the change in knowledge of campus resources in their first semester. First-year freshmen

as a collective group learned more about San José State University campus resources in the four-month experimental period. There was a significant main effect of time, the within-subjects independent variable, and a significant interaction effect of group and time on knowledge of campus resources scores. There was not a significant main effect of group, the between-subjects independent variable, on the dependent variable. There was not a significant main effect of group (PM vs. NPM) on knowledge of campus resources; however, the students who had a peer mentor in their FYP classroom demonstrated a significant increase in knowledge of campus resources at T2 compared to T1. FYP students who did not have a peer mentor did not demonstrate a significant increase in knowledge of campus resources at T2 compared to T1. FYP students who had a peer mentor in their classroom began the Fall 2009 semester with significantly less knowledge than their peers in FYP class sessions that did not have a peer mentor. By the end of the semester, however, FYP students with a peer mentor had slightly more knowledge of campus resources than their counterparts, although the difference was neither significant, nor meaningful (only 0.21 point on average higher than those without a peer mentor). Thus, the hypothesis that students with a peer mentor would know more about campus resources than FYP students without a peer mentor was not completely supported. The findings in the present study could be due to a regression effect, considering that the two groups started their first semester with significantly different levels of knowledge of campus resources.

For the purposes of this study, knowledge of campus resources referred to how much a student knew about the process of obtaining necessary or beneficial services,

which are already paid for by tuition fees. The extent to which students know about and utilize necessary resources is thought to play an important role on retention to and graduation from the university (Bhatia, 2006; Harvey-Smith, 2002; Terrion & Leonard, 2007). Another finding from the present study was not only that students from both quasi-experimental groups scored similarly on the knowledge of campus resources questionnaire at the end of their first semester (at T2), also there were no group differences in time spent at university help centers, or time spent utilizing campus resources between the two groups. Students reported spending on average less than four hours during the entire semester utilizing campus resources at university help centers. Similarly, participants reported spending on average a little more than an hour during the entire semester with a peer mentor outside of the FYP class. In summary, the FYP students did not utilize campus resources to the degree that campus administrators would hope. Furthermore, there was not a significant difference between groups regarding first semester GPA scores. The hypothesis that FYP students with a peer mentor would have higher GPA scores at the end of their first semester when compared to FYP students without a peer mentor was not supported.

Participants rated the effectiveness of the FYP experience somewhat neutrally. Students responded on average that they slightly agreed that taking a MUSE class helped them succeed in their first semester at SJSU. Participants felt neutrally that taking a MUSE class helped them obtain better grades in their other classes. They reported that taking a MUSE class helped them adjust to college life. The FYP students agreed the most with the statement “The MUSE class provided important information that was

relevant to me as a first year student". In summary, the highest effectiveness ratings of the four questions on the FYP evaluation was for the importance and relevancy of the information for first-year students. There were no group differences in FYP students' ratings of the FYP between those who had a peer mentor and those who did not.

Participants rated the effectiveness of the peer mentor experience positively. Students who had a peer mentor in their FYP classroom reported that in general, working with a peer mentor helped them succeed in their first semester at SJSU. The highest rating of peer mentors was that they demonstrated willingness to assist FYP students. The second highest rating of peer mentors was that they demonstrated capability to assist FYP students with their needs. The students felt that peer mentors were effective in providing important information that was relevant to first year students.

Important correlations among variables revealed that higher ratings of the FYP experience and peer mentor experience were associated with more time spent utilizing campus resources. Thus, those who felt that the FYP was more effective also reported utilizing campus resources more than students who gave the FYP lower ratings. Similarly, those who rated peer mentor effectiveness with higher scores reported spending more time utilizing campus resources during their first semester. There were no group differences in amount of time spent utilizing campus resources between those who had a peer mentor and those who did not. Time spent utilizing campus resources was positively correlated with time spent utilizing peer mentors, and exhibited a strong positive correlation. In other words, those who reported spending more time with peer mentors (whether they had a peer mentor in their FYP classroom or not) also reported

spending more time utilizing campus wide resources. It could be that peer mentors encouraged first-year students to seek assistance from other university resources such as the Writing Center and other tutoring centers. For participants who had a peer mentor, the FYP evaluation scores were positively correlated with the PM evaluation scores, which indicated that high FYP ratings were associated with high ratings of peer mentors. Participants rated the FYP neutrally (on average, they selected the neutral option), whereas the students who had peer mentors rated the peer mentors positively (on average, they selected the agree option). Self-reported time spent utilizing campus resources also had a positive association with knowledge of campus resources at T1 and with knowledge of campus resources at T2. Knowledge of campus resources at T1 was negatively correlated with time spent commuting, meaning that students who commuted to campus their first semester started off with less information about campus resources. Knowledge of campus resources at T1 was positively correlated with knowledge of campus resources at T2, meaning that high scores on the knowledge of campus resources questionnaire in the beginning of the semester were associated with higher scores at the end of the semester. It makes sense that students who lived on campus or very near campus may have learned more in the first week of the semester (prior to T1) due to the increased time spent on campus, when compared to the commuter students. Unfortunately, these trends did not correlate with GPA scores.

A significant positive correlation was found between self-reported HS GPA and estimated Fall 2009 GPA, which indicated that students expected to achieve similar GPA scores in their first semester at the university as they reported achieving in high school.

HS GPA and university Fall 2009 GPA were also positively associated, meaning that higher HS GPA scores were associated with higher first semester college GPA scores. HS GPA was negatively correlated with classes missed, which indicates that those who had higher GPA scores in high school reported missing fewer classes in their first semester at college. HS GPA was also positively associated with time spent commuting, although the meaning of this association is not entirely clear. Time spent commuting was negatively correlated with FYP evaluation scores, such that the more time a student spent commuting, the less likely it was that they felt the FYP was effective. Participants' Fall 2009 first semester grades were positively associated with time spent commuting, thus time spent commuting in the present sample was associated with higher grades during their first semester. Participants' estimated first semester GPA was also positively associated with number of hours reported working, thus those who estimated that they would achieve higher GPA scores also reported more weekly hours employed, although it was a weak positive correlation.

Results of the present study provided a quantitative, quasi-experimental inquiry into the effect of the FYP and peer mentoring on first-year student knowledge of campus resources, first semester GPA, perceived effectiveness of the FYP, perceived effectiveness of the peer mentor (for the treatment group), and other participant background information. The goal of both programs was to promote a positive academic experience for FYP students, who are at risk for high stress levels (American College Health Association, 2003; Cooke, Bewick, Barkham, & Audin, 2006) and high rates of attrition during their first year at the university (San José State University Office of

Institutional Research, 2008). The two programs sought to assist students by providing an extended orientation to the university's resources geared toward student success.

Unpublished findings from an internal report found that first-year San José State University students who enrolled in a FYP classroom with a peer mentor had a higher retention rate (84.7%) when compared to students in a FYP without a peer mentor (76.9%) (San José State University Office of Institutional Research, 2008).

The first year retention rate for first-time SJSU students who enrolled in the Fall 2009 semester was higher than in previous years; 85% of Fall 2009 first-year students re-enrolled at SJSU in Fall 2010 (San José State University Office of Institutional Research, 2010), when compared to only 80% who re-enrolled for their second year in the Fall 2003 through 2008 semesters (San José State University Office of Institutional Research, 2008). This trend could be due to the implementation of student success programs such as the Metropolitan University Scholars' Experience FYP and the Peer Mentor Program, or could be due to historical factors such as the widespread cuts to the California State University (CSU) budget and the restriction of seats at San José State University, which could have increased persistence of higher numbers of students. External events to the experiment or between repeated measures of the dependent variable could have affected participants' responses to experimental procedures, making it impossible to determine whether any change on the retention rate is due to the independent variable(s), or the historical event. Even if the researcher had tracked retention of the Fall 2009 FYP students, it would still remain unclear if the FYP was an influential factor in retaining more first year students or if other factors accounted for the increased retention rate. In

the present study the attrition rate of participants with a peer mentor from the research study was slightly lower (20.17%) than the attrition rate of participants without a peer mentor (22.58%) in their FYP classroom. It is important to note that attrition rates from the study could reflect students dropping out of the course, leaving the university, or students' absence or tardiness at the second testing time; T1 and T2 were conducted in the first 15 min of class, therefore only the data of punctual and present students at the beginning of both class periods was included. Therefore, the attrition rate from the study is inflated from the actual attrition rate of Fall 2009 students.

Implications for Peer Mentoring in University Settings

Peer mentoring programs are an effective way to mitigate the negative effects of rising class sizes that are prevalent with budget cuts in education (Topping, 1996). In a literature review of peer tutoring, Topping found that the programs involving peer tutoring and peer mentoring were a cost-effective way to ensure that students received constructive and relevant feedback regarding their academic work despite higher student to instructor ratios. Although most of the articles reviewed demonstrated favorable student outcomes as a result of peer tutoring and mentoring programs, Topping warns against viewing peer mentoring programs as a panacea to all student success issues in higher education. In the studies reviewed, peer mentoring programs were most effective within a highly structured academic environment. Therefore, it would be undesirable to implement programs in an unstructured manner and peer mentoring should be research based and deliberately planned.

Responses to questions regarding perceived helpfulness of the FYP and of peer mentors revealed that the students in the Fall 2009 and Fall 2006 samples of FYP students had a positive experience (see also the First Year Experience Report, 2006). Not only the presence of, but the quality of a peer mentor in the FYP classroom is important. Beyene, Anglin, Sanchez, and Ballou (2002) found that mentees perceived race and gender as independent from outcomes of the mentoring process, whereas mentees perceived friendship, nurturance, open-mindedness, and trustworthiness to be vital to a successful mentoring relationship. Mentees, in general, benefit from positive and constructive mentoring relationships. Light (2001) emphasized the importance of a positive environment that is shaped for learning from diversity and sharing perspectives. Due to training regarding effective mentoring skills in a multicultural and ethnically diverse environment, peer mentors aimed to foster an anti-bias environment in which students felt comfortable and felt that they had a voice in class discussions. Peer mentoring can occur on a one-on-one basis, such as students visiting the peer mentor center and working with a peer mentor. Peer mentoring can also occur as group mentoring, such as the configuration in the present study of having one peer mentor for a small class of students.

Mentoring target populations. Given the difficulty of completing a degree in higher education and the high attrition rates discussed previously, it is imperative to offer mentoring programs and FYPs to students, rather than following the *sink or swim* model. The present study has covered effects of the joint effort of a peer mentoring program and a FYP to aid incoming first-year freshmen; however similar results have been found

regarding community college transfer students in regard to attrition, graduation, and retention. Henry and Knight (2003) found that out of 552 community college students who transferred to a Midwestern university, 184 (33.3%) left the university without a degree, 243 (44%) earned a bachelor's degree, and 125 (22.6%) of transfer students remained enrolled at the university working toward their degree over a six-year timeframe. Transfer student success programs are thus needed in the same way that FYPs are needed to ease the transition of students from one college or university to another. Graduate students have also experienced positive results after becoming mentors to first-year students in their program of study (Grant-Vallone & Ensher, 2000). Specifically, levels of mentee and mentor social support and satisfaction with their graduate program increased as a result of the mentoring relationship. Graduate students are also in need of mentors and can benefit greatly from the protection and guidance of a trusted confidante (Grant-Vallone & Ensher, 2000; Johnson & Huwe, 2003). The assistance of a successful mentor is highly important for the population of graduate students due to the fact that they will need practical experience to enter the workplace in their field of study.

Although some researchers have found that ethnicity did not have an effect on mentoring, FYPs, or student success (Campbell & Campbell, 1997), others have found that there is a need for mentoring students who are from ethnic minority groups in the US (Budge, 2006; Harvey-Smith, 2002; Shotton, Oosahwe, and Cintrón; 2007). Harvey-Smith (2002) found that African American students were in need of mentoring, especially at Caucasian majority schools. Shotton, Oosahwe, and Cintrón (2007) found that

mentoring facilitated Native American students in overcoming obstacles as a result of their mentors creating community, connecting mentees to the larger community, and providing support and guidance. Native American mentees cited mentor commitment, mentor genuine care, and ability to relate to the protégé as important criteria for a trusting and enriching mentoring experience. They also advised that good mentors are goal-oriented, successful, and demonstrate high professional standards.

Training peer mentors and FYP faculty. Educators should consider specific goals when implementing peer mentoring programs (Ender & Kay, 2001): what are the learning outcomes? How many students will be served? How many peer mentors are needed to serve the target student population? How can program administrators build-in evaluation processes to document results? Establishing these specifics will ensure that a systematic and proactive approach is taken and that both qualitative and quantitative outcomes can be measured. Training of peer mentors and FYP faculty is critical, and must include an assessment of student body and peer mentor needs, in-depth training regarding advanced communication skills, and ability to work with a diverse range of students in terms of gender, ethnicity, socioeconomic status, age, sexual orientation, religion, and culture, among other factors (Budge, 2006). Furthermore, peer mentors and faculty must acquire in-depth information about the use of campus resources and know when to refer students to specific help centers based on their needs.

To accomplish these goals, the peer mentor and FYP faculty training should be planned and completed before the semester in which these programs will operate begins (Budge, 2006). Effective training of peer mentors and FYP faculty regarding issues of

diversity is essential, as members of different ethnic, gender, age, and socioeconomic groups may feel uncomfortable working with one another as a result of stereotypes and historical relations between different groups (Ferrari, 2004; Jacobi, 19991). The ultimate goal of both types of programs should be inclusiveness in the educational setting, so that underrepresented populations feel that their peers and faculty support their success. Budge (2006) suggests that “the more open a program is about their commitment to supporting ... less-recognized populations, the more likely it is for all students to recognize the mentoring program as being helpful for them” (pp. 78). Specifically, perspective-taking and advanced listening skills should be a part of peer mentor and FYP faculty training for successful outcomes in cross-cultural mentoring (Redmond, 1991). Once the academic year begins, weekly or bi-monthly supervision meetings should occur so that ongoing training and troubleshooting between mentors and program directors remains consistent and focused to the needs of the student population the program serves.

Service-learning is another related aspect of the present inquiry on the first-year experience and effect of peer mentoring in the context of FYP classrooms because peer mentors also learn from their work serving the needs of fellow students. Service-learning affects the mentor positively in four ways: a) increased self-efficacy, b) increased classroom engagement, c) heightened awareness of personal values, and d) heightened awareness of social issues (Vogelgesang, Ikeda, Gilmartin, & Keup, 2002). Peer mentor programs that utilize a service-learning approach achieve two of the best practices derived from academic literature reviewed here. The first is to increase the ratio of feedback-providers to students in education, and the second is to provide a structured

program framework so that the quality of peer mentoring is high, the relationship remains positive and professional, and the feedback provided effectively scaffolds student learning. Peer mentors benefit from guiding fellow students, and often times have a need to fulfill and extend the volunteerism in which they most likely participated in high school. Vogelgesang et al. reported that volunteerism has been on the rise among high school students since 1990 in the United States and that in 2000, 81% of high school students surveyed were involved in community service on a volunteer basis. This is certainly a positive trend that benefits not only the community, but the volunteer involved as well.

Limitations

All of the weaknesses of quasi-experiments apply to the present study due to the lack of random assignment to groups. Students actively selected which FYP course they enrolled in; therefore, there is a selection threat to internal validity in the quasi-experiment. FYP classes differ in subject matter and have different instructors, influencing participant enrollment choice. It is not possible to randomly assign students to sections of the FYP classrooms, as it is their right to choose which class they wish to enroll in. Second, some professors allocate less time to their peer mentor; while 10-15 mins per class session was the recommended best practice, some professors may allocate as little as 10-15 mins per *month* to their peer mentor. Future research should measure time peer mentors were given an active role in the FYP classroom, a variable that was not measured in the present study.

The significant interaction effect of group and time on knowledge of campus resources could have been due to regression to the mean, a statistical phenomenon that makes chance testing effects look like real effects in the data. Group means were significantly different at T1 in the presents study, which could have made natural changes in data between testing times seem like significant results. Extreme scores at T1 regarding group differences in knowledge of campus resources could have contributed to a Type 1 error in the present study, in which the null hypothesis was possibly rejected erroneously. It could be that there was really no interaction effect of the presence of peer mentors and testing time, and that the extreme scores at time one contributed to regression to the mean.

Data collection in the present study began during a period of budget-cuts in which student seats and numbers of classes were restricted when compared to previous years. Retention rates for the Fall 2009-Spring 2010 Academic Year jumped from 80% in previous years to 85% (San José State University Office of Institutional Research, 2010). While San José State University officials may hope that the efforts of implementing the FYP, Peer Mentor Program, and other programs caused the spike in retention, it is not possible to attribute the increase in student retention to program efforts. Students may have been more actively encouraged by administrators to finish their degree and persist at the university when compared to previous semesters. In any case, it is difficult to pinpoint the factors responsible for the increased retention rate, and ongoing educational research is needed.

Sampling. The sample size in the present study did not reach the minimum requirements to reach an adequate level of power. Factors such as lack of faculty cooperation to allow the researcher to survey students, attrition from the study (for whatever reason such as dropping out of the class or tardiness or absence at T2), and the oversight that many of the FYP students were under 18 years of age and would need a parent to consent to their participation, all limited the sample size considerably. The low sample size and lack of power most likely contributed to low effect sizes in the present study. Therefore, future research should take these factors into consideration early in the planning stages so that more participants may be included in the research and an acceptable power level may be achieved.

Another limitation was that a control group of students from the larger population of first-time freshmen at San José State University who did not take a FYP class and did not interact with peer mentors was not included in the study. This type of control group is important to establish a baseline of student knowledge of campus resources for the general population of first-year students, the majority of whom do not enroll in FYP classrooms. Also, controls provide a comparison group of students who are not influenced by the confounding and overlapping of the FYP and peer mentor experience. By not including this comparison group, it is difficult to assess the true impact of the FYP and peer mentoring, as these services had a high potential for overlap. For example, even FYP students without a peer mentor in the study may have visited the Peer Mentor Center, which was located in the same building and very near the FYP classrooms. DuBois et al. (2006) state that “the greater the difference in services, the more likely

impacts will be found... the likelihood of finding a statistically significant program impact if the service is effective depends on the ‘service contrast’ between the program and control group” (pp. 665). Therefore, the present study failed to include a control group and the FYP students with and without a peer mentor in the classroom most likely experienced a modest *service contrast*. In addition to the inadequate sample size, power was most likely decreased by the modest *service contrast*, or effect size of the treatment group. A more preventative goal in peer mentoring programs such as gang prevention, drug use prevention, and other more serious issues may also increase the service contrast, and therefore yield higher effect sizes (DuBois et al., 2011).

Researchers may consider matching participants at T1 on dependent measures. The present study was complicated by the fact that participants in the experimental and control group had significantly different levels of knowledge of campus resources at the beginning of the semester. This differential at T1 may have increased the possibility for regression to the mean. Although the groups were different sizes and this poses complications, the amount of participants in the FYP sample who had a peer mentor (76%; $n = 70$) was representative of the FYP as a whole in terms of percentage of students who had a peer mentor in the FYP (76%; $n = 758$).

Despite these many limitations, the present sample of FYP frosh was also comparable to the larger population of San José State University incoming frosh for the Fall 2009 semester regarding age, HS GPA, and residential vs. commuter status. Furthermore, the percentages of FYP students with and without peer mentors in the present sample was comparable to the population of FYP students who had peer mentors

and who did not have peer mentors in their FYP classrooms in the Metropolitan University Scholars' Experience at San José State University in the Fall 2009 semester. Demographic data such as ethnicity and first-generation college student status was not recorded, and therefore it remains unknown how the present sample compares to the larger university population for these factors. It is important to verify that the sample compares to the larger population of FYP students and SJSU first-time frosh in terms of gender, ethnicity, first-generation college student status, and other factors in order to avoid sampling threat to internal validity. The participants were recruited based on faculty participation in the research, and were therefore part of a convenience sample, which is common to most research conducted on peer mentoring (DuBois et al., 2006).

Methodology. The difficulty of conducting educational research in applied settings has been documented in the literature, and as a result many studies examining the effects of peer mentoring utilized methodologies that were less than ideal (Budge, 2006). The present study is no exception to the difficulties posed by applied research. The information provided in the brochures from various campus resources that led to the formulation of the knowledge of campus resources questionnaire may not have been the most recent copy of marketing materials for campus resources. Due to the fact that information about campus services may change every semester, the knowledge of campus resources questionnaire should be verified with each resource providing office (i.e., the Academic Success Center, the Learning Assistance Resource Center, etc.) each semester before data collection. The questionnaire was created six months prior to the start of data collection. In this time, many of the answers to the questions on the survey may have

changed as offices change operating hours, procedures, and even locations. Therefore, a major issue is present due to the uncertainty of correct answers on the coding sheet used to score data.

Although mentee knowledge of campus resources was measured, peer mentor knowledge of campus resources was not measured in the present study. Terrion and Leonard (2007) cite mentor working knowledge of the university as a vital factor to successful mentoring in educational settings. Correlations between peer mentor and mentee knowledge of campus resources should be investigated in future research to determine if there is an association between peer mentor and mentee awareness of available university resources. Both first-year student knowledge of campus resources *and* peer mentor knowledge of campus resources is important to observe due to the fact that if a peer mentor does not know about several resources on campus, it is less likely that mentees will find out about resources in their first semester.

The dependent variable chosen for this quasi-experiment could be less relevant than other related constructs. Perhaps the results occurred due to the researcher focusing on knowledge of campus resources, when the questionnaire should have addressed which campus resources had the students *utilized* in their first semester, how *frequently* they utilized such resources, and whether or not students were *aware* of the various programs to assist students. Questionnaires for future research should focus on awareness of, knowledge of, *and* utilization of campus resources for a more complete investigation of relevant factors.

Design. The present study was conducted over a six-month, semester-long timeframe. This amount of time is not sufficient to detect meaningful change scores, and additional follow-up testing times are needed for future research. Ideally, longitudinal research should be conducted (DuBois et al., 2006) with proposed testing times at baseline, six months, one year, two years, and so forth would give a more realistic inquiry into how first-year freshmen change over time. If retention rates are to be examined, a six year or eight year timeframe should be considered. Four years is not a realistic timeframe due to the fact that the majority of students do not graduate in a four year timeframe. The national average four-year graduation rate in undergraduate education is 34% of the student population (San José State University Office of Institutional Research, 2008).

Other educational researchers have recommended longer timeframes for test-retest, or repeated measures research. The WABASH National Study of Liberal Arts Education (2008) examined cohorts of incoming first-time freshmen at 19 United States universities ($n = 4,501$) in the Fall 2006 semester. A representative sample of San José State University students ($n = 295$) participated in the study. Outcome measures included moral reasoning, critical thinking, and perceptions of academic challenge and diversity experiences. The researchers were surprised to find very small effect sizes on outcome measures; however, they concluded that the six month period of study was not long enough to witness significant and/or meaningful change in student outcomes.

Importance of Research Question

Experimental inquiry into effectiveness of educational practices is now more imperative than ever. The US is facing a very acute shortage of college graduates, which poses a threat to our nation's status in the global economy (Carnavale, Smith, & Strohl, 2010; Johnson & Sangupta, 2009). There are not enough American youth completing degrees in higher education to keep up with market demands, especially considering that the majority of current job openings demand high tech skills as well as a strong background in mathematics, science, and communication skills. Carnavale et al. and Johnson and Sangupta describe how the current post secondary educational system will not produce enough graduates for future job demands. This reality is detrimental not only to individuals, but to cities, states and our entire nation. Education allows individuals to be employable for current and future job demands and allows individuals to attain middle class status; unfortunately, our present educational framework does not adequately address workforce demands and career options (Carnavale et al., 2010). It is clearly time for educators to implement innovative techniques to raise graduation rates and employ methods to better engage students. FYPs and Peer Mentor Programs are two options out of many others (e.g., service learning, flipped classroom, linked learning). These programs aim to strengthen student pathways by increasing retention rates, increasing feedback opportunities for students, and provide needed skills for academia and career such as effective communication, teamwork, and critical thinking. Overall, it is very important for educators to implement enrichment programs to support students

and increase graduation rates at all educational levels to increase the number of students in pipelines to various careers.

Future Research

It is important to measure and evaluate educational programs such as FYPs and peer mentor programs, and to streamline evaluations by building them into the program itself (Budge, 2006; DuBois, 2006). The first step to any effort to measure outcomes of a mentoring program should be to use a clear operational definition of mentoring so that the results can be compared with similar studies that are measuring the same construct (Budge, 2006; DuBois et al., 2006; Jacobi, 1991). Second, research should include both quantitative and qualitative measures (Budge, 2006; Jacobi, 1991). Chen (2005) emphasized “*how* a program achieved its goals is as important as *whether* it achieved them” (pp. 10). A limitation of many past studies was that the researchers either focused exclusively on qualitative data or exclusively on quantitative data, and did not give a complete perspective of the dynamic effects of mentoring in educational settings (Budge, 2006; Jacobi, 1991). A multivariate analysis of factors that influence student success should be performed to determine the most relevant dependent variables to guide research. In the present study, the dependent variable chosen was knowledge of campus resources due to peer mentors suggesting this factor the most frequently. It may be that knowledge of campus resources is not the most relevant variable to study in the relationship between FYPs, peer mentoring, and student success. Furthermore, research should focus not only on mentee outcomes and perspectives, but also on mentor outcomes and perspectives (DuBois, 2006).

Further research is needed to evaluate the effect of mentoring programs that include research partnerships between faculty and undergraduate students. Nadga, Gregerman, Jonides, von Hippel, & Lerner (1998) found that an undergraduate student-faculty research partnership program had a positive influence on student retention rates, especially for underrepresented students. Although results are encouraging, the sampling method employed in the study could have posed a selection threat to internal validity; students actively applied for the faculty research partnership program, and thus could have represented the most motivated students to begin with. Further research to validate the results of this study is needed. Perhaps mentoring that includes hands-on and specific learning outcomes may produce greater effect sizes than mentoring programs that are meant to assist students with acculturation to the university setting in general.

Future research regarding FYPs and peer mentoring should examine mentee levels of social support. Grant-Vallone and Ensher (2000) found that graduate students who met with a mentor frequently were more likely to report increased levels of social support. Furthermore, higher social support was correlated with higher satisfaction with the graduate program in which students were enrolled. These findings were also present for the peer mentors, indicating that the mentoring relationship benefits both mentees and mentors. One limitation of this study was that the authors did not include a control group of graduate students who were not matched with a peer mentor. Nonetheless, it makes sense that social support would be an important factor in student retention in university settings, especially considering that many students are geographically separated from

their primary group of friends and family. The first year experience is a critical time for students to form new social support networks in their new environment at the university.

Examining group differences in first-semester GPA scores after only one semester was not realistic due to the fact that the four-month timeframe and low participant count did not allow for an adequate examination of the relationship between variables. Future research should examine GPA scores at a later point in time, such as after one year, and should include follow up data collection at two years, three years, and so forth. It is possible that with a broader experimental scope (longer timeframe and the inclusion of a control group of first-year students not enrolled in a FYP) and a higher number of participants, effects of FYPs and peer mentoring may be examined more accurately. Retention to and graduation from the university should also be measured at 4 yr, 6 yr, and 8 yr follow up dates. Furthermore, a larger sample size ($n = 176$) is needed in order for adequate statistical power to be maintained. The current sample size of students who agreed to allow access to GPA scores was only 67 students, and an acceptable level of power was not maintained.

Conclusions

Overall, FYP students felt that the Metropolitan University Scholars' Experience FYP and the Peer Mentor Program at San José State University were effective programs that contributed positively to the academic success of first-year students. Although the findings did not entirely support the hypothesis that FYP students with a peer mentor would learn more about campus resources and have higher GPA scores at the end of their first semester, this study was an important inquiry into program efforts and outcomes. A

previous study had found that retention rates were higher among first-year students enrolled in the FYP classroom who had a peer mentor in the classroom, when compared to FYP students who did not have a peer mentor in the classroom (San José State University Office of Institutional Research, 2008). The goal of this research was to determine if the combined effect of participation in a FYP and having a peer mentor in the FYP classroom had an added effect on two student outcomes: knowledge of campus resources and GPA scores. Chen (2005) states that the general purpose of all programs is “to organize efforts to enhance human well-being” (pp. 3). Throughout the literature reviewed here, FYPs and peer mentoring programs have a positive relationship with student success, although the quantitative research available is not straightforward. Many challenges are associated with applied research, and the examination of the effects of peer mentoring in FYP classrooms bears inherent difficulties.

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Appendix A: Testing Time One Survey
Knowledge of Campus Resources Questionnaire
San José State University
Fall 2009 MUSE Student Survey

****Instructions****

Please answer all questions as accurately as possible by circling or checking your desired responses, or by filling in the blanks. Your answers will not affect your grade in your MUSE class. In fact, your name will not be associated with your questionnaire, and your professor and/or Peer Mentor **will not** have access to your responses.

Thanks for your effort and participation.

General Information

1. Age _____
2. Gender _____
3. Major (if known) _____
4. High School GPA (or best estimation) _____
5. Estimated GPA for the Fall 2009 semester at SJSU (Please provide your best guess at your GPA for this semester)

6. Do you commute to campus? _____
7. If yes, how much time does it take you to get from home to campus?
_____ hrs _____ min

8. Do you work in addition to being a student? _____
9. How many hours per week do you plan to work during the Fall 2009 semester?
_____ hrs
10. Estimated total amount of time spent with tutors/mentors per semester during high school (including all tutors, teaching assistants, mentors, peer mentors, and professors outside of class)
_____ hrs

Campus Resources

1. Which resources can be found in the Academic Success Center? (check all that apply)

- ____ Financial Aid
 ____ Associated Students (A.S.)
 ____ Peer Mentor Center
 ____ Counseling
 ____ University Help Desk
 ____ Writing Center
 ____ Learning Assistance Resource Center (LARC)

2. Where on campus can students obtain free contraceptives (i.e., condoms)?
-

3. Which offices can be found in the Student Services Center? (check all that apply)

- ____ Financial Aid
 ____ Associated Students (A.S.)
 ____ Peer Mentor Center
 ____ Counseling
 ____ University Help Desk
 ____ Writing Center
 ____ Learning Assistance Resource Center (LARC)

4. The University Ombudsman can make referrals for which of the following?

- a. Academic advising regarding integrity

- b. Legal advice and/or counseling
 - c. Discrimination
 - d. All of the above
5. How many resident halls are there at SJSU?
- a. 2
 - b. 4
 - c. 5
 - d. 6
6. The Housing Office is located in _____.
7. The Housing Office closes at 5pm. (T/F)
- T _____
- F _____
8. The Writing Center is located in _____.
9. The Writing Center is by appointment only. (T/F)
- T _____
- F _____
10. The Learning Assistance Resource Center (LARC) offers services that help students in which areas?
- a. Math
 - b. English
 - c. Science
 - d. All of the above
11. LARC is located in _____.
12. An emergency loan for students can be obtained through which office?
- a. Associated Students
 - b. Bursar
 - c. Human Resources

d. Financial Aid

13. In which semesters is the emergency loan offered (i.e. Winter, Spring, Summer, Fall)?

14. The maximum loan for a semester is \$500. (T/F)

T _____

F _____

15. In which center/office can you obtain a free VTA Eco Pass for unlimited bus and lightrail use?

- a. Associated Students
- b. Bursar
- c. Human Resources
- d. Financial Aid

16. Where is it possible to obtain free legal consultation on campus?

17. All of the following are true about MLK Library **EXCEPT**:

- a. It is both a public and a university library
- b. Food and drinks are allowed on all floors
- c. Only certain floors are open to the public
- d. There are study rooms for SJSU students only

18. How much does it cost to use the sports center (gym) on campus?

- a. It's free
- b. \$11 per semester
- c. \$33 per semester
- d. The gym is free, and for classes \$11 per semester

19. The MLK Library has a multicultural study floor. (T/F)

T _____

F _____

20. The Disability Resource Center (DRC) provides all of the following services **EXCEPT**:

- a. Academic advising
- b. Advocacy for persons with disabilities
- c. An adaptive technology center (ATC) with an open lab
- d. Appointment only advising

21. The DRC is located in the Health Center, room 110. (T/F)

T _____

F _____

22. The Peer Mentor Center (PMC) can help in all of the following areas **EXCEPT**:

- a. Math
- b. English
- c. Relationship/roommate/personal issues
- d. Registering for classes
- e. The PMC can help with all of the above

23. The PMC is located in _____.

24. Consulting with Peer Mentors in the PMC is by appointment only. (T/F)

T _____

F _____

25. Where is the counseling services center located?

- e. Clark Hall
- f. Student Union
- g. Health Center
- h. Administration

26. How much does it cost to consult with counselors?

- a. It's free
- b. \$5 per session
- c. \$10 per session
- d. \$20 per session

27. Educational counseling and personal counseling services are located in the same building. (T/F)

T _____
F _____

28. Educational counselors cannot help students who are on academic probation. (T/F)

T _____
F _____

29. A student can visit the counseling center in all of the following situations **EXCEPT**:

- a. When under stress
- b. When feeling overwhelmed
- c. When feeling depressed
- d. When facing a personal crisis
- e. Students can use counseling services in all of the above situations

30. When do students need to take the Writing Skills Test (WST)?

- a. Sometime before graduating
- b. The first semester at SJSU
- c. Before enrolling in upper division GE courses
- d. A campus official will contact students when they need to take the WST

Appendix B: Testing Time Two Survey: Participants With a Peer Mentor

**Knowledge of Campus Resources Questionnaire
San José State University
Fall 2009 MUSE Student Survey**

****Instructions****

Please answer all questions as accurately as possible by circling or checking your desired responses, or by filling in the blanks. Your answers will not affect your grade in your MUSE class. In fact, your name will not be associated with your questionnaire, and your professor and/or Peer Mentor **will not** have access to your responses.

Thanks for your effort and participation.

General Information

11. How many hours per week did you work during the Fall 2009 semester?

_____ hrs

12. Estimated number of MUSE classes missed during this semester _____

13. Amount of time spent attending workshops led by peer mentors during the entire semester (1 workshop = 1hr)

_____ hrs

14. Amount of time spent consulting with peer mentors outside of class this semester

_____ hrs

15. Estimated total amount of time spent with tutors/mentors/professors per semester (including all tutors, teaching assistants, mentors, peer mentors, and professors outside of class)

_____ hrs

MUSE

Please rate the degree to which you agree with the following statements.

1. In general, taking a MUSE class helped me succeed in my first semester at SJSU.
Strongly disagree *Disagree* *Agree* *Strongly agree*
1 2 3 4 5
2. Taking a MUSE class helped me obtain better grades in my other classes.
Strongly disagree *Disagree* *Agree* *Strongly agree*
1 2 3 4 5
3. Taking a MUSE class helped me adjust to college life.
Strongly disagree *Disagree* *Agree* *Strongly agree*
1 2 3 4 5
4. The MUSE class provided important information that was relevant to me as a first year student.
Strongly disagree *Disagree* *Agree* *Strongly agree*
1 2 3 4 5

PEER MENTORING

Please rate the degree to which you agree with the following statements.

1. In general, working with a Peer Mentor helped me succeed in my first semester at SJSU.
Strongly disagree *Disagree* *Agree* *Strongly agree*
1 2 3 4 5
2. The Peer Mentor in my MUSE class showed willingness to help me.
Strongly disagree *Disagree* *Agree* *Strongly agree*
1 2 3 4 5
3. The Peer Mentor in my MUSE class was capable of helping students with issues they had.
Strongly disagree *Disagree* *Agree* *Strongly agree*

- | | | | | | |
|--|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
4. The Peer Mentor in my MUSE class provided important information that was relevant to me as a first year student.
- | | | | | |
|--------------------------|-----------------|--|--------------|-----------------------|
| <i>Strongly disagree</i> | <i>Disagree</i> | | <i>Agree</i> | <i>Strongly agree</i> |
|--------------------------|-----------------|--|--------------|-----------------------|
- | | | | | | |
|--|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|

Campus Resources

1. Which resources can be found in the Academic Success Center? (check all that apply)

- Financial Aid
- Associated Students (A.S.)
- Peer Mentor Center
- Counseling
- University Help Desk
- Writing Center
- Learning Assistance Resource Center (LARC)

2. Where on campus can students obtain free contraceptives (i.e., condoms)?
-

3. Which offices can be found in the Student Services Center? (check all that apply)

- Financial Aid
- Associated Students (A.S.)
- Peer Mentor Center
- Counseling
- University Help Desk
- Writing Center
- Learning Assistance Resource Center (LARC)

4. The University Ombudsman can make referrals for which of the following?

- e. Academic advising regarding integrity
- f. Legal advice and/or counseling
- g. Discrimination
- h. All of the above

5. How many resident halls are there at SJSU?

- e. 2

- f. 4
- g. 5
- h. 6

6. The Housing Office is located in

_____.

7. The Housing Office closes at 5pm. (T/F)

T _____

F _____

8. The Writing Center is located in

_____.

9. The Writing Center is by appointment only. (T/F)

T _____

F _____

10. The Learning Assistance Resource Center (LARC) offers services that help students in which areas?

- e. Math
- f. English
- g. Science
- h. All of the above

11. LARC is located

in _____.

12. An emergency loan for students can be obtained through which office?

- e. Associated Students
- f. Bursar
- g. Human Resources
- h. Financial Aid

13. In which semesters is the emergency loan offered (i.e. Winter, Spring, Summer, Fall)?

_____.

14. The maximum loan for a semester is \$500. (T/F)

T _____

F _____

15. In which center/office can you obtain a free VTA Eco Pass for unlimited bus and lightrail use?

- e. Associated Students
- f. Bursar
- g. Human Resources
- h. Financial Aid

16. Where is it possible to obtain free legal consultation on campus?

17. All of the following are true about MLK Library **EXCEPT**:

- e. It is both a public and a university library
- f. Food and drinks are allowed on all floors
- g. Only certain floors are open to the public
- h. There are study rooms for SJSU students only

18. How much does it cost to use the sports center (gym) on campus?

- e. It's free
- f. \$11 per semester
- g. \$33 per semester
- h. The gym is free, and for classes \$11 per semester

19. The MLK Library has a multicultural study floor. (T/F)

T _____

F _____

20. The Disability Resource Center (DRC) provides all of the following services **EXCEPT**:

- e. Academic advising
- f. Advocacy for persons with disabilities
- g. An adaptive technology center (ATC) with an open lab
- h. Appointment only advising

21. The DRC is located in the Health Center, room 110. (T/F)

T _____

F _____

22. The Peer Mentor Center (PMC) can help in all of the following areas **EXCEPT**:

- f. Math
- g. English
- h. Relationship/roommate/personal issues
- i. Registering for classes
- j. The PMC can help with all of the above

23. The PMC is located in _____.

24. Consulting with Peer Mentors in the PMC is by appointment only. (T/F)

T _____

F _____

25. Where is the counseling services center located?

- i. Clark Hall
- j. Student Union
- k. Health Center
- l. Administration

26. How much does it cost to consult with counselors?

- e. It's free
- f. \$5 per session
- g. \$10 per session
- h. \$20 per session

27. Educational counseling and personal counseling services are located in the same building. (T/F)

T _____

F _____

28. Educational counselors cannot help students who are on academic probation. (T/F)

T _____

F _____

29. A student can visit the counseling center in all of the following situations **EXCEPT**:

- f. When under stress
- g. When feeling overwhelmed
- h. When feeling depressed
- i. When facing a personal crisis
- j. Students can use counseling services in all of the above situations

30. When do students need to take the Writing Skills Test (WST)?

- e. Sometime before graduating
- f. The first semester at SJSU
- g. Before enrolling in upper division GE courses
- h. A campus official will contact students when they need to take the WST

Appendix C: Testing Time Two Survey: Participants Without a Peer Mentor

**Knowledge of Campus Resources Questionnaire
San José State University
Fall 2009 MUSE Student Survey**

****Instructions****

Please answer all questions as accurately as possible by circling or checking your desired responses, or by filling in the blanks. Your answers will not affect your grade in your MUSE class. In fact, your name will not be associated with your questionnaire, and your professor and/or Peer Mentor **will not** have access to your responses.

Thanks for your effort and participation.

General Information

16. How many hours per week did you work during the Fall 2009 semester?

_____ hrs

17. Estimated number of MUSE classes missed during this semester _____

18. Amount of time spent attending workshops led by peer mentors during the entire semester (1 workshop = 1hr)

_____ hrs

19. Amount of time spent consulting with peer mentors outside of class this semester

_____ hrs

20. Estimated total amount of time spent with tutors/mentors/professors per semester (including all tutors, teaching assistants, mentors, peer mentors, and professors outside of class)

_____ hrs

MUSE

Please rate the degree to which you agree with the following statements.

1. In general, taking a MUSE class helped me succeed in my first semester at SJSU.
Strongly disagree Disagree Agree Strongly disagree
1 2 3 4 5
2. Taking a MUSE class helped me obtain better grades in my other classes.
Strongly disagree Disagree Agree Strongly disagree
1 2 3 4 5
3. Taking a MUSE class helped me adjust to college life.
Strongly disagree Disagree Agree Strongly disagree
1 2 3 4 5
4. The MUSE class provided important information that was relevant to me as a first year student.
Strongly disagree Disagree Agree Strongly disagree
1 2 3 4 5

Campus Resources

1. Which resources can be found in the Academic Success Center? (check all that apply)

- Financial Aid
- Associated Students (A.S.)
- Peer Mentor Center
- Counseling
- University Help Desk
- Writing Center
- Learning Assistance Resource Center (LARC)

2. Where on campus can students obtain free contraceptives (i.e., condoms)?
-

3. Which offices can be found in the Student Services Center? (check all that apply)

- Financial Aid
- Associated Students (A.S.)
- Peer Mentor Center
- Counseling
- University Help Desk
- Writing Center
- Learning Assistance Resource Center (LARC)

4. The University Ombudsman can make referrals for which of the following?

- i. Academic advising regarding integrity
- j. Legal advice and/or counseling
- k. Discrimination
- l. All of the above

5. How many resident halls are there at SJSU?

- i. 2
- j. 4
- k. 5
- l. 6

6. The Housing Office is located in

_____.

7. The Housing Office closes at 5pm. (T/F)

T _____
F _____

8. The Writing Center is located in

_____.

9. The Writing Center is by appointment only. (T/F)

T _____
F _____

10. The Learning Assistance Resource Center (LARC) offers services that help students in which areas?

- i. Math
- j. English
- k. Science
- l. All of the above

11. LARC is located
in _____.

12. An emergency loan for students can be obtained through which office?

- i. Associated Students
- j. Bursar
- k. Human Resources
- l. Financial Aid

13. In which semesters is the emergency loan offered (i.e. Winter, Spring, Summer, Fall)?

14. The maximum loan for a semester is \$500. (T/F)

T _____

F _____

15. In which center/office can you obtain a free VTA Eco Pass for unlimited bus and lightrail use?

- i. Associated Students
- j. Bursar
- k. Human Resources
- l. Financial Aid

16. Where is it possible to obtain free legal consultation on campus?

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- i. It's free
- j. \$11 per semester
- k. \$33 per semester
- l. The gym is free, and for classes \$11 per semester

19. The MLK Library has a multicultural study floor. (T/F)

T _____

F _____

20. The Disability Resource Center (DRC) provides all of the following services **EXCEPT**:

- i. Academic advising
- j. Advocacy for persons with disabilities
- k. An adaptive technology center (ATC) with an open lab
- l. Appointment only advising

21. The DRC is located in the Health Center, room 110. (T/F)

T _____

F _____

22. The Peer Mentor Center (PMC) can help in all of the following areas **EXCEPT**:

- k. Math
- l. English
- m. Relationship/roommate/personal issues
- n. Registering for classes
- o. The PMC can help with all of the above

23. The PMC is located in _____.

24. Consulting with Peer Mentors in the PMC is by appointment only. (T/F)

T _____

F _____

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- m. Clark Hall

- n. Student Union
- o. Health Center
- p. Administration

26. How much does it cost to consult with counselors?

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- j. \$5 per session
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- l. \$20 per session

27. Educational counseling and personal counseling services are located in the same building. (T/F)

T _____
F _____

28. Educational counselors cannot help students who are on academic probation. (T/F)

T _____
F _____

29. A student can visit the counseling center in all of the following situations **EXCEPT**:

- k. When under stress
- l. When feeling overwhelmed
- m. When feeling depressed
- n. When facing a personal crisis
- o. Students can use counseling services in all of the above situations

30. When do students need to take the Writing Skills Test (WST)?

- i. Sometime before graduating
- j. The first semester at SJSU
- k. Before enrolling in upper division GE courses
- l. A campus official will contact students when they need to take the WST

Appendix D: Rubric

**Knowledge of Camps Resources:
Answer Key and Scoring Rubric**

1. PMC, Help Desk, Writing Center (3pts total/ 1pt per correct response)
2. Health Center (1pt)
3. Financial Aid, LARC (2pts total)
4. d (1pt)
5. b (1pt)
6. Campus Village (1pt)
7. F. It closes at 4pm (1pt)
8. Clark, Clark Hall, Academic Success Center are all possible responses (1pt)
9. T (1pt)
10. d (1pt)
11. Student Services Center, 10th street are both acceptable responses (1pt)
12. b (1pt)
13. Spring and Fall only (1pt)
14. T (1pt)
15. a (1pt)
16. A.S. or the University Ombudsman are both acceptable responses (1pt)
17. b (1pt)
18. d (1pt)
19. T (1pt)
20. d (1pt)
21. F (1pt)
22. e (1pt)
23. Clark Hall, the Academic Success Center are both acceptable responses (1pt)
24. F (1pt)
25. d (1pt)
26. a (1pt)

- | | |
|-------|-------|
| 27. T | (1pt) |
| 28. F | (1pt) |
| 29. e | (1pt) |
| 30. c | (1pt) |