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The Relationship Between Volunteering and Undergraduate Academic Achievement at Florida State University

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THE FLORIDA STATE UNIVERSITY
COLLEGE OF EDUCATION

THE RELATIONSHIP BETWEEN VOLUNTEERING AND UNDERGRADUATE
ACADEMIC ACHIEVEMENT AT FLORIDA STATE UNIVERSITY

By

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A Dissertation submitted to the
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ABSTRACT

Researchers such as Tinto (1993), Astin (1975) and Kuh (1995) have found that most students who are engaged with their college environment have a greater connection with the institution and in some instances, higher rates of persistence than non-engaged students. Today, colleges and universities offer a variety of extracurricular options such as student government, athletics and various clubs and organizations. In addition to these options, institutions are also offering students more opportunities to volunteer. Such opportunities include community service and service learning, which incorporates classroom material into activities outside the classroom. Florida State University (FSU) estimates that nearly 2,000 students participate in service activities each year. The goal of this study was to examine the effect of volunteering on two measures of academic achievement: grade point average and persistence from freshman to sophomore year.

Student transcript data was provided by the Registrar. The study drew on the population of native FSU freshman for the 2006-07 academic year, which was comprised of 5,974 students. Of that population, 464 students earned at least one hour of service at Florida State University. Linear and logistic regressions were used to analyze four hypotheses related to the effect of the volunteering on academic achievement. These models predicted that for every hour of service that a student earns, their GPA would increase by .05. However, the results did not indicate a significant effect of volunteering on persistence from the Spring 2007 to Fall 2007 semester.

The results of this study offer support for continued research of this topic, as there are several areas for further review of this relationship, particularly on campuses that are dissimilar to Florida State University, which has a very high persistence rate (nearly 90%) and has shown an obvious interest in service opportunities.

CHAPTER 1

INTRODUCTION

The Cooperative Institutional Research Program (CIRP) at the University of California at Los Angeles reports that a record number of incoming first-year students expect to participate in community service or volunteer work during college this year (CIRP, 2010). The program also reports that students' interest in volunteering during college has significantly increased (82%) since it first researched the topic 20 years ago. The results of the 2008 National Survey of Student Engagement also showed high levels of first-year student volunteering in that 40% of first-year students reported that they were engaged in some sort of volunteer work. These trends appear to hold true at Florida State University as the Center for Leadership and Civic Education reported that nearly 2,000 students volunteer through the Center each year.

The National Survey of Student Engagement (NSSE) (2009) suggests that an engaged campus involves active collaboration between faculty and students. Today administrators and faculty are searching for more ways to engage students in the college environment. In addition to engagement opportunities like student government, intramural athletics, clubs and student organizations, more and more students are choosing to participate in volunteer activities. Often, volunteer activities on campus or in the community near the campus are meaningful and valued sources for student engagement and involvement.

As college students' interest in volunteering has grown over the past few decades, more college presidents have sought ways to offer service opportunities on their campuses. Levine & Hirsch (1991) support such efforts and suggest that colleges and universities develop or build upon existing service programs to provide students opportunities for constructive social involvement. In 1985, a group of college presidents created Campus Compact, an organization whose mission is to build community programs and educate students to become active citizens. Campus Compact is guided by its Presidents' Statement of Principles. These principles encourage college presidents to strongly advocate for the participation of students, faculty and staff in public and community service (Campus Compact 2009). The principles also encourage presidents to support service learning as a way to integrate academic study with service. Today, Campus Compact has 35 state offices and has a presence on more than 1,100 colleges and universities, including Florida State University (Campus Compact, 2009).

There is ample evidence that Florida State University (FSU) has made a concerted effort to emphasize the value of volunteer efforts to its students. In 2008, the Corporation for National and Community Service named FSU to its Presidential Honor Roll for Community Service. The Community Service Honor Roll was launched in 2006 and is the highest federal recognition a school can achieve for its commitment to service learning and civic engagement (Florida State University 2010).

The focus on volunteering at FSU increased during Sandy D'Alemberte's term as president from 1994 to 2003. D'Alemberte promoted the university's increased focus on volunteering and fostered participation in Campus Compact. Since D'Alemberte's influence, FSU has not only strengthened its commitment to volunteer service by becoming a host institution for Florida Campus Compact, but it also created a Center for Civic Education and Service (CCES), which aims to enhance educational outcomes of students with respect to civic responsibility, foster community-based scholarship and improve the well being of the communities that the university reaches (Florida State University 2009). The CCES, which is now referred to as the Center for Leadership and Civic Education, still supports several student-led outreach projects including Habitat for Humanity, Alternative Break Corps, and America Reads. The Center also works with faculty to expand and support service learning course offerings (Florida State University 2009).

The FSU Center for Leadership and Civic Education created the Florida Alliance for Student Service (FASS), the Florida Community Higher Education School Partnership and Florida Learn and Serve (Florida State University 2009). The Center facilitates the university's Service Scholar Program, a highly competitive program that selects 12 high school seniors with exemplary records of service to receive a 4-year renewable scholarship for \$2,400 a year to continue their service throughout their time at the university (Florida State University 2009).

FSU also incorporated the ServScript Program which allows students to keep track of their service hours by reporting them on an official university sponsored transcript called the ServScript. Students earn volunteer hours and have their hours verified by the supervisor of the volunteer site. Hours are then reported and appear on the ServScript. ServScript hours are also reported on the students' transcripts as institutionally validated service hours.

Literature suggests that because volunteering can involve high levels of student engagement, service activities can lead to positive student outcomes. Bean and Metzner (1985)

staked out theoretical ground and indicated that students who could connect to the institution through activities, faculty and staff interactions, and social contacts stayed in school more often than students who did not have similar connections. Additionally, Vincent Tinto's (1987/1993) model of institutional departure has shown that integration into the academic and social systems of an institution can influence students' departure decisions. Similarly, Alexander Astin (1975) has indicated that many students find ways to integrate with their college or university through clubs, organizations, volunteer activities, and even on campus employment. Astin has long argued that students who are involved with their institutions are much less likely to drop out and much more likely to persist to graduation.

Purpose of the Study

The purpose of this study was to examine the effect of volunteering on undergraduate student achievement at a large research university. Data collected by the university's Center for Leadership and Civic Education suggests that students volunteer of their own volition and when volunteer work is a requirement for their courses. This study included service hours from both types of volunteering. The study analyzed volunteer data collected through the Center for Leadership and Civic Education to examine any relationships between student volunteering and two measures of academic achievement: grade point average and persistence.

Population of Interest

This study was conducted using the population of native FSU freshmen for the 2006-07 academic year. (Native student refers to a student who entered the institution as a new college student as opposed to students who transfer in from another school.) The study only included native undergraduates because transfer students who have volunteer hours may have earned some or all of those hours at a previous institution. Volunteer hours earned at another institution are not validated in the same way as volunteer hours earned at FSU and cannot appear on official university transcripts.

Research Questions

This study focused on the following research questions:

1. What is the effect of volunteering on grade point average?
 - a. Is the effect of volunteering on grade point average influenced by gender, race or college?
2. What is the effect of volunteering on persistence from freshman to sophomore year?

- a. Is the effect of volunteering on persistence influenced by gender, race or college?

Research Hypotheses

Hypothesis 1: Students who earned volunteer hours during their freshman year will have higher GPAs than students who did not earn volunteer hours.

Hypothesis 2: Students who have a higher number of volunteer hours will have higher grade point averages.

Hypothesis 3: Students who earn volunteer hours during their freshman year will have higher rates of persistence from freshman year to sophomore year than will students who did not earn volunteer hours.

Hypothesis 4: Students who have a higher number of volunteer hours will have higher rates of persistence from freshman year to sophomore year.

Volunteering and the number of volunteer hours were the independent variables. Grade point average and persistence were the dependent variables. Interaction variables were race, gender and college. Figure 1 displays the conceptual framework of the study, which is based on Astin’s Input-Environment-Output assessment model. Astin (1991) explained the three pieces of the I-E-O model by stating that its basic purpose is to correct or make adjustments for input differences in order to get a less biased estimate of the comparative effects of different environments on outputs. For this study, race, gender and college represent the inputs, volunteering represents the environment and academic achievement, as measured by grade point average and persistence, represent the output.

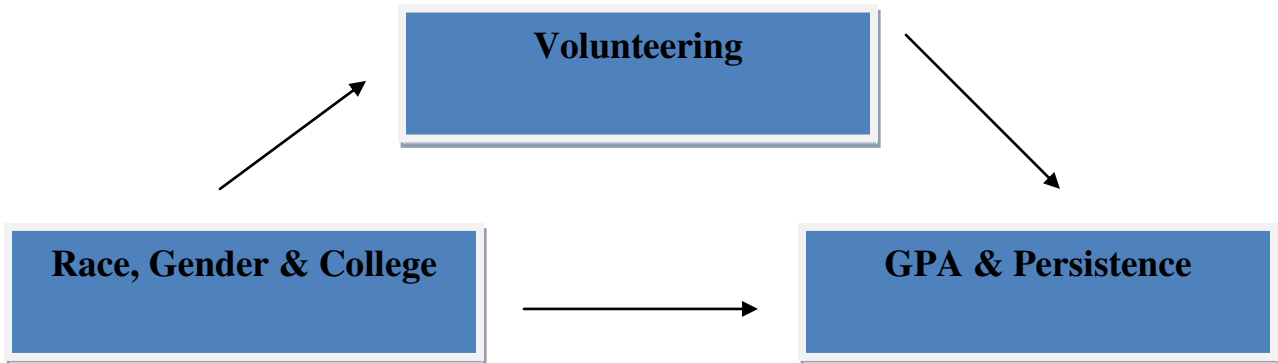


Figure 1: Conceptual Framework

Definitions of Terms

Community Service. Community service is defined as services volunteered by individuals or an organization to benefit a community or its institutions. Although community service work can be done by anyone, this study will focus on the community service done by college students. In relation to college students, Serow (1990) defines community service as off-campus volunteer work of a helping nature. Community service is a type of volunteer activity. Any discussion of volunteering in the study includes references to this term.

College. The categories for college were selected based on the listed fields of study available in FSU colleges and departments. Although Florida State requires freshmen to select an intended major during orientation, the students must also apply to an academic department for admission to their desired program. College represents the college which houses the major field of study that the students selected at the time of their admission to the university. Each major field of study is housed in one of the 14 colleges at the university.

Native Student. A native student in this study is a Florida State University undergraduate who entered Florida State University as freshman and has not earned credit at any other higher education institution.

Persistence. Leppel (2001) suggests that students may persist in college in a few different ways, which include continuing in a particular major at a given university, changing majors but continuing within a given university, and transferring from one university to another but continuing in the educational system. For this study, persistence is defined as continuing enrollment at the same institution from one semester to the next.

Service Learning. The National and Community Service Trust Act of 1993 defines service learning as a method:

(A) under which students or participants learn and develop through active participation in thoughtfully organized service that is conducted in and meets the needs of a community; is coordinated with an elementary school, secondary school, institution of higher education, or community service program, and with the community; and helps foster civic responsibility; and

(B) that is integrated into and enhances the academic curriculum of the students, or the educational components of the community service program in which the participants are

enrolled; and provides structured time for the students or participants to reflect on the service experience (p. 59).

ServScript. To maintain an accurate record of service, Florida State University students enter their service hours online onto a ServScript form. The ServScript hours are verified by a supervisor at their volunteer site and then submitted to the Center for Leadership and Civic Education. ServScript hours also appear on the students' official FSU transcript.

Volunteering. Wilson (2000) defines volunteering as any activity in which time is given freely to benefit another person, group, or cause. He adds that this type of helping behavior involves more commitment than a spontaneous form of assistance, but it is more specific than the care that one would provide to family or friends. Similarly, Nakano (2000) defines a volunteer as someone who on his or her own initiative helps others in a spirit of goodwill. In this study, the term "volunteering" describes any and all kinds of volunteer activities including service learning and community service. In a break with past studies, however, volunteering was only considered to be valid in the present study when it consisted of measured volunteer hours recorded on the ServScript transcript maintained by the university.

Assumptions

It was assumed that the process used to verify students' volunteer hours (ServScript) is accurate, including the method for verifying that the service was actually done and that the number of hours reported was accurate. In the present case, service hours are recorded on a ServScript by the Center for Leadership and Civic Education. It was also assumed that students were accurately reporting whether their volunteer hours were to meet service learning requirements or for general volunteer service. A third assumption was that grade point average and persistence are both measures of academic achievement.

Limitations of the Study

A limitation of this study was that because only one institution was used, the results are not generalizable to other institutions. While every effort was made to use only verified data collected from the Registrar, it is still possible that some data is inaccurate. For example, it is possible for students to over or under-report volunteer hours recorded for the ServScript. It is also possible that the students who are recorded as not volunteering do, in fact, volunteer but do not record those hours using the ServScript process. A second limitation was that the study drew from a population of high achieving students who may have had prior volunteer experience. One

could argue that more high school students are volunteering as a requirement for various scholarships and to enhance their college applications. Thus, these students enter college with a pattern of volunteering. A third limitation was that the colleges within the university were used to represent the students' major field of study. Some colleges at Florida State University such as the College of Arts and Sciences have many majors. The results of this study do not pinpoint the influence of a specific major field of study on the relationship between volunteering and academic achievement.

Vogelgesang & Astin (2000) suggest that the type of volunteer experience can influence student development. Some studies of student volunteering have used qualitative approaches to focus on the type of volunteer service and students' perceptions of how volunteering influenced their academic achievement. Such studies have used qualitative data such as interviews or journals. For example, Levine & Hirsch (1991) interviewed college student volunteers about their experiences. The students in their study described a conflicted sense of accomplishment for what they were able to do and their impotence in being able to meet some desperate social needs more fully (Levine & Hirsch 1991). The quantitative data used for this study included neither descriptions of the types of service work completed nor the students' perceptions of their volunteer experiences.

Significance of the Study

The educational significance of this study was to advance the existing body of knowledge on college student volunteerism. In this study, volunteerism is presented as a type of student engagement that can influence academic outcomes. The results of the study may provide interested faculty and administrators with more insight about the influences of student engagement on measurable academic outcomes. It is hoped that when presented in a different format, students may find the information valuable in their own planning as they pursue a degree. This research may also provide avenues for future studies related to college student volunteerism.

Although previous studies of college student volunteerism have also used quantitative approaches, the data collection methods in those studies typically involved the use of self-reported data such as student surveys. For instance, Vogelgesang & Astin (2000) researched students' opinions of service learning and community service using the College Student Survey (CSS). In their study, they asked individual students to respond to the CSS and indicate their

level of activity. Vogelgesang and Astin used self-reported data on a survey as the primary source of data. However, the present study took a different approach, and used institutional quantitative student data collected by the FSU Office of the Registrar rather than self-reported data from students. As a study of the influence of volunteer activities on academic achievement, this study may offer additional insight into the effect of student engagement on academic outcomes.

Summary

Increasing interest in volunteering on high school and college campuses has attracted more research on the effects of volunteering on college student outcomes. Calabrese & Schumer (1986) suggest that encouraging young adults to volunteer is beneficial because it allows them an opportunity to take responsibility for their community, understand the conditions that other people face, and appreciate the value of community participation. Levine & Hirsch (1991) add that college students appear to be making a transition to greater social activism. The present study seeks to add to the existing bodies of literature related to college student activism by testing the hypothesis that college student volunteering can influence two measurable academic outcomes: grade point average and persistence.

CHAPTER 2

REVIEW OF LITERATURE

Literature suggests that college students' involvement in campus activities can affect some measures of their academic achievement, such as persistence (Tinto 1993, Astin 1985a). Such studies explore the effects of participating in campus activities that include student government associations, sororities and fraternities, athletics and clubs and organizations. However, few studies have analyzed the effect of volunteering on college student persistence and grade point average. The conceptual framework of this study is modeled after Astin's I-E-O model of assessment. This chapter will start with a discussion of Astin's assessment model and various student development theories. The chapter will also present student engagement theories, the benefits of college student volunteering and its effect on student development. The chapter will conclude with a discussion of how volunteering could influence such measures of academic achievement as grade point average and persistence.

Astin's Input-Environment-Output Assessment Model

This study's conceptual framework is similar to Astin's (1991) Input-Environment-Output (I-E-O) assessment model, which he used for higher education activities. Astin (1991) argued that although the model is simple, it provides a powerful framework for the design of assessment activities and for dealing with even the most complex and sophisticated issues in assessment and evaluation. Figure 2 displays an interpretation of the model.

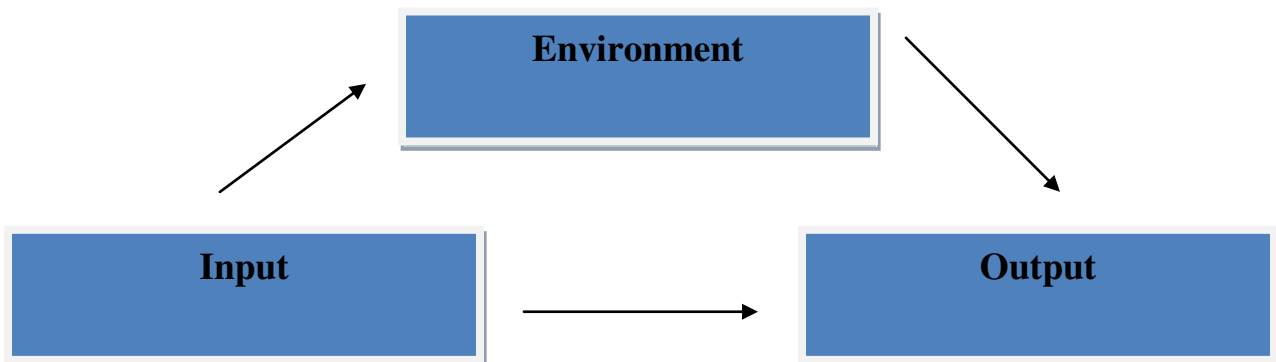


Figure 2: Astin's Input-Environment-Output Assessment Model

Source: Interpretation of Astin (1991) Input-Environment-Output Assessment Model.

Astin (1991) described outputs as the “talents” that institutions try to develop in their educational program; inputs as personal qualities the student brings initially to the educational program; and the environment as the student’s actual experiences during the educational program. Astin (1991) added that a fundamental purpose of assessment and evaluation is to learn as much as possible about how to structure educational environments so as to maximize talent development. He argued that this element makes the environment piece of the model very critical, because it includes things that the educator controls to develop student’s talents.

The outcome variables can be considered dependent variables, while the environment and input variables can be considered independent variables. Thus, race, gender and college are the inputs for this study, volunteering is the environment and academic achievement, as measured by grade point average and persistence is the output. Arrows connect input to both environment and output because inputs can be related to both pieces of the model and can affect the relationship between the environment and output. This study’s conceptual framework tests the hypothesis of whether the inputs (race, gender and college) have an effect on the relationship between the environment (volunteering) and the outputs (grade point average and persistence).

Student Development Theory

To assess the relationship between environment and output, one must consider the many possible inputs that could influence this relationship. Researchers have found that when college students arrive as freshmen, they bring with them such inputs as learned values and characteristics from their prior environments (Chickering 1969, Pascarella & Terenzini 1991, Evans, Forney and Guido-Dibrito, 1998). Their studies show that college students’ inputs will be challenged as they develop their own opinions while becoming acclimated to the college campus. For example, Evans et al (1998) compiled student development theories and found that people develop most when their environment provided adequate levels of challenge and support of their current belief structures. They argue that challenge is an important element of student development because students who are not exposed to ideologies and philosophies of persons from diverse backgrounds and cultures will not be compelled to review and evaluate their own beliefs for congruency with the larger world in which they must live and contribute (Evans et al).

Volunteering is one of many activities that can expose college students to unfamiliar environments. College students’ interactions with one another during volunteer activities could challenge them to understand the perspectives of people with differing attitudes and opinions.

Pascarella & Terenzini (1991) concluded that although theorists vary in their explanations of certain characteristics of the student development process, most view it as a general movement toward greater differentiation, integration and complexity in the ways individuals think, value and behave. They add that Arthur Chickering has significantly influenced the study of college student development.

Chickering (1969) identified seven “vectors of development” and explained that each vector seems to have direction and magnitude even though the direction may be expressed more appropriately by a spiral or by steps than by a straight line. These vectors could easily be influenced during a college student’s participation in volunteer activities; as such activities will likely expose them to situations that challenge their values and opinions. Chickering’s seven vectors include the following:

Vector 1: Achieving Competence – Chickering explained that the progression in the college years is toward increased competence in intellectual areas, physical and manual skills and in social and interpersonal relations. Central to all three is the growth in a student’s sense of competence, the confidence one has in one’s ability to cope with what comes and to achieve successfully what one sets out to do (p.9).

Vector 2: Managing Emotions – During college, students examine the rigid, reflexive controls that they experienced from their parents and society during childhood. These controls are understood and then replaced with internally adopted behavioral standards and controls. The task is to develop increasing capacity for passion and commitment through intelligent behavior (p.9).

Vector 3: Developing Autonomy – As competence develops, the individual disengages from parents and the need for approval and reassurance and simultaneously recognizes the importance of others (Pascarella & Terenzini, 1991, p.22).

Vector 4: Establishing Identity – The establishment of identity depends in part on growth along the competence, emotions and autonomy vectors. Additionally, development on this vector fosters and facilitates changes along the remaining three vectors. The concept of identity remains in general, a solid sense of self and this concept may change over a lifetime (Pascarella & Terenzini 1991, p.22).

Vector 5: Freeing Interpersonal Relationships – As a personal identity is shaped, an increased ability to interact with others emerges; this interaction reveals increased

tolerance and respect for those of different backgrounds, habits, values and appearance and a shift in the quality of relationships (p.94).

Vector 6: Developing Purpose – Expanding competencies, identity and interpersonal relationships require some sense of future direction and purpose. Development along the sixth vector occurs as the individual develops answers not only to the question “Who am I?” but also to “Who am I going to be?” (p.16).

Vector 7: Developing Integrity – Growth along this vector involves the clarification of a personally valid set of beliefs that have some internal consistency and that provide at least a tentative guide for behavior (p.17).

College Student Volunteering

As college students experience the various stages of development, their campuses will likely offer numerous options for them to become involved. In addition to his research related to higher education assessment, Astin (1984, 1996) has contributed several studies pertaining to student engagement. His theory of student involvement suggested that students who invest their time and energy in the learning process and are more involved in the social and academic life of the campus community are more likely to grow and develop, enjoy their college experience, and complete their degree programs than students who are not involved (Pascarella & Terenzini, 1991). Astin’s model (1996) describes involvement as both in- and out-of-class experiences and assumes that students will take the initiative to participate in campus activities. The model has five basic postulates: (1) involvement requires the investment of psychological and physical energy in “objects” such as people, tasks and activities; (2) involvement is a continuous concept and different students will invest varying amounts of energy in different objects; (3) involvement has both quantitative and qualitative features; (4) the amount of learning or development is directly proportional to the quality and quantity of involvement; and (5) educational effectiveness of any policy or practice is related to its capacity to induce student involvement (p.135-136).

Volunteering is a type of student engagement that is gaining popularity on college campuses. Tinto (1993) studied students’ decisions to volunteer and argued that the transition from high school to college may affect students’ inclination to volunteer based on factors such as the consistency in norms and expectations between past environments and new ones and how well prepared students are to navigate participation and involvement in a new environment.

Thomas Ehrlich (2000), former president of Indiana University and an advocate of student volunteerism, edited *Civic Responsibility and Higher Education*, a collection of essays written by prominent higher education professionals. Ehrlich (2000) argued that certain conditions must be created in higher education to support meaningful engagement. These conditions include systemic and transformative changes where there is clarity of purpose, reinforcement of an institutional climate conducive to change, and consistency of message conveyed by leaders to the faculty and to the community.

Previous research has confirmed that involvement in activities outside the classroom has positive effects on student learning and success (Astin 1984, Kuh, 1995). Kuh (1995) concluded the following about the relationships between various kinds of out-of-class experiences and learning and personal development outcomes:

“Many out-of-class experiences have the potential to contribute to valued outcomes of college. Out-of-class experiences present students with personal and social challenges, encourage them to develop more complicated views on personal, academic and other matters and provide opportunities for synthesizing and integrating material presented in the formal academic program.” (Kuh, 1995)

Two prominent researchers of college student volunteering, Eyler & Giles (1999), suggested that college volunteering is a type of involvement that has important benefits, which includes understanding the complexity of social issues and being able to apply material they learn in class to real problems. Eyler & Giles accompanied students in an intensive AIDS outreach program. They planned a series of service opportunities for students to provide assistance to and to learn about the complexity of the lives of people living with AIDS. These opportunities included such activities as cleaning a patient’s apartment and dealing with public health bureaucracy to obtain a hospital bed. Eyler & Giles (1999) argued that students value the connection of their passion to their learning and when the personal and intellectual are connected, they can go beyond cramming for tests to acquiring information that has meaning to them and stays with them. Because students are learning and applying information in complex real-world contexts, they believe that the quality of their understanding is increased.

Ehrlich (2000) suggested that two ways higher education can support volunteerism are involvement in service learning programs and working with volunteer centers that engage campuses with their communities. Service learning is a form of experiential education whose

pedagogy rests on principles established by Dewey and other experiential learning theorists early in this century (Furco, 1996). Dewey (1938) argued that learning is a wholehearted affair, linking emotions and intellect; an educative experience is one that fosters student development by capturing student interest with their passion. Eyler & Giles (1999) book, *Where's the Learning in Service Learning?*, described their experiences with students who participated in the AIDS outreach program. Their findings were consistent with Dewey's argument in that when they interviewed students about the reflective practices most useful to them in service learning, the students reported about techniques that asked them to combine the personal and intellectual. Ehrlich contended that the work related to volunteering must engage faculty, administrators, students and the community not only in debating, defining, and framing the role of service in higher education, but also in how it gets manifested in practice. Ramaley (2000) added that colleges should enhance their civic responsibility not only by finding the means to link learning and community life through the design of the curriculum but also by serving as centers for community building.

Descriptors and definitions of volunteering

As descriptors of volunteering continue to emerge, some researchers are connecting volunteering to various civic terms. Terms such as "civic responsibility", "civic engagement", "civic learning" and "social responsibility" are used interchangeably and indiscriminately by promoters of new pedagogies informed by volunteerism (Williams 2000). Barber (1992) added that the idea of "democratic citizenship" is at the heart of successful service learning. The present study narrowed the discussion of college student service to three terms: volunteering, community service, and service learning. Thus, community service and service learning are considered to be two types of volunteering.

Shift from non-participation to participation

Levine & Hirsch (1991) suggested that in the 1970's and early 1980's, college students experienced a period when they sought a college education to make more money and get a better job and consequently, their involvement in campus organizations was down, as was their level of community participation on and off campus. However, Levine & Hirsch argued that in the mid and late 1980's, college students began to shift their interests back to volunteering.

The movement of college students back toward volunteerism not only received support from national service organizations, but from federal legislation as well. The National and

Community Service Act of 1990 was created which offered definitions for service learning and rules for funding community service projects for all students, ranging from elementary school to college. Section 119 of the Act was created with the purpose of expanding participation in community service by supporting innovative community service programs carried out through institutions of higher education, acting as civic institutions to meet the human, educational, environmental, or public safety needs of neighboring communities (National and Community Service Act of 1990).

Williams (2000) suggested that students' involvement in volunteering is an emerging trend in the 21st century and that the rise in volunteerism is attributed to increases in the number of service programs offered by academic institutions and supported by federal and state governments. Rubin (1990) added that educators must ask themselves how they can provide opportunities for students to act as socially responsible citizens and how the resources of the university can be used to serve the community. Three examples of such opportunities are Campus Compact, the Campus Outreach Opportunity League (COOL) and the Citizenship and Service Education CASE program at Rutgers University.

Campus Compact is a coalition of colleges and universities founded in 1985 by a group of 121 college presidents. Campus Compact creates opportunities for students to learn more about and experience volunteerism (Levine & Hirsch, 1991). The Campus Outreach Opportunity League was formed in 1989 to expand community service opportunities on college campuses. Both Campus Compact and COOL are still in operation today.

The Rutgers CASE program is one of the largest, most international service learning programs in the U.S. and was recognized by President Bill Clinton in 1993 as a national model of how universities can make service learning central to the undergraduate curriculum (Rutgers University, 2009). The goal of the program is to integrate service learning directly into the academic curriculum of undergraduate education by combining academically rigorous three-credit classroom courses with one-credit service learning placements related to the subject matter of the course. In its first decade, CASE involved more than 10,000 future citizens who worked with more than 400 community partner organizations to which they contributed more than a half million hours of service (Rutgers University, 2009).

Williams (2000) argued that more institutions are integrating outreach or service oriented work into course curriculums. For example, all undergraduate students at the University of

Redlands in California must complete a service activity course to fulfill graduation requirements. This study suggests a positive relationship between volunteering and academic achievement, which could offer additional support for administrators who are considering adding more service opportunities on campus as well as faculty who are considering adding a service component to their courses.

Stages of development during service experiences

Just as Chickering suggested that stages of development occur with college students, researchers have also argued that stages of development occur during service experiences. Eyler & Giles (1999) identified four areas that influence this development: stereotyping and tolerance, personal development, interpersonal development and community and college connections. They found that service not only contributed to greater self-knowledge and spiritual growth, but that it also predicted an increased sense of personal efficacy and desire to include service to others in their career plans.

Delve, Mintz, & Stewart (1990) proposed the Service Learning Model which states that students who participate in community service experience five stages of development: exploration, clarification, realization, activation, and internalization. Exploration occurs at the beginning of a service learning activity in which the student is eager to explore new opportunities and wants to help other people but does not feel any particular connection with the community group. In the clarification stage, students begin to explore opportunities presented to them and clarify what is important to them. They then progress to the realization stage, which involves them beginning to see how their experiences fit together (Delve, Mintz & Stewart 1990).

In the activation phase, students begin to address larger societal issues and may become advocates for members of their community groups. The internalization phase occurs when students fully integrate their service learning experiences into their lives and begin to make decisions based on the values they have developed from their experiences. Delve, Mintz & Stewart (1990) noted that although not all students reach this phase, many do begin to make individual choices based on values they have learned from the community in which they participated.

Payne (2000) used the Community Service Involvement Preference Inventory (CSIPI), an inventory designed to assess how student prefer to become involved in community service based

on the Service Learning Model. The involvement preferences included in the CSUPI were used to create four unique ways that students prefer to become involved in community service (Delve et al, 1990). The four ways were exploration, affiliation, experimentation, and assimilation. Exploration reflected the students' uncertainty of how to best help others and their tendency to help others for self-satisfaction. Affiliation reflected the students' tendency to participate in community service as a part of a group or with peers. Experimentation reflected the students' desire to learn more about the needs of the individual or community served. Assimilation reflected the students' deeper understanding of the needs of those served and their investment in long-term commitments.

Undergraduates enrolled in four sections of a service learning course offered as an elective in the core curriculum were invited to participate in a study by Payne (2000). Course requirements included undertaking a minimum of 20 hours of service in local service agencies, maintaining a journal to record the service experience, and completing a final paper or project to integrate the service experience with the material from class readings, videos, and discussions (Payne 2000). Demographic information collected for the study revealed that the majority of the students in Payne's study were Caucasian (72%), female (51%), and sophomores (46.6%). The majority of these students also had volunteer experience in the prior year and 43% of the students volunteered at an average of one time per month.

The CSUPI was administered twice; first to a total of 83 students and again to a total of 53 students to study whether involvement preferences changed during a ten-week term as a result of participating in a service-learning course. The student totals differed as some students did not complete both administrations of the survey and the researcher was forced to discard incomplete data (Payne, 2000). Four null hypotheses, one for each involvement preference, stated that there would be no difference in mean scores between the first and second administration of the inventory.

The null hypothesis was rejected for the exploration and assimilation involvement preferences and the null hypothesis was retained for the affiliation and experimentation involvement preferences. Payne suggested that one cause of null hypothesis being rejected for exploration is that student motives for involvement vary, depending on whether their service is related to service learning, which has an intentional academic component or if it is community service, which may not have an intentional learning component. In relation to the assimilation

preference, Payne (2000) added that given the close association between responsible citizenship and the desired learning outcomes of the course, the results supported the idea that when community service is integrated into a curriculum, deeper learning is achieved.

The course did not necessarily promote learning in groups, which explains the results for the affiliation involvement preference. Additionally, since most students had some prior volunteer experience, that could explain the results for the experimentation involvement preference. Although this study will not address the separate stages of volunteering experiences, it will include hours earned as a result of both community service and service learning, which can relate to both the five stages of the Service Learning Model and the four involvement preferences examined by the CSIPI.

Rockquemore & Schaffer (2000) also studied the stages of development that can occur during a service learning experience. They conducted a study involving 120 students enrolled in service learning courses at Pepperdine University and determined that individuals progress through three distinct stages during a service experience: shock, normalization, and engagement. The shock stage was characterized by students who were observing social conditions that were unfamiliar to them, given their affluent backgrounds. Several students expressed shock and disbelief at the social and economic circumstances they were expected to work in (Rockquemore & Schaffer 2000). The normalization stage described the students becoming comfortable with their roles in the community service after the shock of the service environment had worn off. The engagement stage involved students inquiring about the social and economic conditions of the underprivileged and engaging in the learning process to connect their practical experience with course material.

Length and type of service work

Several studies suggested that the length of time for service work can influence the outcomes of the experience. For example, Vogelgesang & Astin (2000) argued that such factors as type and length of experience should be considered when conducting service learning studies because these factors could influence the quality of students' experiences and the related outcomes. Rockquemore & Schaffer (2000) also mentioned duration and intensity of experience as key elements that facilitate student learning in a service learning course. Philipsen (2003) added that service learning courses may not last long enough to lead students to question deeply ingrained beliefs and that professors are faced with the challenge of engaging students in

volunteer projects that can be brought to a closure after only a few weeks or months. Although this study did not analyze the length of the students' service experiences, it did contribute to the existing literature by addressing the number of service hours that the students had completed to analyze whether the amount of service influences academic achievement.

Student characteristics

As Astin's I-E-O model explains, certain input variables may influence the environment and outputs of an assessment. Such input variables include various student characteristics. Vogelgesang & Astin (2000) argued that there is a need to better understand how different kinds of students might benefit from campus volunteering opportunities. Allison & Takei (1993) suggested that background characteristics such as race and gender can affect students' decisions to volunteer. Williams (2000) also suggested that race can influence students' volunteer experiences and argued that historically Black colleges and universities (HBCUs) have high expectations for civic engagement. Additionally, Marks & Jones (2004) suggested that women may volunteer more than men.

Vogelgesang & Astin (2000) questioned whether race and gender matter and whether there are benefits to placing a volunteer experience at different points in a student's college career such as in their first year, in their major, or throughout their college years. They argued that gender is among the strongest predictors of students' participation in community service in college. Thus, in their study of the effect of service learning on students' cognitive skills, Vogelgesang & Astin (2000) isolated the effect of service during college by controlling for self-selection factors such as gender and found that women are more likely to participate than men. They also controlled for race because of the possibility of it affecting their outcome measures.

Rockquomore & Schaffer (2000) studied students' service learning experiences and suggested that disaggregating their data by race would allow them to see if the cognitive processes associated with service learning experiences differed between racial groups. Similar to the Payne study, there were more female participants (69%) than male participants in the Rockquomore & Schaffer study. Additionally, over half of the students in the study were from affluent families. Rockquomore & Schaffer conducted their study by administering a questionnaire before and after the students' service learning experience. They also analyzed student journal entries. Rockquomore & Schaffer's results suggested that students made

significant changes in their attitudes toward social justice, equality of opportunity, and civic responsibility over the course of the semester.

The National Center for Education Statistics (NCES, 2003) studied volunteer service among young people from high school through early adulthood and found that White young adults were more likely than Black and Hispanic young adults to volunteer in high school. However, the study revealed that eight years after high school, Blacks were more likely than Whites and Hispanics to volunteer. Levine & Cureton (1998) also suggest that a shift occurs in volunteer patterns by ethnicity after high school. In their Undergraduate Survey of 1993, Levine & Cureton (1998) found that while Black and White students participated in volunteer activities at the same rate, Hispanics were less likely to become involved. These suggestions of race and gender as variables that could influence volunteering led to the decision that race and gender should be addressed in the analysis for the present study.

Studies in the literature also suggest that there are also personal factors that may influence a student's volunteer decisions. Serow (1990) argued that tests of the linkage between competence and community service must take into account personal factors that may influence students' volunteer decisions. In some instances, students' focus on their courses, combined with their desire to participate in other campus social activities, could dissuade them from volunteering. Easterling & Rudell (1997) reported that some students have concerns about how their service opportunities will affect their day-to-day schedules. Such concerns include transportation to the sites and the amount of extra time they will have to commit to the service project.

Future of college student volunteering

Current literature on service learning suggests that more institutions may promote volunteering in the future. Payne (2000) argued that as expectations for outcomes assessment and demands for accountability continue to increase, institutions of higher education must embrace the qualities of active learning and community involvement as precursors to changing the landscape of undergraduate education. Levine & Hirsch (1991) argue that we will see more student interest in the relevance of the college curriculum and suggested that colleges and universities develop or continue to build upon existing service programs which will provide students opportunities for constructive social involvement.

Measures of Undergraduate Academic Achievement

Previous studies have suggested that volunteering can influence academic achievement. Two of the most frequently researched measures of academic achievement have been persistence and grade point average. Tinto (1975), Astin (1975) and several other higher education researchers have identified the importance of finding links between certain social and academic variables to predict the likelihood of students persisting in college. Additionally, Vogelgesang & Astin (2000), Strage (2000) and Serow (1990) studied the effect of service activities on college students' final course grade and grade point average. These studies however, did not use the methodology that was used in this study, as they used self-reported data.

College student persistence

Two works related to student persistence, Astin's (1975) book, *Preventing Students from Dropping Out*, and Vincent Tinto's interactionalist theory serve as foundational knowledge related to persistence in higher education (Reason, 2003). As mentioned earlier, Astin argued that students who become engaged in campus activities are more likely to remain in college than students who are not involved. Astin studied individual student characteristics such as gender, age, and place of residency and institutional characteristics such as type, location, and selectivity to determine how such variables affected student persistence (Reason, 2003).

Tinto (1993) developed his theory of persistence based on Durkheim's theory of suicide by incorporating student commitment to an institution, aspirations for a degree, and integration into the academic and social life of a campus. Specifically, he stated that:

“Student persistence is very much like the process of social and intellectual integration which characterizes individual membership in human communities generally and that voluntary student departure is not dissimilar from that of suicide from those communities in the sense that both appear to reflect the absence of significant social and intellectual contact between the student and other members of the college community.” (Tinto 1988)

Tinto (1993) supported the importance of person-environment fit created by Lewin in 1936. Tinto theorizes that students enter a college or university with varying patterns of personal, family, and academic characteristics and skills, including initial dispositions and intentions with respect to college attendance and personal goals (Pascarella & Terenzini, 1991). These intentions and commitments are subsequently modified and reformulated on a continuing basis through a longitudinal series of interactions between the individual and the structures and

members of the academic and social systems of the institution (Pascarella & Terenzini, 1991). According to Tinto, high levels of integration into the academic life of an institution, combined with high levels of social integration, lead to greater commitment to the institution. Thus, a greater commitment and integration led to a greater likelihood that the student would be retained (Reason, 2003; Braxton, 2000). Figure 3 displays an interpretation of Tinto's (1993) model of institutional departure.

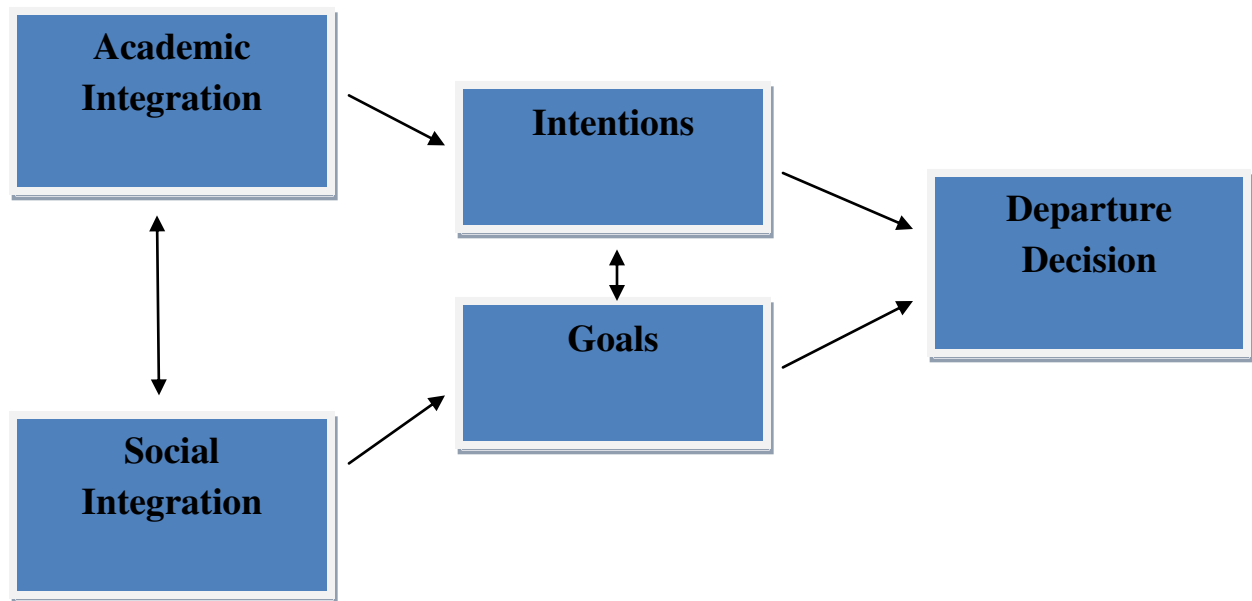


Figure 3: Tinto's Model of Institutional Departure

Source: Interpretation of Tinto (1993) model of institutional departure.

Tinto (1987) also wrote *Leaving College: Rethinking the Causes and Cures of Student Attrition*. In the book, Tinto suggests that institutional commitment comprises six main actions or principles that lead to success in retaining students. These principles are:

1. Institutions should ensure that new students enter with or have an opportunity to acquire the skills needed for academic success;
2. Institutions should reach out to make personal contact with students beyond the formal domains of academic life;
3. Institutions' retention actions should be systematic in character;
4. Institutions should start as early as possible to retain students;

5. The primary commitment of institutions should be to their students; and
 6. Education, not retention, should be the goal of institutional retention programs.
- (p. 145-153)

Persistence literature supports studying students during their freshman and sophomore years in college. Murtaugh & Burns (1999) suggested that interventions to increase persistence be geared toward first-year students because the greatest attrition tends to occur between the freshman and sophomore years. Levitz (1999) reported that because of the consistently disproportionate number of students who leave college during the first and second year of college, this time period was an appropriate focus for persistence studies. Levitz (1999) added that attrition rates reduce by half for each year past the first that an institution can retain a student and thus the intervention to retain students past the first year was the most efficient way to boost graduation rates.

Influence of demographics on persistence

Persistence literature typically includes significant research related to the influence of demographics and diversity on undergraduate enrollment. *In Preventing Students from Dropping Out*, Astin (1975) devoted a chapter to the discussion of which freshmen would be more likely to drop out of college. Like other researchers of persistence, Astin included demographic characteristics in his study and found that the most “dropout-prone” freshmen included those who had poor high school academic records, relatively uneducated parents and small town backgrounds. Additionally, he found that dropping out was associated with freshmen who were older, those who had Protestant parents and women who were either married or had marriage plans. Bean (1985) also researched the attrition of freshman students and suggested that programs and rituals, in which older students help the neophyte to fit in with the group and to make a commitment to a particular institution, as opposed to higher education generally, should help reduce attrition.

Pascarella & Terenzini (1998) argued that demographic changes have forced researchers to change how and why research is conducted. Pascarella and Terenzini (1998) added that many of the studies that form the foundation of our knowledge about persistence in higher education assumed a traditional view of students, rather than today’s diverse population. Reason (2003) argued that a thorough understanding of the demographics of contemporary higher education is essential to a complete understanding of persistence and that the increasing diversity of

undergraduate college students requires a new, thorough examination of those student variables previously understood to predict persistence.

Bean & Metzger (1985), Aitken (1982), Braxton (2000) and Reason (2003) also studied college student persistence. Bean & Metzger (1985) argued that various psychological, environmental, and academic variables interact to determine whether students remain in college. Such variables include finances, outside encouragement, goal commitment, and stress. Bean (1985) added that any programs that increase a student's academic performance, sense of social fit, and personal loyalty to the institution would be expected to reduce attrition.

Aitken developed a theoretical model of student satisfaction, performance, and persistence for a single institution. Aitken (1982) criticized Tinto's theory for only including a few major variables that had a direct effect on persistence and the remaining variables affecting persistence indirectly. Aitken (1982) added that no single model could be expected to be equally satisfactory for all institutions of higher learning. Additionally, Braxton (2000) called for a new research that would reconsider the effects of several variables that predict student persistence such as institutional characteristics, financial variables and changing demographics of the college population. Hu & St. John (2001) added that college students' grades and other college experiences also make differences in probability of persistence and that financial assistance is critical for students to afford to attend and persist in postsecondary opportunity.

Another focus of early persistence research relates to the varying needs of undergraduate students within different racial groups and majors of study. Reason (2003) suggested that student diversity can influence higher education in three ways; the study of interaction between variables such as race and gender, the redefinition of college outcomes to match students' purposes of attending college, and the lessened focus on traditional approaches to inquiry.

Murtaugh (1999) found race to be a significant predictor of the persistence of undergraduate students. Allen (1999) added that different variables significantly predicted persistence for different racial groups because various racial groups likely have different experiences related to education, which affect persistence rates. The literature also suggests that major of study can influence persistence. For example, Leppel (2001) argued that women who major in business and men who major in education are less likely to persist to the second year of college.

College grade point average

The most frequently used approach for studying the relationship between volunteering and academic achievement has been to research the effect of volunteering on grade point average. Several studies of this relationship have been from a single semester perspective, rather than over a period of several semesters. For instance, Strage (2000) compared the final course grade of students enrolled in a course with a service learning requirement with those who have taken a similar course without a service learning requirement. The results showed that students in the service learning course performed better on measures of their mastery of course content (Strage 2000).

The Cooperative Institutional Research Program (CIRP), annually collects data about entering first-year students using the Student Information Form (SIF) (Vogelgesang & Astin 2000). The SIF is designed as a pre-test for longitudinal assessments of the impact of college on students and the College Student Survey (CSS), provides longitudinal follow-up data about students four years after they enter college (Vogelgesang & Astin 2000). Vogelgesang & Astin (2000) used SIF data and CSS data to conduct a comparison of three student groups: service learning participants, “generic” community service participants and non-service participants.

Vogelgesang & Astin (2000) used variables from the CSS instrument to categorize “generic” community service and service learning. The CSS contained a question that asked students to indicate how often they performed volunteer work by selecting frequently, occasionally, or not at all. This question was used to measure the frequency of “generic” community service. The CSS also contained a question that asked students if they had performed any community or volunteer service and if yes, how the service was performed. The students were given the following choices: as a part of a course or class, as a part of a collegiate-sponsored activity, or through a non-collegiate group. Students who indicated that their work was as a part of a course or class were considered to have participated in service learning (Vogelgesang & Astin (2000).

The study sample included 177 institutions and 22,236 students. Although the sample represented most institutional types, two-year institutions were only marginally represented (five institutions) and among four-year institutions, private four-year colleges were overrepresented (Vogelgesang & Astin 2000). For their dependent variables, Vogelgesang & Astin (2000) chose

outcomes that had been proven to be impacted by participation in any type of service, which would help them compare the effect of course-based service with “generic” community service.

Vogelgesang & Astin selected three measures of values and beliefs, three measures of academic skills, three measures of leadership, and two measures of future plans. Their three measures of academic skills were grade point average, growth in writing skills, and critical thinking skills. They also controlled for freshmen self-selection factors that could predict participation in service. These factors included gender, prior volunteer experience from high school, attending religious services, and participation in a community action program. The study also contained controls for student characteristics that included parental education and income, race, and religious preference.

The Vogelgesang & Astin (2000) study used a blocked, stepwise linear regression to determine if participation in service as a part of an academic course had any effect on each of the 11 outcome measures beyond those of “generic” community service. They found that both service learning and “generic” community service had a positive effect on all three measures of academic skills, including grade point average. Additionally, they found that the effect of service learning on grade point average was stronger than that of “generic” community service. Vogelgesang & Astin note that the cause for this is unclear and that it could be because service learning is course-based. Another suggested reason was that participation in service learning helps students become more engaged in the overall academic experience, thus enhancing their overall academic performance (Vogelgesang & Astin, 2000).

Serow (1990) studied whether participation in community service was related to conventional indicators of competence once students’ personal backgrounds were taken into account. Serow addressed personal competence with three sets of variables: grade point average, which was self-reported on a 4.0 scale, allocation of time, which represented the extent that students engaged in other types of activities such as clubs, religious activities, and studying, and perceived efficacy of individuals’ helping behavior. Personal background was measured using students’ self-reports of their racial identity, whether they received financial aid, and their parents’ educational attainment.

Serow surveyed 504 students who attended three campuses of a large state university system. Of those students, 73% were White, 24% were Black and 3% were reported as Other. Serow used analysis of variance procedures and found that participation in community service

was significantly associated with higher grade point averages. Although his results were positive, Serow (1990) questioned whether students' engagement in community service was based on social concerns. He added that much adult volunteerism has historically been associated with majority culture, thus supporting the need to control for race in studies of volunteering.

Summary

Astin's input-environment-output model supports the conceptual framework of this study in that race, gender and college are inputs, volunteering is a part of the environment and academic persistence is the output. Researchers such as Pascarella & Terenzini and Chickering concluded that college students experience stages of development as they become acclimated with the campus environment. These stages of development include challenges to their personal values and opinions. The literature suggested that as students participate in volunteering activities, their stages of personal development will coincide with several stages of development that occur during service. Studies indicate that the benefits of volunteering are the increased connection to the institution, which Tinto and Astin argued can lead to increased persistence as well as the connection of out-of-class experiences with in-class material.

Several studies have documented the effectiveness of college volunteering as a tool for fostering students' civic responsibility, their acceptance of diversity, and their leadership skills (Strage 2000). Specifically, service learning has been shown to have a powerful impact on students' moral, socio-cognitive, and emotional development (Batchelder & Root 1994). Although one could argue that these other outcomes of service learning are worth measuring because they could drive students' decisions to continue volunteering, these types of outcomes are not measureable with the data available for this study. Therefore, rather than focus on the moral and social outcomes associated with volunteering, this study focused on the gap in literature related to the effects of volunteering on measures of academic achievement.

Noddings (1984) suggests that caring for other people is a form of competence that can be acquired both through everyday experience and through the efforts of educational institutions to ensure that the appropriate opportunities are available. However, as colleges and universities consider the benefits of adding more volunteer opportunities to their campuses, they should look for ways to assess such benefits as well. Strage (2000) argued that much of the data that speak to the question of whether service can enhance the achievement of the curricular goals of a course

are based on faculty impressions and students' self reports. Philipsen (2003) suggested that with the increasing number of service learning programs and initiatives, there has been a push from proponents of service learning to provide "hard data" to demonstrate that it actually produces measurable results. This study addressed this issue by examining the effect of volunteering on measurable academic outcomes.

After reviewing the literature, it appears that a gap remains concerning the relationship between college student volunteering and their academic achievement. As shown, prior studies of this relationship have focused primarily on grade point average and final course grade for courses that include a volunteer component. Although studies have suggested that volunteering can positively influence academic achievement for a semester, few studies, if any, followed students' academic achievement for several semesters. Additionally, few studies, if any, examined the effect of volunteering on persistence. This study adds to the existing research by analyzing the effect of volunteering on both grade point average and persistence. This study also used institutional data rather than self-reported data such as surveys, interviews and journals, which have been used in previous studies. By relying more on institutional data than on student self-report, more dependable data was collected.

CHAPTER 3

METHODOLOGY

The research questions stemmed from the goal for the study, which was to assess the effect of volunteering on students' academic achievement. The study was designed to address the following questions:

1. What is the effect of volunteering on grade point average?
 - a. Is the effect of volunteering on grade point average influenced by gender, race or college?
2. What is the effect of volunteering on persistence from freshman to sophomore year?
 - a. Is the effect of volunteering on persistence influenced by gender, race or college?

Research Design

This study was conducted using a quantitative methodology. The study was an effort to assess the effect of volunteering on academic outcomes. The academic outcomes included in this study were grade point average and persistence from freshman year to sophomore year. The freshman to sophomore year time period is critical as it is well documented in the literature that the highest attrition rates occur during the first years of college. In this study, persistence was reflected by students who were enrolled at FSU during the Spring 2007 semester and were still enrolled at the university at the start of the Fall 2007 semester.

FSU Student Demographics

FSU reported that in Fall, 2008, approximately 67% of its students were Caucasian, 10% were Hispanic, and 9% were Black. The remaining students were American Indian/Native Alaskan, Asian Pacific Islander, Non-Resident Alien or not reported. The university also reported that in Fall, 2008, 53% of the students were female and 42% were male. The remaining percentages were not reported. The highest number of bachelors degrees awarded for the 2007-08 academic year were granted from the College of Arts & Sciences (1,591), the College of Business (1,497), and the College of Social Sciences (1,298).

Florida State University has a high persistence rate for a Research I institution. The university reported an 89% persistence rate for freshman students persisting to their sophomore year in 2006. The university also had an average SAT score of 1229 for incoming freshmen in

2008. These numbers could be higher than the persistence rates and SAT scores of other research institutions.

Population

This study drew on the population of native FSU freshmen for the 2006-07 academic year. The study only included native FSU undergraduates because transfer students may have volunteer hours earned at a prior institution. This population used for the study was a group of 5,974 freshmen students. Information was pulled from the FSU Fact Book (2007) to determine the background characteristics about the FSU undergraduate population such as the university's overall persistence rates.

Method of Data Collection

All of the variables used in this study were available on FSU student transcripts. A data request was made to the FSU Office of the Registrar for the data. The Registrar's Office provided an Microsoft Excel workbook that contained data about the population including the semester that the student enrolled at FSU; major at the time of enrollment; race; gender; ACT score; SAT score; cumulative GPA at the end of the Spring 2007 semester; and service hours for Summer 2006; Fall, 2006; and Spring, 2007 semesters. The Office of the Registrar also included a Still Enrolled flag to identify whether the students who were freshmen during the Spring, 2007 semester were still enrolled during the Fall 2007 semester. The FSU Human Subjects Committee approved the use of this data (Appendix A).

Volunteer data was based on service hours reported on student ServScripts. The ServScript hours are verified by a supervisor at the volunteer site and submitted to the Center for Leadership and Civic Education, which reports the hours to the Office of the Registrar to be included on student transcripts. This data included volunteer hours earned by both service learning and regular community service activities.

Data Preparation

The statistical software package SPSS version 17.0 was used for the data analysis. Before the analysis was conducted, some data elements were reformatted and recoded and new variables were created, Microsoft Excel was used to reformat the gender variable and Still Enrolled flag and to recode the volunteer hour and SAT/ACT variables. SPSS was used to recode the race, volunteer hour and major variables and to create new variables.

The data for the variable, gender and the Still Enrolled flag were changed into a numerical format using the numbers 0 and 1. For the gender variable, male students were assigned a 0 and female students were assigned a 1. For the Still Enrolled variable, students who were not enrolled at the start of the Fall, 2007 semester were assigned a 0 and students who were enrolled in Fall 2007 were assigned a 1.

The separate volunteer hour totals for the Summer, 2006, Fall, 2006 and Spring, 2007 semesters were combined to create one variable called TotalServiceHours. A second volunteer variable was created called VolunteerHour, and represented whether the student had any service hours. Students who did not have hours for any of the semesters were assigned a 0 for this variable and those who did have hours were assigned a 1.

The Office of the Registrar provided scores for each section of the Scholastic Aptitude Test (SAT) and American College Test (ACT). Although variables were created for total SAT and ACT scores, these variables were not included in the analysis because there was little, if any support in the literature to support the idea that college admission exam scores influenced the relationship between volunteering and academic achievement. A further problem was that over a third of the population for the study did not have an ACT score. This lack of scores would have confounded the results so SAT and ACT scores were dropped from the study.

After gender, Still Enrolled and volunteer hours data was reformatted and recoded in Microsoft Excel, the entire workbook was saved as a text file and imported into SPSS. The race variable was recoded to create a variable called NewRace. The NewRace variable included an Other category, which was comprised of Asian, American Indian or Native Alaskan, Native American or Other Pacific students and students who did not report their race. These students were combined because even collectively, they only accounted for 5% of the population.

The TotalServiceHours variable was recoded into a new variable called NewHoursRange, which had three (3) volunteer hour ranges: 40 hours or less, 41 to 80 hours and more than 80 hours. The ranges are in increments of 40 hours because this offered the most even distribution of hours among the students in the population who had service hours. The 40 hours or less range did not include students who had 0 volunteer hours.

The Office of the Registrar provided the majors that the students selected at their time of enrollment. During that time, FSU had 14 colleges and 87 departments that offered a variety of undergraduate majors. To reduce the number of majors included in this study, a new major

variable was created called MajorDepartment with 16 values; 14 representing the FSU colleges, and two additional values for students who were either undecided about their major or selected an exploratory major. Although exploratory majors indicate an area of interest, a separate category was created for exploratory majors because the codes for exploratory majors do not match the codes of the 14 FSU colleges. For example, the Office of the Registrar assigns majors in the College of Education a code that begins with the number 5 while FSU exploratory majors related to education such as Exploratory Education and Teaching are assigned a code that starts with the number 92. After the 16 major categories were created, the data was recoded again to create the NewMajor variable, which had 13 values; 11 representing the FSU colleges, one representing exploratory majors and an Other category, which combined the Colleges of Hospitality; Social Work; Motion Picture, TV and Recording Arts; and the undecided category. These majors had low numbers of student enrollment. Additionally, few students in these majors had volunteer hours for the 2006-07 school year.

After all of the categorical variables were assigned numerical values, dummy variables were created. A dummy variable is a two-category variable, where the categories are labeled either 0 or 1. Dummy variables are often used to make interpretations of statistical analyses easier. The dummy variables were named after the 1 category. For instance, the dummy variable VolunteerHoursYes was created with a value of 1 for students who had volunteer hours and a value of 0 for students who did not have volunteer hours. Dummy variables were also created for gender, race, college, volunteering and persistence using the same rubric.

Allen (1997) states that interaction occurs when the effect of an independent variable on a dependent variable is not constant over all the values of the other independent variables. Williams (2000), Marks & Jones (2004) and Vogelgesang & Astin (2000) suggest that Black students and female students may participate in volunteer activities more than other students. Cross tabulations of these variables revealed that of the 464 students who had volunteer hours, 378 female students and 69 Black students had volunteer hours. Interaction variables were used to address these concerns and to determine if the effect of volunteering on academic achievement was different for female and Black students as compared to other students.

Although some studies suggest that students who major in social work may volunteer more than students with other majors, only six (6) students in the population from the College of Social Work had volunteer hours. Thus, interaction variables were only created to examine the

effect of volunteering on academic achievement for female and Black students who volunteer. To create these interaction variables, the independent variables were multiplied by each other. The interaction variable HourFemale was created by multiplying the Female dummy variable by the VolunteerHoursYes variable. The HourBlack interaction variable was created by multiplying the BlackYes dummy variable by the VolunteerHoursYes variable. Tables 1 through 6 display the variables used in the study and how they were coded:

Table 1: Gender Variables

Variable Name	Description	Variable Type	Coding Method
GenderCode	Gender	Categorical	0- Male; 1- Female
Female	Reference variable for gender	Categorical	0- No; 1- Yes

Source: FSU Office of the Registrar

Table 2: Race Variables

Variable Name	Description	Variable Type	Coding Method
NewRace	Race	Categorical	1-White; 2- Black; 3- Hispanic; 4- Other
WhiteYes	Reference Variable for race	Categorical	0- No; 1- Yes
BlackYes	Dummy variable for Black	Categorical	0- No; 1- Yes
HispanicYes	Dummy variable for Hispanic	Categorical	0- No; 1- Yes
OtherYes¹	Dummy variable for Other	Categorical	0-No; 1- Yes

Source: FSU Office of the Registrar

¹The Other category is comprised of Asian, American Indian or Native Alaskan, Native American or Other Pacific and Not Reported

Table 3: College Variables

Variable Name	Description	Variable Type	Coding Method
NewMajor	The college for the students' major of study	Categorical	1- Arts and Sciences; 2- Business; 3- Communication and Information; 4- Criminology and Criminal Justice; 5- Education; 6- Engineering; 7- Human Sciences; 8- Music; 9- Nursing; 10- Social Science and Public Policy; 11- Visual Arts Theater and Dance; 12- Exploratory; 13- Other

Table 3: College Variables - continued

Variable Name	Description	Variable Type	Coding Method
ArtsSciencesYes	Reference variable for college	Categorical	No; 1- Yes
BusinessYes	Dummy variable for Business	Categorical	No; 1- Yes
CommunicationInformationYes	Dummy variable for Communication & Information	Categorical	No; 1- Yes
CriminalJusticeYes	Dummy variable for Criminology & Criminal Justice	Categorical	No; 1- Yes
EducationYes	Dummy variable for Education	Categorical	No; 1- Yes
EngineeringYes	Dummy variable for Engineering	Categorical	No; 1- Yes
HumanSciencesYes	Dummy variable for Human Sciences	Categorical	No; 1- Yes
MusicYes	Dummy variable for Music	Categorical	No; 1- Yes
NursingYes	Dummy variable for Nursing	Categorical	No; 1- Yes
SocialSciencePublicPolicyYes	Dummy variable for Social Sciences & Public Policy	Categorical	No; 1- Yes
VisualArtsTheaterDanceYes	Dummy variable for Visual Arts, Theatre & Dance	Categorical	No; 1- Yes
ExploratoryYes	Dummy variable for Exploratory	Categorical	No; 1- Yes

Source: FSU Office of the Registrar

Table 4: Volunteering Variables

Variable Name	Description	Variable Type	Coding Method
VolunteerHours	Did the student have volunteer hours?	Categorical	No; 1- Yes
VolunteerHoursYes	Dummy variable for whether the student had any volunteer hours at FSU?	Categorical	No; 1- Yes
TotalServiceHours	Number of volunteer hours earned during freshman year	Continuous	0-∞
NewHoursRange	Volunteer Hour Ranges	Categorical	0 hours; 1- 40 hours or less; 2- 41 to 80 hours; 3- 80 hours or more

Table 4: Volunteering Variables - continued

Variable Name	Description	Variable Type	Coding Method
FortyorLessHrs	Dummy variable for 40 hours of service or less	Categorical	No; 1- Yes
FortyOneToEightyHrs	Dummy variable for 41 to 80 service hours	Categorical	No; 1-Yes
EightyOrMoreHrs	Dummy variable for 80 or more service hours	Categorical	0-No; 1-Yes

Source: FSU Office of the Registrar

Table 5: Interaction Variables

Variable Name	Description	Variable Type	Coding Method
HourFemale	Interaction variable for Female and VolunteerHoursYes	Categorical	No; 1- Yes
HourBlack	Interaction variable for BlackYes and VolunteerHoursYes	Categorical	No; 1- Yes

Source: FSU Office of the Registrar

Table 6: Academic Achievement Variables

Variable Name	Description	Variable Type	Coding Method
CummGPA	GPA at end of Spring 07 semester	Categorical	0 - 4.0
StillEnrolledFall2007	Persistence from Spring 2007 to Fall 2007 semester	Categorical	No; 1- Yes
StillEnrolledYes	Dummy variable for persistence from Spring 2007 to Fall 2007 semester	Categorical	No; 1- Yes

Source: FSU Office of the Registrar

Methods of Analysis

Linear regression and logistic regression were used to analyze the data. Before the regression analyses were conducted, frequencies and cross tabulations were completed for some of the variables. Frequencies were used to check the coding of the variables and to get descriptive statistics about the population. Such frequencies included a count of the number of students in each category of the race, gender, college, volunteer hour and persistence variables. Frequencies were also used to find out the mean and median GPA and SAT score for the population. Cross tabulations were used to get descriptive statistics for certain combinations of

variables such as the number of Black students who had volunteer hours and the number of women who persisted from the Spring, 2007 semester to the Fall, 2007.

Linear regression

Astin (1991) argued that multiple regression analysis is a strong and useful statistical procedure and supports the I-E-O assessment model because it permits the investigator to control a very large number of potentially biasing student input characteristics. Linear regression analysis was used to address the first research question about the effect of volunteering on grade point average. Linear regression models estimate the conditional expected value of one variable, y , given the values of some other variable, x . The y variable is called the dependent variable and the x variable is called the independent variable. Linear regression models can have multiple independent variables, which was the case in this study.

Specifically, the linear regression analysis was used to find out whether the independent variable, volunteering, had an effect on the dependent variable, grade point average during the Spring 2007 semester. Literature related to college student volunteering suggests that both academic background and demographic attributes can influence students' volunteer decisions. Thus, the linear regression model addressed a sub-question about whether the effect of volunteering on grade point average is influenced by race, gender and college. The linear regression model included a variable for college to address academic background and variables for gender and race to address demographic attributes.

This research question had two hypotheses, referred to as H1 and H2. The first hypothesis addressed whether participation in volunteer activities had an effect on grade point average. This hypothesis was that students who earned volunteer hours during their freshman year would have higher GPAs than students who did not earn volunteer hours. The following linear regression model was used to test this hypothesis:

$$Y = B_0 + B_1(X_1) + B_2(X_2) + B_3(X_3) + B_4(X_4) + B_5(X_5) + e$$

For this model, Y represented GPA, X_1 represented whether the student earned volunteer hours (VolunteerHoursYes), X_2 represented race (identified by the 4 race dummy variables), X_3 represented gender (Female) and X_4 represented college (identified by the 13 dummy variables for college). The dummy variables for female, White and Arts and Sciences were used as reference variables in the model to test H1.

The second hypothesis addressed whether the number of volunteer hours earned during the freshman year had an effect on freshman grade point averages during the Spring, 2007 semester. This hypothesis was that students who had a higher number of volunteer hours would have a higher grade point average than students with a low number of volunteer hours. To test this hypothesis, X1 represented the number of volunteer hours (identified by the three (3) volunteer hour ranges) in a second linear regression equation and the other variables were the same as those used to test the first hypothesis. As with H1, the dummy variables for female, White and Arts and Sciences were used as reference variables in the model to test H2.

The effect of the number of volunteer hours on GPA could also be measured by including a continuous variable into the regression model. Thus, a third linear regression model was also used to test the second hypothesis. This model switched the volunteer hour dummy variable that was used for X1 with the continuous volunteer hour variable TotalServiceHours. The results of both models were used to determine whether students who had a higher number of volunteer hours had a higher grade point average.

A frequency of the college variable indicated an uneven distribution of some colleges as 45% of the students had majors in either the College of Arts & Sciences or College of Business while only 1% of the students had majors in the College of Motion Picture, TV & Recording Arts or College of Hospitality or College of Social Work. Other majors were evenly distributed across the other 14 colleges and Exploratory. To address this issue, the colleges were grouped into an Other college category.

The results of the first three (3) regression analyses, which included all variables, were reviewed to determine which variables were significant in the model. To do this, the significance of the betas in the model was considered. In linear regression models, significant beta values are those that have a p-value of less than 0.05. The results of the linear regression analyses were used to address the first research question and its two hypotheses.

Tests of the model

The strength of the linear regression model was checked using the R-square value, scatter plots and the ANOVA significance level in the regression output. As stated by Draper & Smith (1998), R-square values that are close to 1, scatter plots that show a random distribution and ANOVA results with a p-value of less than 0.05 indicate strong models. The Variance Inflation Factor (VIF) was also reviewed to check for multicollinearity which indicates a high degree of

correlation among the independent variables. VIF values that are less than 10 are acceptable for addressing multicollinearity. It was expected that little collinearity would be present in the linear regression model because most of the variables in the model were categorical rather than continuous. The distribution of the continuous variables (GPA and number of volunteer hours) was also checked to address the assumption that all variables are normally distributed.

Logistic Regression

Logistic regression analysis was used to address the second research question about the effect of volunteering on persistence. Logistic regression models use a binary coding for the dependent variable. Logistic regression models are used to predict the probability (p) that the dependent variables will be a 1 rather than a 0 (Hosmer & Lemeshow, 1990). This probability is referred to as logit and is also considered to be the natural log or the likelihood ratio of the odds that the dependent variable is 1 (Press & Wilson, 1978). It is represented by the following formula:

$$\log(\text{odds}) = \text{logit}(P) = \log(P/1-P)$$

In this formula, P represents the proportion of ones and (1-P), which is also called Q, represents the proportion of zeros. The variance of the distribution is PQ and the standard deviation is the square root of PQ. The probability (p) can only range from 0 to 1 and logit(p) can range from negative infinity to positive infinity (Press & Wilson, 1978).

Specifically, the logistic regression analysis was used to find out whether the independent variable, volunteering, had an effect on student persistence the dependent variable in the model, from the Spring 2007 semester to the Fall 2007 semester. Literature suggests that race, gender and major of study could influence student persistence. As with the linear regression model, the logistic regression model also addressed a sub-question, which pertained to whether the effect of volunteering on persistence was influenced by race, gender and college. The logistic regression model included a variable for college to address academic background and variables for gender and race to address demographic attributes.

The second research question also had two hypotheses, referred to as H3 and H4 to address whether participation in volunteer activities had an effect on persistence. The third hypothesis stated that students who earned volunteer hours during their freshman year would have higher rates of persistence from the Spring 2007 semester to the Fall 2007 semester than

students who did not earn volunteer hours. The following logistic regression model was used for the analysis:

$$\text{Log}(P/1-P) = B_0 + B_1(X_1) + B_2(X_2) + B_3(X_3) + B_4(X_4) + B_5(X_5) + B_6(X_6) + e$$

For this model, the dependent variable, persistence, was coded as either a 0, to represent a student who did not persist to the Fall 2007 semester, or a 1, to represent a student who did persist to the Fall 2007 semester. Additionally, X1 represented whether the student earned volunteer hours (VolunteerHoursYes), X2 represented race (identified by the 4 race dummy variables), X3 represented gender (Female) and X4 represented college (identified by the 13 dummy variables for college). Again, the dummy variables for female, White and Arts and Sciences were used as reference variables in the model to test H3.

Hypothesis 4 addressed whether the number of volunteer hours earned during the freshman year had an effect on persistence. This hypothesis stated that students with a higher number of volunteer hours would also have a higher rate of persistence from the Spring 2007 semester to the Fall 2007 semester than students with a low number of volunteer hours. To test this hypothesis, X1 represented the number of volunteer hours (identified by the 3 volunteer hour ranges) in a second logistic regression model and the other variables were the same as those used to test H3. As with the other hypotheses, the dummy variables for female, White and Arts and Sciences were used as reference variables in the model to test H4.

Like the effect of the number of volunteer hours on GPA, the effect of the number of volunteer hours on persistence could also be measured by including a continuous variable into the regression model. A third regression model was also used to test the second hypothesis. This model switched the volunteer hour dummy variable that was used for X1 with the continuous volunteer hour variable TotalServiceHours. The results of both models were used to determine whether students who had a higher number of volunteer hours had a higher rate of persistence from the Spring 2007 semester to the Fall 2007 semester.

The results of the first three (3) logistic regression analyses, which included all variables, were reviewed to determine which variables were significant in the model. To do this, the significance of the betas in the model was reviewed. Like linear regression models, significant beta values are those that have a p-value of less than 0.05. The results of the logistic regression analyses were used to address the second research question and its two hypotheses.

Tests of the model

The strength of the logistic regression model was checked using the Hosmer-Lemeshow statistic. A p-value for the Hosmer-Lemeshow statistic that is greater than 0.05 indicates a strong model. The Variance Inflation Factor (VIF) was also reviewed to check for multicollinearity among the independent variables. VIF values that are less than 10 are acceptable for addressing multicollinearity. Like the linear regression model, it was expected that not much collinearity would be present in the logistic regression model because most of the variables in the model were categorical rather than continuous. The distribution of the continuous variables (GPA and number of volunteer hours) was also checked to address the assumption that all variables are normally distributed.

Summary

A quantitative methodology was used for this study. The population was native Florida State University freshman for the 2006-07 academic year. Academic and volunteer service data pertaining to the population was extracted from university transcripts. Linear regression and logistic regression were used to analyze the data and address research questions related to the effect of volunteering on grade point average and persistence from freshman to sophomore year.

It was anticipated that the results of the study would add to existing studies of college student volunteering by determining the effect of volunteering on cumulative grade point average. It was also anticipated that the results of the logistic regression analysis would address a gap in the literature related to college student volunteering by showing the effects of volunteering on persistence based on institutional data as opposed to student self-report.

The analyses were used to address four hypotheses; two related to the effect of volunteering on grade point average and two related to the effect of volunteering on persistence. The research hypotheses were that students who had volunteer hours would have both higher grade point averages and higher rates of persistence from the Spring, 2007 to the Fall, 2007 semester. Other hypotheses anticipated that students who had a high number of volunteer hours would have both higher grade point averages and higher rates of persistence.

To test the hypotheses, the beta value of X1, which represented number of volunteers and the number of volunteer hours, was checked. Significant beta values would support the hypotheses. For example, for H1, which addressed the effect of participation in volunteer activities on grade point average, a significant beta value of 0.2 for X1 could mean that when

compared to students who did not volunteer, the grade point average of students who volunteered was 0.2 higher. In addition, for H2, which addressed the effect of the number of volunteer hours on GPA, a significant beta value of 0.2 for X1 could mean that for each one hour increase in the number of volunteer hours, a student's semester GPA could increase by 0.2. Literature suggests that both race and gender can influence volunteer decisions. Therefore, it was anticipated that the interactions between these two variables and volunteering would be significant in the regression results. The actual results of the analyses are presented in the next chapter.

CHAPTER 4

RESULTS

The purpose of this study was to examine the effect of volunteering on two measures of academic achievement: grade point average and persistence from freshman to sophomore year. Literature has indicated that volunteering can influence grade point average and that student involvement can positively influence persistence. Such research has typically used self-reported data such as surveys and interviews. However, this study used institutional data extracted from student transcripts to address two research questions:

1. What is the effect of volunteering on grade point average?
 - a. Is the effect of volunteering on grade point average influenced by gender, race or college?
2. What is the effect of volunteering on persistence from freshman to sophomore year?
 - a. Is the effect of volunteering on persistence influenced by gender, race or college?

The study used linear and logistic regression to examine this relationship using the incoming student population at Florida State University during the 2006-07 school year. Volunteer hours and grade point averages were analyzed for the Spring, 2007 semester.¹ Persistence was measured by following the students who were enrolled during the Spring, 2007 semester and were still enrolled during the Fall, 2007 semester. This chapter will discuss the population and the results of the analysis.

Descriptive Statistics

Table 7 and Figures 2 and 3 describe the population for this study. This population was comprised of 5,974 incoming students. The median grade point average was 3.15 on a 4.0 scale. Of the students in the study, 42% were male and 58% were female. Within the population used for the study, 8% of the students earned volunteer hours and 91% of the students persisted to the Spring, 2007 semester. The majority of the students in the population were White (74%). The next two largest groups were Hispanic students (12%) and Black students (10%). Asian and Other students made up 3% and 1% of the population respectively. Nearly half of the population had majors in the College of Arts & Sciences (24%) or the College of Business (21%).

¹ Students could have earned volunteer hours in the Summer 2006, Fall 2007 or Spring 2007 semester.

Table 7: Gender and Academic Achievement Distribution

2006-07 FSU Freshman Population	
Total Number of Students	5,974
Gender	
Number of Male Students	2,522 (42%)
Number of Female Students	3,452 (58%)
Academic Achievement	
Median Grade Point Average	3.15
Number of Students Who Persisted to Fall 2007 semester	5,428 (91%)
Number of Students Who Did Not Persist to Fall 2007 semester	546 (9%)

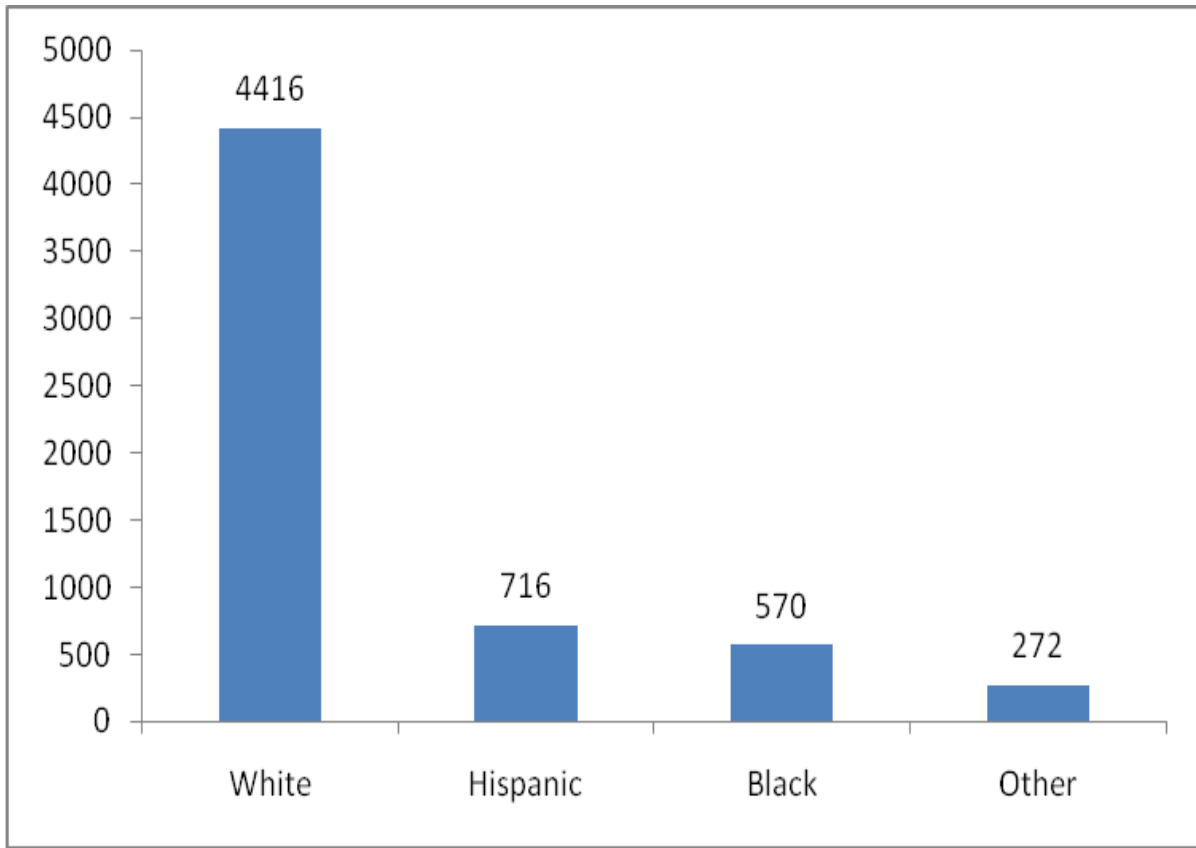


Figure 4: Race Distribution²

² Other category is comprised of Asian, American Indian or Native Alaskan, Native Hawaiian or Other Pacific and Not Reported.

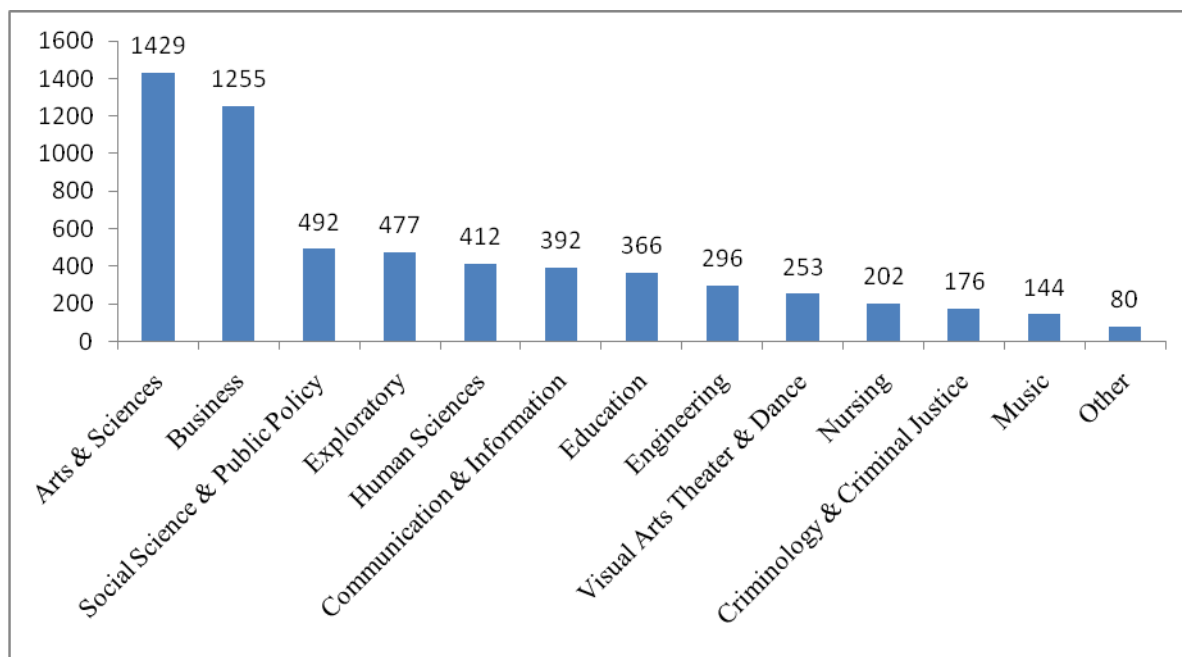


Figure 5: College Distribution

Tables 8 through 11 describe the race, college and gender of the students with volunteer hours. The population included 464 students who had earned volunteer service hours during the period from the Summer, 2006 semester to the Spring, 2007 semester. As shown in Table 8, 53% of those students earned 40 hours of service or less, 33% earned between 41 and 80 hours and the remaining 14% earned more than 80 hours. Most of the hours were earned by White, Black and Hispanic students. In addition, Tables 9 and 10 show that students who volunteered were primarily from the Colleges of Arts & Sciences, Business and Education and that women in the population (81%) volunteered much more than men (19%). As displayed in Table 11, 54% of the 446 students who both persisted and had volunteer hours completed 40 hours of service or less.

Table 8: Race Distribution of Students with Service Hours

Range of Service Hours	White	Black	Hispanic	Other	Total
40 hours or less	169	34	30	12	245 (53%)
41 to 80 hours	115	17	20	2	154 (33%)
80 hours or more	40	18	6	1	65 (14%)
Total Service Hours	324	69	56	15	464

Source: FSU Office of the Registrar

Table 9: Distribution of Students with Service Hours by College

College	40 hours or less	41 to 80 hours	80 or more hours	Total
Arts and Sciences	65	31	18	114
Education	22	39	15	76
Business	38	22	8	68
Social Science & Public Policy	23	11	7	41
Human Sciences	24	10	5	39
Communication & Information	27	10	2	39
Exploratory	12	11	2	25
Nursing	7	7	3	17
Engineering	10	5	2	17
Visual Arts Theater & Dance	8	4	1	13
Other	4	1	2	7
Criminology & Criminal Justice	4	2	0	6
Total Hours	245	154	65	464

Source: FSU Office of the Registrar

Table 10: Distribution of Students with Service Hours by Gender

Range of Hours	Male	Female	Total
40 hours or less ³	50	195	245
41 to 80 hours	24	130	154
80 or more hours	12	53	65
Total Hours	86 (19%)	378 (81%)	464

Source: FSU Office of the Registrar

Table 11: Cross Tabulations by Persistence and Volunteering

Cross Tabulation	Number of Students
Persistence to Fall 2007 and Volunteer Hours	446
Did Not Persist to Fall 2007 but Had Volunteer Hours	18
Persistence to Fall 2007 with 40 hours or less	238 (54%)
Persistence to Fall 2007 with 41 to 80 hours	144 (32%)
Persistence to Fall 2007 with 80 or more hours	64 (14%)

Source: FSU Office of the Registrar

³ This category does not include students with 0 service hours.

Findings

First Research Question

Linear regression analysis was used for the first research question, which addressed the effect of volunteering on grade point average. This research question had two hypotheses:

- H1: Students who have earned volunteer hours during their freshman year will have higher GPAs than students who have not earned volunteer hours.
- H2: Students who have a higher number of volunteer hours will have higher grade point averages.

Results for H1

A histogram of this model displayed a normal distribution of the population. Although the R-square value for the model was low (.081), the ANOVA had a p-value of .00, which was statistically significant because it was less than 0.05. The regression plots for this model were random which indicated a good fit. All of the VIF values for this model are lower than 6 for this model, which indicates that there was no multicollinearity among the variables. As shown in Table 12, with all other variables held constant, this model predicted that students who volunteer would see an increase in GPA of .096 more than students who do not volunteer. This finding indicates that H1 was supported with this model.

As shown in Table 12, assuming that students volunteer the same number of hours, the model predicted that students who have majors in the College of Arts & Sciences, Criminal Justice, Education, Engineering, Human Sciences, Social Sciences & Public Policy and students who have exploratory majors would see a decrease in their grade point average. Additionally, assuming that students complete the same number of volunteer hours, female students would see an increase in grade point average while Black students would see a decrease. Appendix C contains the non-significant variables for this hypothesis.

Table 12: Results for H1: Volunteering and Increase in GPA

Variable	Beta Coefficient	Standard Error	Significance
Volunteering Variables			
Volunteer Hours	0.096	0.072	0.001
Race Variables			
Black	-0.111	0.038	0.000
Gender Variables			
Female	0.114	0.018	0.000

Table 12: Results for H1: Volunteering and Increase in GPA - continued

Variable	Beta Coefficient	Standard Error	Significance
College Variables			
Arts & Sciences	-0.093	0.025	0.000
Criminology & Criminal Justice	-0.059	0.051	0.000
Education	-0.053	0.038	0.000
Engineering	-0.058	0.041	0.000
Exploratory	-0.133	0.034	0.000
Human Sciences	-0.057	0.037	0.000
Social Science & Public Policy	-0.031	0.034	0.027

R-Square: 0.081 (p-value: 0.00)

Results for H2

The linear regression analysis for H2 included two models. The first model included volunteer hours as a categorical variable that measured the range of hours. The second model included volunteer hours as a continuous variable. A histogram of this model also displayed a normal distribution of the population. Although the R-square value for both models was again low (.080 and .081 respectively), the ANOVA for both models was had a p-value of .00, which was significant. The regression plots for both models were random, indicating a good fit. All of the VIF values are lower than 4 for this model, which indicates that there was no multicollinearity among the variables.

As shown in Tables 13, with all of the other variables held constant, the model that used volunteer hour ranges did not predict a significant effect of the range of volunteer hours on grade point average. However, Table 14 shows that the model that used the continuous variable for volunteer hours predicted that with all other variables held constant, for every hour of volunteer service that a student completes, their GPA would increase by .05. Therefore, H2 was supported. Appendix C contains the non-significant variables for this hypothesis.

Assuming that students completed the same number of volunteer hours, both the model that used the total service hours variable and the model that used volunteer hour ranges predicted again that students with majors in the College of Arts & Sciences, Criminal Justice, Education, Engineering, Human Sciences, Social Sciences & Public Policy and students who have exploratory majors would see a decrease in their grade point average. As with H1, assuming that students complete the same number of volunteer hours, Black students would see a decrease in grade point average. The interaction variable HourFemale, which was created to determine if

the effect of volunteering on academic achievement was different for female students than for male students, was also significant in that the model predicted that women who volunteered saw a .092 increase in grade point average.

Table 13: Results for H2: Volunteer Hour Ranges and GPA

Variable	Beta Coefficient	Standard Error	Significance
Race Variables			
Black	-0.112	0.038	0.000
Gender Variables			
Female	0.109	0.018	0.000
HourFemale	0.106	0.062	0.000
College Variables			
Arts & Sciences	-0.092	0.025	0.000
Criminology & Criminal Justice	-0.059	0.051	0.000
Education	-0.052	0.039	0.000
Engineering	-0.059	0.041	0.000
Exploratory	-0.133	0.034	0.000
Human Sciences	-0.056	0.037	0.000
Social Science & Public Policy	-0.03	0.034	0.036

R-Square: 0.080 (p-value: 0.00)

Table 14: Results for H2: Hour of Service Increases GPA

Variable	Beta Coefficient	Standard Error	Significance
Volunteering Variables			
Total Service Hours	0.050	0.001	0.003
Race Variables			
Black	-0.112	0.038	0.000
Gender Variables			
Female	0.110	0.018	0.000
HourFemale	0.092	0.045	0.000
College Variables			
Arts & Sciences	-0.093	0.025	0.000
Criminology & Criminal Justice	-0.059	0.051	0.000
Education	-0.053	0.039	0.000
Engineering	-0.059	0.041	0.000
Exploratory	-0.133	0.034	0.000
Human Sciences	-0.057	0.037	0.000
Social Science & Public Policy	-0.031	0.034	0.028

R-Square: 0.081 (p-value: 0.00)

Second Research Question

Logistic regression analysis was used for the second research question, which addressed the effect of volunteering on persistence. This research question also had two hypotheses:

- H3: Students who have earned volunteer hours during their freshman year will have higher rates of persistence from freshman year to sophomore year than students who have not earned volunteer hours.
- Hypothesis 4: Students who have a higher number of volunteer hours will have higher rates of persistence from freshman year to sophomore year.

Results for H3

The Hosmer & Lemeshow statistic for this model was .136, which indicated a good fit as the p-value was greater than 0.05. However, the model did not predict a significant effect of volunteering on persistence. As shown in Table 15, the only statistically significant variables for this model were the college variables for exploratory, nursing and arts and sciences with odds of persistence of 1.977, 1.740 and 1.324 respectively. None of the race or gender variables was significant for this model. These results do not support H3. Appendix C contains the non-significant variables for this hypothesis.

Table 15: Results for H3: Volunteering and Persistence

Variable	Beta Coefficient	Standard Error	Significance
College Variables			
Exploratory	1.977	0.170	0.000
Nursing	1.740	0.248	0.026
Arts & Sciences	1.324	0.141	0.046

Hosmer & Lemeshow statistic: 0.136

Results for H4

Similar to H2, the logistic regression analysis for H4 included two models. The first model included volunteer hours both as a categorical variable that measured the range of hours. The second model included volunteer hours as a continuous variable. The Hosmer & Lemeshow statistic for the model addressing H4 that used volunteer hour ranges was .258 which indicated a good fit, as the value was greater than 0.05. The Hosmer & Lemeshow statistic for the model that used volunteer hours as a continuous variable was .263, which also indicated a good fit.

As with H3, the models for H4 did not indicate a significant effect of volunteering on persistence. Neither the continuous nor the categorical variable for volunteering was significant in the models. As with H3, the only statistically significant variables for this model were the college variables for exploratory, nursing and arts and sciences with odds of persistence of 1.965, 1.728 and 1.320 respectively for the model that used volunteer hour ranges and odds of persistence of 1.969, 1.740 and 1.319 for the model that used the continuous hours variable. Again, none of the race or gender variables was significant for this model. These results do not support H4. Appendix C contains the non-significant variables for this hypothesis.

Table 16: Results for H4: Volunteer Hour Ranges and Persistence

Variable	Beta Coefficient	Standard Error	Significance
College Variables			
Exploratory	1.965	0.170	0.000
Nursing	1.728	0.248	0.028
Arts & Sciences	1.320	0.141	0.048

Hosmer & Lemeshow statistic: 0.258

Table 17: Results for H4: Total Service Hours and Persistence

Variable	Beta Coefficient	Standard Error	Significance
College Variables			
Exploratory	1.969	0.170	0.000
Nursing	1.740	0.249	0.026
Arts & Sciences	1.319	0.141	0.049

Hosmer & Lemeshow statistic: 0.263

Influence of race, gender and college

The regression models included variables for race, gender and college. The results indicated that the variables for gender, Black, Arts & Sciences, Education, Engineering, Social Sciences, Criminal Justice, and Human Sciences had significant negative influences on the effect of volunteering and grade point average. However, the race and gender variables did not have a significant influence on the effect of volunteering on persistence.

Prior literature pertaining to volunteer decisions suggests that Black students and women may volunteer more than other groups of students. Interaction variables were created

between Black and volunteering and Female and volunteering to address the possibility of a different effect of volunteering on academic achievement for Black students and female students who volunteer. The results indicated a significant influence for the interaction variable female, with a beta value of 0.092 in the first model, which examined the effect of volunteering on grade point average. The Black interaction variable was not significant in the first model. The effect of volunteering on persistence was not significant for Black and female interaction variables.

Summary

The results of the study indicated a positive effect from volunteering on the grade point average of first year students at Florida State University. In relation to grade point average, H1 was supported as the linear regression model did predict that students who volunteered did see an increase in grade point average of .096 more than students who do not volunteer. Although the model did not predict a significant effect of the range of volunteer hours on grade point average, H2 was also supported. Using the continuous variable Total Service Hours, the model predicted that for every hour of volunteer service that a student completed, the grade point average would increase by .05.

The results did not support H3 or H4, both of which addressed the effect of volunteering on persistence. The only significant variables in these models were three college related variables: exploratory, nursing and arts & sciences. The next chapter will discuss the conclusions of the study and the opportunities for future research on this topic.

The regression models included variables for race and gender, including an interaction variable to address whether the effect of volunteering on academic achievement is different for Black or female students who volunteer, as the literature suggested that these groups of students may volunteer more. The female interaction variable was significant for the first research question, which measured the effect of volunteering on grade point average. The Black interaction variable was not significant. Neither of the interaction variables were significant for the second research question which measured the effect of volunteering on persistence.

CHAPTER 5

CONCLUSIONS, IMPLICATIONS AND FUTURE STUDIES

Astin (1991) suggests that the I-E-O model is designed to produce information on how outcomes are affected by different educational policies and practices. In this study the model was used to develop a conceptual framework for studying the effect of volunteering on academic achievement and persistence at Florida State University. The results of the study suggest that there may be a positive relationship between volunteering and academic achievement. No significant relationship was found between volunteering and persistence. Regression models were used to examine the influence of volunteering on grade point average and persistence, and would be appropriate for future studies on this same topic. This chapter will present the conclusions of the study, implications for further research on volunteering and academic achievement and suggestions on related research in general.

Results

The first research question examined the effect of volunteering on grade point average. Results supported the findings from prior studies that showed that students who volunteer have often earned higher grade point averages. This study specifically addressed a gap in literature by using a methodology that included grade point average and service hour data that was extracted from student transcripts rather than self-reported data as used in prior studies. This study also addressed a second gap in the literature by examining the effect of volunteering on students' overall grade point average, instead of a single term grade point average.

The second research question examined the effect of volunteering on persistence. This analysis was intended to add to the current literature related to undergraduate persistence. The hypothesis was that students who engage in campus activities will have higher rates of persistence. The logistic regression model used in the study did not find a significant effect from volunteering on persistence. However, it was concluded that the hypothesis may have been supported if the study were conducted at an institution with a lower persistence rate. The persistence rate at FSU is exceptionally high for a public research university.

Current literature pertaining to undergraduate volunteer activities suggests that Black students and women tend to volunteer more often than other students. The descriptive statistics in the study revealed that 81% of the population with service hours was female and 15% of the

population with service hours was Black. Interaction variables for female and Black students who volunteered were included in the regression models to determine if the effect of volunteering on academic achievement was different for these two groups of students. The results showed a significant beta value for the interaction variable, female when measuring the effect of volunteering on grade point average. The interaction variable, Black was not significant. Neither interaction variable, female or Black were significant in the model for the second research question, the effect of volunteering on persistence.

One reason why the interaction variable, female was significant and the interaction variable, Black was not may have been due to the number of female students with volunteer hours was large among the population of students with service hours, while the number of Black students with volunteer hours was not. The population examined did not include a large number of Black students with service hours to examine whether they actually volunteer more than other groups of students or whether the effect of volunteering on academic achievement was different for Black students who volunteer than for other students. Future studies with a more even distribution of races with volunteer hours could produce results that might support prior literature pertaining to Black student volunteers. One means of generating a larger number would be to include several years of students to increase the Blacks in the study. The present study only looked at one year.

In addition to a deficit in the population with regard to Black students, there are other reasons for a decrease in grade point average among the Black students who volunteer. In particular, Black students who volunteer may experience a decline in grade point average because a service activity may impact their personal values, such that they become more focused on service than on their studies. This possibility is conjecture and not currently supported by the literature. But it does resonate with current literature on Black culture.

The regression model used in this study predicted that students with majors in the Colleges of Arts & Sciences, Criminal Justice, Education, Engineering, Human Sciences, Social Sciences & Public Policy and students who have exploratory majors would likely see a decrease in their grade point average. Additionally, assuming that students complete the same number of volunteer hours, women would see an increase in grade point average while Black students would see a decrease. Only two colleges, Nursing and Arts & Sciences and exploratory majors were significant in the model for the effect of volunteering on persistence. However these

findings do not offer much explanation about the relationship because volunteering was not found to be significant in the model.

Implications

Astin (1991) argued that the assessments that attract the greatest attention from college faculty and administrators seem to reflect adherence to the reputational and resource views of excellence such as the average test scores and grade point averages (GPAs) of the entering freshmen, rankings in reputational polls and the size of enrollment. Astin added that there appears to be less institutional interest in the mission of talent development which could be the reason for the growing interest of public officials in outcomes assessment and in making institutions more accountable.

Ewell (1984) has suggested that assessment results are the most effective when they are designed specifically for particular audiences. He added that four major audiences to whom assessments should be directed are faculty, student affairs personnel, academic administrators, and students. Astin (1991) explained that use of the I-E-O model of assessment should allow those responsible for assessment activities to enhance their understanding of how student or faculty development is affected by various educational policies and practices.

This study suggests that volunteering is an activity that can help refocus administrators on the issue of talent development. Talent development is a process of targeting students who need and benefit from specific programs to help develop their talents when they come to college. It has been a particular concern of Astin's (1991) and he often challenges colleges and universities to provide talent development opportunities for students who might benefit from the additional attention and support.

The results of this study also offer a set of measureable outcomes that administrators may find useful as they are often tasked with being more accountable for campus activities. The results suggest that volunteering appears to have a positive effect on academic achievement, a finding that offers strong support for administrators and faculty who want to offer more service learning opportunities on campus. Perhaps the most often cited benefit of service learning in the literature on volunteering and service learning is that it incorporates classroom material into and through volunteer opportunities. For example, a student in an English class who is studying King Lear may find resonance in working at a homeless shelter with a middle aged or elderly man. Like Lear, the homeless man may be adrift and feel estranged from his family, much as

Shakespeare depicts the fallen king. The connections between classic literature and real life can provide profound learning opportunities that could not be achieved in a classroom alone.

Eyler & Giles (1999) presented several potential benefits of service. They argue that service learning connects several groups of people: students and their diverse peers, students and community partners, students and faculty and the college to its local community. They add that requiring participation in service may help build these connections for those who would not see them otherwise. Administrators may also find this study useful because the connection between campus and community is constructed using Astin's I-E-O model. Additionally, a study like this one can be conducted on any campus that collects service hour data and information. All data for the regression models used in this study were obtained from the college registrar's office, a function that could be duplicated on most campuses once a service learning transcript or similar instrument is created.

Administrators who seek more support for offering service opportunities on their campuses may benefit from the results of this study as a significant effect from volunteering on grade point average was demonstrated. This study adds to the existing literature by examining the effect of volunteering on a semester grade point average, rather than for a single course. Tinto (1993) and Astin (1975) found that increased student engagement on college campuses leads to greater levels of persistence. Thus, administrators could use this study as the initial approach for identifying whether volunteering, as a form of engagement, has an effect on persistence at their institutions.

Conclusions

This study supports the current literature that suggests that students who are engaged in campus activities earn higher grades and persist longer at their institutions. The results of the study indicated that for the 2006-07 freshman population at Florida State University, volunteering had a positive effect on grade point average. The study also supports prior literature that suggests that gender, race and major field of study influence this relationship.

The study was conducted using linear and logistic regression analysis of student transcript data. This analysis was important to the study because prior studies of volunteering and academic achievement relied on self-reported service hours and grade point average data. Thus, the use of student transcript data offered results based on valid and reliable institutional data. The results have implications for college administrators who seek ways to connect student

engagement to academic outcomes. Such institutions that collect student service hour data could use this study's methodology to explore the relationship between volunteering and academic achievement on their campuses.

The results of the study could also support for service learning opportunities on college campuses. Florida State University has already taken steps to increase student interest in service through its Center for Leadership & Service. However, the Center has not conducted many studies that connect the service to measurable academic outcomes. The results of this study could be helpful to FSU as it promotes the Center and develops future service activities.

More than 90% of the study population persisted from freshman to sophomore year, which is higher than many universities across the country. Additionally, the majority of the students in the population with volunteer hours were White. Therefore, future studies conducted on campuses with lower persistence rates and a more racially diverse volunteer population may produce different results.

Opportunities for Future Research

Future studies could examine the effect of volunteering on grade point average and persistence using different methodologies, data variables and populations. For instance, interviews and surveys could be used to gather student input about the reasons why they volunteer and how their service experiences influenced their academic achievement. These instruments could also examine whether this influence varies between service that is course related, such as service learning and service that is not course related, such as community service activities.

Future research could also span multiple years rather than only one year to the next. Such studies could use survival analysis, which is a type of Cox regression that addresses censored observations, which arise when cases drop out of the population prior to the end of the study. In future studies of this topic that include multiple years of data, students who have not persisted during the entire study period would be included as censored observations. Additionally, future studies of this topic could explore whether the type of volunteer service influences academic achievement. Such studies would rely on universities collecting descriptive data about the service such as whether it was on a short or long term basis and whether it was completed voluntarily or as a class requirement.

This study could also be conducted again using several different student populations. For instance, the literature suggests that Black students and women volunteer more often, which could mean that this study could produce different results if conducted at a historically Black or single gender institution. Literature also suggests that students who major in social sciences volunteer more often than students with other majors. Thus, future studies may also explore the effect of volunteering on academic achievement at smaller liberal arts colleges rather than a large research institution.

Several researchers (Chickering, 1969; Heath, 1978) have argued that students develop several of their moral beliefs during their college years. Additionally, literature supports the idea that students feel a connection to activities that reflect their personal values. Thus, future studies of this topic could include data that attempts to capture information about students' personal morals and values. Perhaps such data could be collected with interviews or surveys.

Research of this topic could also examine whether the effect of volunteering on academic achievement is influenced by students' living arrangements. Such studies could compare this effect at commuter institutions such as community colleges with traditional institutions with a larger percentage of students who live on campus. Tallahassee, Florida may be an option for future research of this topic in that Florida A&M University, a historically Black institution and Tallahassee Community College, which has an Office of Student Volunteerism, are both located there.

The results of this study do not pinpoint the influence of specific major fields of study on the relationship between volunteering and academic achievement. Future studies of this topic could include a specific major variable rather than the college. Such an approach might offer more insight about the majors of students who volunteer often as well as which majors are offering volunteer opportunities as a part of coursework. This may be helpful to administrators as they determine which departments to direct their campus volunteering activities.

Summary

Many researchers (Cooper, Healy & Simpson, 1994; Pascarella & Terenzini, 1991; Tinto, 1993) support Astin's theory of student involvement and have concluded that given the positive level of influence that involvement exerts over a student's academic experience and the long-term personal gains that are realized, a central goal of colleges and universities should be to foster learning communities that maximize student experiences for optimal growth and

development (Holmes, et al. 2007). This study presents volunteering as one of many options for college administrators to increase student engagement on their campuses.

This study supports prior literature that suggests that students who are engaged in campus activities earn higher grades and persist to graduation at their institutions. The results of the study indicated that for the 2006-07 freshman population at Florida State University, volunteering had a positive effect on grade point average. The study was conducted using linear and logistic regression analysis of student transcript data. These results have implications for Florida State University administrators and other university personnel who seek additional research to support the argument that undergraduate volunteering can positively influence academic achievement.

Over 90% of the Florida State University population for the study persisted from freshman to sophomore year. Thus, future studies conducted on campuses with lower persistence rates could reveal a different effect of volunteering on persistence. Future studies conducted using a mixed methodology including interviews, surveys and varying populations could indicate a different relationship between volunteering and academic achievement as well.

APPENDIX A

HUMAN SUBJECTS COMMITTEE APPROVAL

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 2/11/2009

To: Amelia Parnell

Address: 441 Richview Park Circle West Tallahassee, FL 32301
Dept.: EDUCATIONAL LEADERSHIP

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
The Relationship Between Volunteering and Academic Achievement at Florida State University

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Expedited per 45 CFR § 46.110(7) and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 2/10/2010 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Robert Schwartz, Advisor
HSC No. 2009.2306

HUMAN SUBJECTS COMMITTEE RENEWAL

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673, FAX (850) 644-4392

RE-APPROVAL MEMORANDUM

Date: 1/21/2010

To: Amelia Parnell [arp05@fsu.edu]

Address: 441 Richview Park Circle West Tallahassee, FL 32301
Dept.: EDUCATIONAL LEADERSHIP

From: Thomas L. Jacobson, Chair

Re: Re-approval of Use of Human subjects in Research
The Relationship Between Volunteering and Academic Achievement at Florida State
University

Your request to continue the research project listed above involving human subjects has been approved by the Human Subjects Committee. If your project has not been completed by 1/14/2011, you must request renewed approval by the Committee.

If you submitted a proposed consent form with your renewal request, the approved stamped consent form is attached to this re-approval notice. Only the stamped version of the consent form may be used in recruiting of research subjects. You are reminded that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report in writing, any unanticipated problems or adverse events involving risks to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor are reminded of their responsibility for being informed concerning research projects involving human subjects in their department. They are advised to review the protocols as often as necessary to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

Cc: Robert Schwartz, Advisor [rschwart@coe.fsu.edu]
HSC No. 2010.3830

APPENDIX B

ALL UNDERGRADUATE MAJORS FOR THE STUDY POPULATION

(AS INDICATED ON STUDENT APPLICATIONS)

FSU Major	Number of Students	Percentage of Population
Accounting	2	0
Acting	8	0.1
Actuarial Science	15	0.3
Advertising	6	0.1
Anthropology	20	0.3
Apparel Design & Technology	39	0.7
Applied & Computational Math	4	0.1
Art Education	8	0.1
Art History	21	0.4
Asian Studies	4	0.1
Asian Studies/Business	2	0
Athletic Training/Sports Medicine	32	0.5
Biochemistry	61	1
Biological Science/Prereq Inc.	538	9
Biological Science	24	0.4
Biomedical Mathematics	4	0.1
Brass	2	0
Business NFA	1221	20.4
Business Undecided NFA	26	0.4
Chemical Engineering	1	0
Chemical Science	7	0.1
Chemistry	31	0.5
Classical Archaeology	6	0.1
Classical Civilizations	4	0.1
Communication Sciences & Disorders-NFA	22	0.4
Communication Sciences & DISORDERS	8	0.1
Communication NFA (LOWER)	287	4.8
Communication Studies	9	0.2
Computer Science (NFA)	34	0.6
Creative Writ-Emphasis In Bus	1	0
Creative Writing	89	1.5
Criminology	11	0.2
Criminology NFA	165	2.8
Dance	8	0.1
Dietetics	36	0.6

FSU Major	Number of Students	Percentage of Population
Early Childhood Ed - MAPP	22	0.4
Economics	1	0
Economics NFA	26	0.4
Education NFA	11	0.2
Electrical Engineering	2	0
Elementary Education	3	0.1
Elementary Education -MAPP	108	1.8
Emotional Disturb/Ld -MAPP	15	0.3
Engineering NFA	292	4.9
English	1	0
English Education -MAPPING	33	0.6
English/Business	6	0.1
Environmental Chemistry	1	0
Environmental Studies	10	0.2
Exercise Science	135	2.3
Exp -Comm, Human Sciences, Soc Sci	221	3.7
Exploratory -Creative Art, Human	122	2
Exploratory-Ed. & Teaching	26	0.4
Exploratory-Science Tech.& Eng	108	1.8
Family & Child Science Pre Inc	20	0.3
Family & Consumer Science Ed	1	0
Family, Child & Consumer Sc	7	0.1
Finance	3	0.1
Food & Nutrition (Prereq)	32	0.5
Food & Nutrition Science	6	0.1
French	2	0
French and Italian	1	0
Geography	7	0.1
Geology	5	0.1
German	2	0
Graphic Design - NFA	28	0.5
Greek & Latin	2	0
Guitar Performance	2	0
Health Education - MAPPING	2	0
History	59	1
Human Sciences	2	0
Humanities	9	0.2
Info. Studies Pre.-Inc	23	0.4
Information Technology	8	0.1
Interior Design, Conditional	33	0.6

FSU Major	Number of Students	Percentage of Population
International Affairs	141	2.4
Latin	1	0
Latin American/Caribbean Studs	2	0
Literature	78	1.3
Management	1	0
Mass Media Studies	16	0.3
Mathematics	15	0.3
Mathematics (NFA)	6	0.1
Mathematics Ed. - MAPPING	3	0.1
Mechanical Engineering	1	0
Media Production	6	0.1
Mental Disabilities - MAPP	1	0
Merchandising	100	1.7
Meteorology	43	0.7
Middle Eastern Studies	2	0
Middle Grades Math Ed-MAPP	2	0
Motion Picture, TV & Record Arts	21	0.4
Multilingual/Cultural Ed	1	0
Multinational Business Operations	1	0
Music - Liberal Arts	21	0.4
Music Ed.-Instrumental	32	0.5
Music Education	7	0.1
Music Education -Choral	16	0.3
Music Liberal Arts-Jazz	6	0.1
Music Therapy	13	0.2
Music Undecided	17	0.3
Musical Theatre- Music	1	0
Musical Theatre - Theatre	4	0.1
Nursing	4	0.1
Nursing NFA	198	3.3
Percussion	2	0
Philosophy	19	0.3
Physical Education	1	0
Physical Education-MAPPING	4	0.1
Physics	22	0.4
Physics (Bio-Pre-medicine)	3	0.1
Physics (Biology)	1	0
Physics (Environmental. Sciences)	1	0

FSU Major	Number of Students	Percentage of Population
Physics (Oceanography)	1	0
Piano	2	0
Piano Pedagogy	1	0
Political Science	251	4.2
Professional Golf Management	1	0
Psychology	8	0.1
Psychology (NFA)	287	4.8
Public Relations	7	0.1
Recreation & Leisure Services Admin-MAPP	17	0.3
Rehabilitation Serv.- MAPP	5	0.1
Religion	5	0.1
Religion & Classics	1	0
Russian	1	0
Russian & East Euro Studies	4	0.1
Science Education -MAPPING	8	0.1
Secondary Math Ed. - MAPP	16	0.3
Secondary Science/Math Teach	1	0
Social Science	32	0.5
Social Science Ed.-MAPPING	37	0.6
Social Work	1	0
Social Work, Prereq Inc.	33	0.6
Sociology	14	0.2
Spanish	4	0.1
Sports Management	7	0.1
Sports Management - MAPP	69	1.2
Statistics	2	0
Strings	7	0.1
Studio Art	77	1.3
Textiles	2	0
Theatre NFA	65	1.1
Theatre NFA (UPPER)	1	0
Undecided	25	0.4
Visual Disabilities - MAPP	1	0
Voice	6	0.1
Woodwinds	9	0.2
Total	5974	100

APPENDIX C

REGRESSION RESULTS (NON-SIGNIFICANT VARIABLES)

RQ1: What is the effect of volunteering on grade point average?

- a. Is the effect of volunteering on grade point average influenced by gender, race or college?

H1: Students who earned volunteer hours during their freshman year will have higher GPAs than students who did not earn volunteer hours.

H2: Students who have a higher number of volunteer hours will have higher grade point averages.

Results for H1 (non-significant variables)

Variable	Beta Coefficient	Standard Error	Significance
Race Variables			
White	0.024	0.026	0.155
HourBlack	-0.011	0.089	0.421
Other (Race)	-0.009	0.045	0.535
Gender Variables			
HourFemale	0.037	0.078	0.204
College Variables			
Music	0.024	0.056	0.063
Nursing	-0.024	0.049	0.072
Other (College)	-0.02	0.074	0.119
Visual Arts Theater & Dance	0.014	0.044	0.283
Communication & Information	-0.008	0.037	0.541

Results for H2 - Using Volunteer Hours Range (non-significant variables)

Variable	Beta Coefficient	Standard Error	Significance
Volunteering Variables			
41 to 80 hours	0.024	0.073	0.168
40 hours or less	0.002	0.064	0.907
Race Variables			
White	0.024	0.026	0.164
Other (Race)	-0.008	0.045	0.558
HourBlack	0.000	0.086	0.993

Results for H2 - Using Volunteer Hours Range (non-significant variables) - continued

Variable	Beta Coefficient	Standard Error	Significance
College Variables			
MusicYes	0.024	0.056	0.065
Nursing	-0.024	0.049	0.074
Other (College)	-0.020	0.074	0.119
Visual Arts Theater & Dance	0.015	0.044	0.259
Communication & Information	-0.007	0.037	0.599

Results for H2 - Using Total Service Hours (non-significant variables)

Variable	Beta Coefficient	Standard Error	Significance
Race Variables			
White	0.024	0.026	0.155
HourBlack	-0.011	0.089	0.434
Other (Race)	-0.008	0.045	0.572
College of Variables			
Nursing	-0.025	0.049	0.057
Music	0.024	0.056	0.065
Other (College)	-0.022	0.074	0.091
Visual Arts Theater & Dance	0.015	0.044	0.268
Communication & Information	-0.007	0.037	0.593

RQ2: What is the effect of volunteering on persistence from freshman to sophomore year?

- a. Is the effect of volunteering on persistence influenced by gender, race or college?

H3: Students who earn volunteer hours during their freshman year will have higher rates of persistence from freshman year to sophomore year than will students who did not earn volunteer hours.

H4: Students who have a higher number of volunteer hours will have higher rates of persistence from freshman year to sophomore year.

Results for H3 (non-significant variables)

Variable	Beta Coefficient	Standard Error	Significance
Volunteering Variables			
Volunteer Hours	0.383	0.601	0.111
Race Variables			
WhiteYes	1.209	0.148	0.200

Results for H3 (non-significant variables) - continued

Variable	Beta Coefficient	Standard Error	Significance
Race Variables			
HourBlack	0.425	1.054	0.417
BlackYes	0.876	0.218	0.544
Other (Race)	1.000	0.263	0.999
Gender Variables			
Female	0.903	0.098	0.295
HourFemale	1.103	0.654	0.881
College Variables			
Education	1.422	0.209	0.092
Other (College)	1.709	0.358	0.135
Engineering	1.325	0.224	0.210
Communication & Information	1.154	0.213	0.501
Human Sciences	1.139	0.212	0.539
Criminology & Criminal Justice	1.085	0.291	0.778
Music	0.917	0.345	0.803
Social Science & Public Policy	1.045	0.200	0.827
Visual Arts Theater & Dance	0.948	0.269	0.844

Results for H4 - Using Volunteer Hours Range (non-significant variables)

Variable	Beta Coefficient	Standard Error	Significance
Volunteering Variables			
40 hours or less	2.022	0.491	0.152
41 to 80 hours	1.113	0.478	0.822
Race Variables			
White	1.213	0.148	0.192
HourBlack	0.334	1.040	0.292
Black	0.882	0.218	0.564
Gender Variables			
HourFemale	0.546	0.441	0.171
Female	0.914	0.098	0.357
College Variables			
Education	1.373	0.210	0.130
Other (College)	1.710	0.358	0.134
Engineering	1.326	0.224	0.208
Communication & Information	1.154	0.213	0.502
Human Sciences	1.139	0.212	0.540
Criminology & Criminal Justice	1.087	0.291	0.775

Results for H4 - Using Volunteer Hours Range (non-significant variables) - continued

Variable	Beta Coefficient	Standard Error	Significance
College Variables			
Music	0.915	0.345	0.796
Visual Arts Theater & Dance	0.943	0.269	0.828
Social Science & Public Policy	1.039	0.200	0.847

Results for H4 - Using Total Service Hours (non-significant variables)

Variable	Beta Coefficient	Standard Error	Significance
Volunteering Variables			
Total Service Hours	1.006	0.006	0.293
Race Variables			
White	1.212	0.148	0.196
HourBlack	0.375	1.047	0.348
Black	0.881	0.218	0.559
Other (Race)	0.995	0.263	0.983
Gender Variables			
HourFemale	0.572	0.375	0.136
Female	0.914	0.098	0.355
College Variables			
Exploratory	1.969	0.170	0.000
Nursing	1.740	0.249	0.026
Arts & Sciences	1.319	0.141	0.049
Education	1.419	0.209	0.094
Other (College)	1.723	0.359	0.129
Engineering	1.326	0.224	0.209
Communication & Information	1.146	0.213	0.522
Human Sciences	1.133	0.212	0.556
Criminology & Criminal Justice	1.087	0.291	0.776
Music	0.917	0.345	0.803
Visual Arts Theater & Dance	0.943	0.269	0.829
Social Science & Public Policy	1.038	0.200	0.853

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BIOGRAPHICAL SKETCH

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She currently works as a policy analyst for the Florida Legislature's Office of Program Policy Analysis and Government Accountability (OPPAGA). During that time, Amelia has worked in OPPAGA's education policy area on projects related to higher education tuition, academic freedom, Florida College System articulation and college student health insurance. Amelia is a member of the Tallahassee chapter of the Institute of Internal Auditors. She has also volunteered as a mentor at Bond Elementary School since 2004.