SERVICE LEARNING AND ADULT STUDENTS: IMPLICATIONS FOR ACADEMIC ACHIEVEMENT AND STUDENT-FACULTY INTERACTIONS

By

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A dissertation submitted in partial fulfillment of the requirements for the degree of

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To the Faculty of Washington State University:

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SERVICE LEARNING AND ADULT STUDENTS: IMPLICATIONS FOR ACADEMIC ACHIEVEMENT AND STUDENT-FACULTY INTERACTIONS

Abstract

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One challenge facing higher education today is the retention of degree-seeking adult students over the age of 25. Adult students have different ways of learning and gaining meaning from their college experience and often hold multiple roles that impact their decisions to persist or depart. Institutions that can find ways to academically integrate adult students and help them feel connected to their learning experience and to the university are more successful in retaining adult students through graduation. Service learning is a pedagogical practice that engages students in the learning experience through reflection and contextualization in a community setting. Yet, little is known about how service learning affects adult students.

The purpose of this study is to gain a better understanding of the effects of service learning on adult students. The study uses an ex-post facto design to analyze archival data from the 2004, 2006, 2008, and 2010 administrations of the National Survey of Student Engagement at Washington State University-Pullman. Results of a Factorial Analysis of Variance (ANOVA) suggest that service learning participation alone does not significantly affect adult student GPA, but that service learning participation does significantly affect adult student-faculty interactions when age group, race group, and sex are not considered. More detailed analyses suggest that service learning participation influences both adult student GPA and adult student-faculty
interactions when interactions between service learning participation, age group, race group, and sex are considered.

Despite small effect sizes that limit interpretation of the findings, the study offers insight into adult student success by offering empirical evidence to support positive outcomes of service learning as a means of student engagement for adult students. The results are discussed in reference to the ways in which student engagement is linked to adult student academic integration, achievement, and success. The dissertation concludes with recommendations for adult students, faculty, and administrators as well as directions for future research.
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Dedication

This dissertation is dedicated to the adults I have met in the last two years who will most likely never read this dissertation, but who are the reason it was created.
CHAPTER ONE

INTRODUCTION

As the number of adults over the age of 25 enrolling in and departing from institutions of higher education continues to increase, studies pertaining to the success of adult undergraduates are timely and important. Predictors of student retention and persistence have been well-studied and presented in the literature for traditional-aged students (e.g., Pascarella & Terenzini, 1991; Tinto, 1975, 1997). Yet, limited knowledge exists on factors leading to the retention and persistence of adult students (Donaldson & Townsend, 2007; Miller Brown, 2002). This study seeks to broaden understanding of the adult undergraduate student experience and to prompt ongoing thinking about adult student success such that adults can reach their goals of degree attainment, institutions can improve their financial success, and society can benefit from stronger, healthier communities.

The present study analyzes pre-existing data from the 2004, 2006, 2008, and 2010 administrations of the National Survey of Student Engagement (NSSE) at Washington State University (WSU) – Pullman to determine the statistical effects of service learning on adult student academic achievement and student-faculty interactions. Chapter One presents the nature and importance of the research problem, the purpose of the study, and the research questions guiding the study. Chapter Two includes a comprehensive literature review of the theoretical framework guiding the study, with particular emphasis on academic integration and the ways in which service learning plays a role in adult student success. Chapter Three offers a review of the psychometric portfolio of the NSSE instrument and discusses the methodology and methods used for data collection and analysis. Chapter Four offers the results of the analyses. Finally, Chapter
Five draws on theoretical implications to understand the results of the analyses and offers recommendations for future research and practice.

For purposes of this study, the term “service learning” indicates a “teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities” (National Service-Learning Clearinghouse, 2012a, Video Sub-Heading). A more detailed description of the characteristics of service learning are described in Chapter Two. The term “student-faculty interactions” indicates any communication between students and their instructors, either in- or out-side of the classroom, including face-to-face contact, email communications, social interactions, and discussions pertaining to course work (Braskamp, Trautvetter, & Ward, 2006; Chickering & Gamson, 1987; Cotten & Wilson, 2006; Kuh, Kinzie, Schuh, Whitt & Associates, 2005).

Consistent with most literature, the term “traditional-aged students” refers to students between the ages of 18 and 24 years who are enrolled in institutions of higher education to obtain an undergraduate degree (Kasworm, 2003b). The term “adult” or, interchangeably, “non-traditional-aged,” student refers to students over the age of 25 years who are enrolled as undergraduates in institutions of higher education. In this sense, adult students are more diverse than their younger counterparts (Cross, 1978), having a wider range of life experiences and reasons for attending college. Kasworm (2003b) suggests the term adult student includes three categories: (1) status of age, meaning students are over the age of 25; (2) status of maturity and developmental complexity, acquired from life experiences, responsibilities, and financial dependence; and (3) status of responsible and often-competing roles, such as work, family, and community involvement in addition to being a college student. Kasworm’s work supports
previous research by Elias and Merriam (1980), who found that adult students differ from younger students in age, psychological maturity, and social roles. Research by Aslanian and Giles (2009) shows that these characteristics of adult students have not changed in the last 30 years. While the literature on adult students points out that many adults enroll in college to take a single class or do not have intentions to complete a degree (Bean & Metzner, 1985), this study focuses on adult students seeking undergraduate degrees who plan to attend and stay through graduation. Additionally, the present study recognizes that not all adult students have multiple roles in addition to those of being a student; therefore, the results may impact individuals differently. Yet, adults of non-traditional age, regardless of other background characteristics, bring to the college experience a variety of experiences that impact their role and success as a college student, which is the central focus of the study.

**Nature and Importance of the Research Problem**

The last two and one-half decades of research highlight the importance and necessity of studies pertaining to adult student success. Adult students aged 25 and over are a considerable portion of the undergraduate population, comprising approximately 30 percent of the total undergraduate enrollment in the United States (U.S. Census Bureau, 2010). Adults are a unique group of undergraduates, bringing to the college experience different ways of learning and gaining meaning from faculty, other students, and the college environment. At the same time, adults often hold multiple roles and experience a variety of barriers that impact their decisions to persist or depart from institutions of higher education. As an example, 31 percent of adults who enrolled in 2003 did not have their degree and had left college without returning to any institution six years later (USDE NCES, 2012). It is up to researchers, practitioners, and policymakers to learn more about the factors impacting adult student retention and to find ways
to help these undergraduates persist through graduation. In doing so, adult students can better actualize their goals, institutions of higher education can enjoy greater financial success, and society can benefit from a more educated, competitive work-force.

The reasons adults attend college and the ways in which they utilize their educational experience depend on their life stage and structure at the time of enrollment (Allen, 1993; Aslanian & Giles, 2009; Kasworm, 2003b; Weathersby, 1978). Some adults enter as a reaction to a life change or major life event, such as divorce or job loss. Others strive for self-actualization by seeking new opportunities to expand their knowledge and viewpoint. Similarly, others enroll out of the desire to make a positive difference in the world. From a broader perspective, larger numbers of adults enroll in college as a result of: people living longer, greater educational opportunities for women and minority students, and increased educational requirements for entry level positions (Allen, 1993). Whether adults enroll for purposes of redirection, greater employment opportunities, or self-growth, their ultimate goal is to seek personal and academic achievement from the college experience (Kasworm, 2003b).

Academic achievement in college is a strong predictor of undergraduate student retention (Pascarella & Terenzini, 1991), particularly for adult students (Bean & Metzner, 1985; Miller Brown, 2002; Sandler, 1998). While adults tend to have lower high school academic performance, adult students’ college performance tends to be equal to or above that of their younger counterparts (Bean & Metzner, 1985; Donaldson & Graham, 1999; Kasworm, 1990). Bean and Metzner (1985) suggested that academic achievement most often leads to persistence when it is coupled with positive psychological outcomes, such as degree utility, satisfaction, and goal commitment. In other words, adults are more likely to stay in school when they find value in their degree, feel more satisfied with their college experience, have a strong commitment to
succeeding, and have higher grade point averages (GPAs). Because of the relationship between positive psychological outcomes and academic achievement, however, students with lower GPAs and strong psychological outcomes may also persist. Likewise, others with high GPAs may drop out if they are not pleased with their college experience. A combination of academic achievement and positive psychological outcomes is necessary for adult students to persist through graduation.

Institutions that can find ways to academically integrate adult students and help them feel connected to their learning experience and to the university will be more successful in retaining adult students (Cleveland-Innes, 1994; Kasworm & Pike, 1994; Miller Brown, 2002; Tinto, 1975). Two of the strongest influences on adult student academic integration and achievement are class-related learning and interactions with faculty (Donaldson & Graham, 1999). Adults make meaning from their college experience via connections made in the classroom. Such meaning-making ultimately drives adult students’ academic achievement and decisions to persist or depart, particularly as the classroom experience competes with other external demands on adults' time and energy. Adults gain the most from their college and classroom experiences when they can apply their coursework to real-life settings, derive meaning from the learning experience through reflection, and utilize the classroom experience as a foundation for interacting with faculty and peers (Donaldson & Graham, 1999). In fact, interactions with faculty are one of the most powerful and primary forms of engagement leading to adult student academic and intellectual growth (Donaldson & Graham, 1999; Graham & Gisi, 2000; MacFadgen, 2008; Wyatt, 2011). Institutions that offer opportunities for meaningful, engaged learning are more likely to be successful in recruiting, enrolling, and retaining adult students.
One pedagogical practice that engages students and enhances interactions with faculty members is service learning. Service learning connects coursework to community service and is distinguished from other forms of community service, volunteerism, or experiential learning in that a community-identified need is met through service, the service connects to coursework, and reflection is used to evaluate students' personal experiences (Braskamp et al., 2006; Eyler & Giles, 1999; Reising, Allen & Hall, 2006). Participation in service learning has more positive effects on undergraduates than participation solely in a community service project outside of class work, particularly for academic outcomes such as growth in critical thinking and writing skills and college GPA (Vogelgesang & Astin, 2000). Moreover, research suggests that participation in service learning as an undergraduate may predict attitudes toward social and personal responsibility and may encourage alumni to select service-related careers following graduation (Fenzel, Peyrot, Speck, & Gugerty, 2003; Vogelgesang & Astin, 2000). Through participation in service learning experiences, students gain a deeper sense of self-awareness, a stronger sense of community responsibility, and a better understanding of social and cultural issues in their communities, all of which contribute to ongoing civic engagement that benefits and strengthens individuals and communities (Eyler & Giles, 1999).

While many adult students are those receiving the benefits of service learning as community members (Smith, 2008), research suggests that service learning may still be beneficial academically and developmentally for adults (Graham & Donaldson, 1996, 1999; Kasworm, 1990; Kuh, 1993; Smith, 2008). From an academic standpoint, adults benefit from many of the same aspects of the college experience as younger, more involved students (Graham & Donaldson, 1996, 1999; Kasworm, 1990; Kuh, 1993; Rosenberg, Reed, Statham, & Rosing, 2012). Moreover, the characteristics of service learning, such as reflection, contextualized
learning, and the ability to apply knowledge gained in the classroom to a real-life setting, closely mirror adults’ needs and ways of learning. Despite the potential importance of service learning on adult student development and academic achievement, however, the impacts of service learning on adult students are not well-understood or documented (Smith, 2008).

The purpose of this study is to add to the bodies of literature on service learning and adult student success by exploring the impact of service learning on adult student academic achievement and student-faculty interactions using the National Survey of Student Engagement (NSSE). Despite being critiqued for focusing on the traditional-aged student experience (Hicks & Lerer, 2002), the NSSE instrument is presently the most comprehensive tool available to examine student engagement. A positive relationship between service learning and academic achievement or student-faculty interactions would demonstrate to administrators and faculty the importance of engaging adult students in a pedagogical practice that allows students to feel more connected to the institution and to improve their grade performance. By being more academically integrated, adult students may persist through graduation meaning greater personal success for students and greater financial success for institutions. Moreover, society could benefit from more civically engaged graduates.

This study offers faculty, administrators, and key decision-makers greater insight into a growing segment of the undergraduate population such that curriculum, instruction, and student services policies and practices can be better geared toward students of all ages. In making policies and practices more focused on the entire student population, institutions position themselves for increased student retention and persistence and thus, financial gain. Institutional administrators may also find the results of the study useful with respect to service learning, as service learning continues to thrive as a pedagogical practice and institutions strive to seek
Carnegie classification in Community Engagement (Driscoll, 2009). Additionally, institutional administrators and community agency personnel may find value in the study as community groups and institutions seek ways to collaborate as anchors within the community for solving complex, real-world problems and for creating strong, healthy communities (The Netter Center for Community Partnerships, 2008).

Ultimately, the study impacts the personal and academic success of adult students. Whether students are entering college to complete one course or to complete a degree, it is necessary that their experience positively impacts them from the moment they enroll until the moment they leave the institution. This study focuses more heavily on those adult students who are seeking degrees at public, four-year research institutions. By exploring the role service learning plays on adult student academic achievement and student-faculty interactions, this study seeks to offer new insight into ways of improving adult student success and of better integrating adults into the college learning experience to help them feel connected to the university and to stay committed to their goal of degree attainment.

**Purpose of the Study and Research Questions**

The purpose of this study is to explore how service learning impacts adult student academic achievement and student-faculty interactions using an *ex-post facto* research design with data from the 2004, 2006, 2008, and 2010 National Survey of Student Engagement (NSSE) at Washington State University (WSU) - Pullman. The study addresses the overarching issue of how service learning affects adult students by examining the following research questions:

*Research Question One:* Does participation in service learning influence adult student GPA?

*Research Question Two:* Does participation in service learning influence adult student-faculty interactions?
In addition, Kuh and Pascarella (2004) suggested that “…a substantial portion of differences in student reports of academic and non-academic experiences during college are explained by differences in the background characteristics of the students themselves” (p. 56). Three common background characteristics often examined in studies of student success, service learning, and student-faculty interactions are: age, race, and sex (e.g., Astin, Vogelgesang, Ikeda, & Yee, 2000; Kuh & Pascarella, 2004; Lundberg & Schreiner, 2004). Therefore, the following additional research questions aid in understanding the ways in which adult students may be affected by service learning:

**Research Question Three:** Is the effect of service learning participation on each outcome (GPA and Student-Faculty Interactions) different for adult students depending on their age group?

**Research Question Four:** Is the effect of service learning participation on each outcome different for male and female adult students?

**Research Question Five:** Is the effect of service learning participation on each outcome different for white and non-white adult students?

Figure 1 offers a graphical depiction of the study, which uses service learning as a predictor and adult GPA and student-faculty interactions as outcomes in addition to examining differences in the outcomes based on age group, race group, and sex. As described in Chapter Three, age is categorized into three groups: 25-29, 30-29, and 40 and over, and race is categorized into white and non-white groups. By exploring whether service learning influences academic achievement and student-faculty interactions and whether the outcomes are different for adults of different age groups, race groups, and genders, the study begins to address the gap in literature on the impacts of service learning on adult students and offers a foundation on which future research can build.
**Research Question One**

**Research Question Two**

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<td>Service Learning Participation</td>
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**Research Question One**

**Research Question Two**

Adult Student GPA

Adult Student-Faculty Interactions

*Figure 1*: General overview of the study, which explores (a) how service learning participation affects adult student GPA (Research Question One), (b) how service learning participation affects adult student-faculty interactions (Research Question Two), and (c) whether the outcomes vary by age, sex, and race (Research Questions Three, Four, and Five, respectively).
CHAPTER TWO
LITERATURE REVIEW

The nature and importance of a relationship between service learning and adult student academic achievement or student-faculty interactions is best understood through a theoretical framework of adult student success and academic integration. This chapter offers insight into the adult student experience and emphasizes the importance of service learning as a pedagogical tool for increasing student-faculty interactions and academic achievement for adult students. To begin, theories of student departure and persistence are described to reiterate the broader impact of the study: retaining adult students through graduation. The remainder of the chapter discusses academic integration and student engagement as key components of adult student success. In addition, the chapter emphasizes the role of service learning as a form of student engagement that can lead to academic integration and success for undergraduates of all ages, particularly adults.

Theories of Student Departure and Persistence

Nearly one-third of adult students who enter colleges and universities across the nation fail to complete their degree (USDE NCES, 2012). A clear need exists to find ways to retain the adult population of undergraduates. Several models of student departure and persistence have been applied to the adult student experience, with each building on the previous and all focusing on the integration of students and the role played by the institutional environment (Bean & Metzner, 1985; Sandler, 2000a, 2000b, 2001; Spady, 1971; Tinto, 1975). The earliest models proposed by Spady (1971) and Tinto (1975) relate Durkheim’s (1951) model of social integration and theory of suicide to college student integration in and departure from the higher education community. Durkheim (1951) suggested that "modern sociology begins with the
proposition that patterns of social behavior are shaped, guided, and influenced by external ‘social facts’ (institutional structures, cultural norms, values and beliefs) that constitute an objective reality beyond individual members of society” (Novak, 2004, p. 4). Spady (1971) offered that college undergraduate decisions to persist or depart from institutions of higher education are founded on similar social facts and realities. Spady asserted that college students’ decisions to depart result from "a complex social process that includes family and previous educational background, academic potential, normative congruence, friendship support, intellectual development, grade performance, social integration, satisfaction, and institutional commitment" (p. 39). Further, Spady found that from a longitudinal perspective formal academic performance was the main factor accounting for dropout rates among men and women.

Similar to Spady’s (1971) work, Tinto’s (1975) model stems from Durkheim’s theory of suicide. Tinto noted: “the likelihood of suicide in society increases when two types of integration are lacking - namely, insufficient moral (value) integration and insufficient collective affiliation” (p. 91). Applied to college undergraduates, Tinto believed that the likelihood of students departing from institutions of higher education increases without sufficient integration and sense of belonging to the institution. Tinto’s Interactionalist Theory of student departure focuses on the key role played by academic and social integration in students' decisions to depart. Students must feel socially connected to their peers and faculty and must be academically integrated and committed to the institution, as described later in the chapter, to persist through graduation. The more connected students feel to the institution, the more likely they are to persist over those who feel less connected. Institutional structure and culture play a significant role in students’ abilities to academically and socially integrate, and the levels of each type of integration affect students’ future goals of graduation and institutional commitment.
While Tinto’s (1975) theory is based on the traditional-aged student population, several researchers have applied the model to nontraditional-aged students. For example, a study by Sweet (1986) applied Tinto's model to student attrition in a distance education program for adult students and found the model to be useful for examining student attrition and persistence at distance education institutions. Cleveland-Innes (1994) found Tinto's model better fit data for adult students than for traditional-aged students. In another study, Ashar and Skenes (1993) found Tinto's model could be applied to nontraditional students, showing that smaller, more socially integrated classes were more effective in retaining adults. Overall, the studies by Sweet, Cleveland-Innes, and Ashar and Skenes suggest that although Tinto’s model was developed with the traditional student experience in mind, the model has been successfully applied to adult student departure and is suitable for use as a foundation for understanding the departure and persistence of adult students as well as those of traditional age.

Bean and Metzner (1985) used the work of Tinto (1975) and Spady (1971) as a foundation for a conceptual model of nontraditional undergraduate student attrition. Bean and Metzner (1985) defined a nontraditional student as one who:

- is older than 24, or does not live in a campus residence (e.g., is a commuter), or is a part-time student, or some combination of these three factors; is not greatly influenced by the social environment of the institution; and is chiefly concerned with the institution's academic offerings (especially courses, certification, and degrees). (p.489)

Bean and Metzner (1985) posited that nontraditional students' decisions to depart are more affected by external environmental influences than by lack of social integration. More specifically, the authors suggested that nontraditional students' decisions to drop out of college result from: (1) poor academic performance, (2) intent to leave, (3) background and defining
variables, and (4) environmental variables. Undergraduate’s intent to leave is influenced by psychological outcomes, such as degree utility, satisfaction, goal commitment, and stress, and academic variables such as study habits, academic advising, absenteeism, major certainty, and course availability. Background variables include high school performance and educational goals, while defining variables are age, enrollment status, residence, educational goals, high school performance, ethnicity, and gender. Finally, environmental variables include finances, hours of employment, outside encouragement, family responsibilities, and opportunity to transfer. Bean and Metzner's (1985) model expanded Bean's (1980) previous work on student attrition, which was later combined with Tinto’s (1975) work to better understand the departure process for undergraduate students of all ages (see Cabrera, Nora, and Castaneda, 1993).

More recently, Sandler (2002) combined the work of Cabrera et al. (1993), Bean and Metzner (1985), and Tinto (1975; 1993), as well as Sandler's previous work (2000a; 2000b) to construct a model of nontraditional student persistence. The model includes 11 independent, or endogenous, variables, 13 exogenous variables pertaining to student background, and a dichotomous outcome of persistence. The endogenous variables include: financial attitudes/difficulty, family encouragement, financial aid, financial attitudes/satisfaction, academic integration, perceived stress, social integration, institutional commitment, cumulative GPA, goal commitment, and intent to persist (Sandler, 2002). The exogenous variables include: gender, race/ethnic affiliation, relatives/dependents, parents' educational level, household income, hours employed, unmet need, academic degree aspirations, student type (freshman, first-year, and/or transfer), degree program, curriculum hours, commuting time, and hours studied per week (Sandler, 2002). Using Structural Equation Modeling, Sandler (2002) found four focal variables related to student persistence: academic integration, perceived stress, academic
performance, and goal commitment. Sandler noted: "reciprocal path relationships between academic integration and goal commitment and between stress and cumulative GPA that earmark new active subsystems of engagement for adult students in a student-learner context" (Abstract). Sandler's (2000a; 2000b; 2002) work highlights the interaction between the institutional environment and the student, and highlights the importance of academic integration and engagement in adult student persistence.

Together, the theories proposed by Sandler (2002), Bean and Metzner (1985), Tinto (1975), and Spady (1971) form a foundation for adult student departure, suggesting adult students’ decisions to persist or depart are dependent upon their background characteristics, their desires for achieving a degree, and the environment of the institution. The theories support the notion that adult students must be academically integrated into the institution and that they must be engaged in their learning experience in order to persist. The next section discusses academic integration using Tinto’s (1975) Interactionalist Theory as a foundation.

**Academic Integration**

Tinto’s (1975) Interactionalist Theory suggests students’ decisions to persist or depart from institutions of higher education rely on their levels of institutional and goal commitment. In other words, whether a student persists or departs is dependent upon how compelled he or she is to achieve his or her educational goals and how devoted the person is to the institution. The theory suggests that as students become more academically and socially integrated into the institutional environment, the more likely it is that their levels of goal and institutional commitment will increase. Academic integration is defined by a combination of grade performance, an extrinsic reward for meeting college standards, and students' intellectual development, an intrinsic reward for becoming part of the academic system (Tinto, 1975). Social
integration, on the other hand, is described by the interaction of individuals’ background characteristics and other people, including peers, faculty members, and administrators (Tinto, 1975). Tinto (1975) described the interplay between integration and commitment in the following way:

It is the levels of goal and institutional commitment, in periods of stable market conditions, as they are affected and modified by the individual's experiences in the academic and social systems of the college, that determine his decision to remain in college. (p.117)

Institutions that can find ways to increase students’ levels of academic and social integration are more successful in retaining students through graduation because students feel more connected to the institution and more confident in reaching their goals.

It is evident from the literature that retaining adults from one year to the next, as well as through graduation, relies more on students’ academic integration into the college community than on social integration (Cleveland-Innes, 1994; Kasworm & Pike, 1994; Miller Brown, 2002). Whereas traditional aged students are more involved on campus and utilize the classroom experience primarily to interact and socialize with peers, adults are less involved socially and instead use the classroom as a venue for interacting mostly with faculty and peers to gain value from their college experience (Donaldson & Graham, 1999). Miller Brown (2002) noted that three academic integration variables have been shown to have a statistically significant effect on adult students' decisions to persist: (1) degree utility, (2) goal commitment, and (3) career decision-making self-efficacy. In other words, student retention and persistence is affected by the level of usefulness students find in their degree, how committed they are to attaining their degree, and how confident they are in their competency within their academic field as a result of
their educational experience. In addition, GPA is a facet of academic integration that has a strong connection to retention, attrition, and persistence for adult students (Miller Brown, 2002), coinciding with literature that suggests GPA is a strong predictor of retention and persistence for all undergraduate students (Pascarella & Terenzini, 1991).

One way institutions can assist students in becoming academically integrated is by offering opportunities that encourage engagement in and out of the classroom. Student engagement leads to academic integration and has been shown to have positive impacts on multiple student outcomes (Kuh, 2006; Tinto, 1997). According to NSSE (2011a), student engagement is defined by individual and institutional contributions as well as by interactions between the individual and the institution. More specifically:

Student engagement represents two critical features of collegiate quality. The first is the amount of time and effort students put into their studies and other educationally purposeful activities. The second is how the institution deploys its resources and organizes the curriculum and other learning opportunities to get students to participate in activities that decades of research studies show are linked to student learning. (NSSE, 2011a, What is Student Engagement?)

Similarly, Kuh et al. (2006) suggest student success is supported by a framework of multiple “paths” necessary for students to reach their degrees that includes students’ precollege experiences, behaviors in college, and institutional characteristics. Such evidence makes evident the fact that student engagement is a product of both institutional and student input. It is up to the institution to offer, and the individual to participate in, activities that stimulate learning and that enhance connections to coursework, faculty, and peers.
Adult students’ levels of engagement are impacted by various individual background characteristics and different ways of knowing and of making meaning from their learning experiences (Kasworm, 1990). Knowles’ (1973) theory of andragogy suggests adult students' ways of knowing vary from those of traditional-aged students, particularly in: (1) self-concept, (2) experience, (3) readiness to learn, (4) problem solving orientation, and (5) high motivation (Fogarty & Pete, 2004). Adult students view themselves as self-directed, key decision-makers who know what they want to gain from coursework and they are intrinsically motivated to learn. In addition, adult students come to college ready to learn, with pre-existing knowledge gained from life experience that their younger counterparts may not have had time to accumulate. While many traditional-aged students are motivated to learn, Knowles’ work suggests that adult students are not seeking the same types of life experience from college that many younger students, and particularly recent high school graduates, seek to attain. Rather, adults have had time to gain life experience and enroll, prepared to focus specifically on their studies using the knowledge gained from their life experiences to better understand their coursework.

Adults not only use the knowledge gained from prior life experiences to contextualize information learned in their classes (Cross, 1978; Kasworm, 2003b; Rosenberg, et al., 2012), but they also immediately connect their coursework back to real-life settings to gain meaning (Donaldson & Graham, 1999; Kasworm, 2003a; Rosenberg et al., 2012). This contextualization in turn drives development of metacognitive skills that impact adults’ motivations to succeed (Donaldson & Graham, 1999; Justice & Dornan, 2001; Richardson, 1994, 1995). Adults’ motivation is further enhanced “as they experience needs and interests that learning will satisfy…” (Knowles, 1973, p. 31). Teaching and learning activities that draw upon students’ interests and prior experience are essential to engaging adults in the classroom and helping them
reach their personal and academic goals. One pedagogical practice that promotes adult student success through engagement, reflective thinking, and interactions with faculty is service learning.

**Service Learning**

As mentioned in Chapter One, service learning is a pedagogical tool that incorporates a community service project as a course requirement to strengthen the learning experience of students and, at the same time, to teach civic responsibility and enrich communities. Service learning is conducted in a wide variety of community settings, in multiple disciplines, and at varying levels of participation depending on school requirements and teacher preferences. Using the work of Eyler and Giles (1999) as a foundation, the National Service-Learning Clearinghouse (2012b) suggests that, though service learning can vary, several qualities are common in all service learning experiences:

1. They are positive, meaningful and real to the participants.
2. They involve cooperative rather than competitive experiences and thus promote skills associated with teamwork and community involvement and citizenship.
3. They address complex problems in complex settings rather than simplified problems in isolation.
4. They offer opportunities to engage in problem-solving by requiring participants to gain knowledge of the specific context of their service-learning activity and community challenges, rather than only to draw upon generalized or abstract knowledge such as might come from a textbook. As a result, service-learning offers powerful opportunities to acquire the habits of critical thinking; i.e. the ability to identify the most important questions or issues within a real-world situation.
5. They promote deeper learning because the results are immediate and uncontrived. There are no "right answers" in the back of the book.

6. As a consequence of this immediacy of experience, service-learning is more likely to be personally meaningful to participants and to generate emotional consequences, to challenge values as well as ideas, and hence to support social, emotional and cognitive learning and development. (National Service-Learning Clearinghouse, 2012b, Paragraph 1).

Service learning uses coursework and community involvement to engage students in problem-solving, critical thinking, teamwork, and civic engagement. In doing so, students “not only learn the practical applications of their studies, they become actively contributing citizens and community members through the service they perform” (National Service-Learning Clearinghouse, 2012a, Paragraph 2). In addition to benefiting students, service learning plays a major role in impacting communities as students, faculty members, instructors, and community leaders come together to make education an active process (National Service-Learning Clearinghouse, 2012a; The Netter Center for Community Partnerships, 2008).

As a pedagogical practice, service learning has roots stemming from the early 1900’s. Most notably, the work of John Dewey (1910; 1916) formed the theoretical foundation supporting service learning today (Giles & Eyler, 1994). Dewey (1910) believed that students are individuals who require socialized, situated experiences to help them learn and grow, and that schools are the primary institution or location for providing the social processes necessary for student growth. Dewey (1910) stated:

Education being a social process, the school is simply that form of community life in which all those agencies are concentrated that will be most effective in bringing the
children to share in the inherited resources of the race, and to use his own powers for social ends. (p. 8)

Dewey (1910; 1916) believed strongly that education is the key to social progress, that educational systems should be based on democratic ideals, and that democracy and community are intertwined. Dewey felt democracy stemmed from the interaction of all individuals within a society and that democracy allows for the growth of individuals as well as the community.

Jenlink (2009) aptly summarizes:

Dewey believed that community and collective life are a means for achieving individual self-realization and growth. For him, growth is a preeminent good (Dewey, 1929a). A key value of democracy is drawing upon and including all members in society, utilizing their unique skills, and by encouraging their interaction with diverse others, enabling ‘their potentialities to come to realization’ (Dewey, 1941, 25). (p. 32)

Dewey viewed education as a building block for communities, and he viewed communities as a support system within which education can be used to advance individual growth. Further, Dewey argued that the collectivity of communities strengthened democracy, leading to a more unified, civically engaged society. It is because of Dewey’s (1910, 1916) philosophy of linking curriculum to community and his emphasis on the need for a more civically minded world that his work remains a strong foundation supporting service learning today (Eyler & Giles, 1999; LeBeau, 2008).

In addition to Dewey’s work, several events shaped the formation of service learning. As the 1900’s advanced, federal initiatives highlighted the importance of community service across the United States and abroad. The Civilian Conservation Corps gave youth the opportunity to serve the nation and to support their families by participating in restoration projects between
1933 and 1942. In 1944, the connection between service and education was strengthened with the passing of the GI Bill, which offered Americans educational opportunities for serving their country. In 1961, President John F. Kennedy encouraged Americans to engage in service at an international level by establishing the Peace Corps.

Structured service learning programs did not fully come into existence until the mid-1960s and early 1970s. Still, these programs were short-lived as a result of limited budgets and institutional support. It was not until the 1980s that service learning programs regained the attention and support that would lead to their perceived level of importance today. Namely, the service learning movement gained national attention in 1985 with the development of the National Campus Compact (NCC), "a national coalition of more than 1,100 college and university presidents-representing some 6 million students who are committed to fulfilling the civic purposes of higher education" (Campus Compact, 2011, Who We Are).

Under the National and Community Service Act of 1990, several service learning programs across the United States received federal funding (Corporation for National and Community Service, 2012; Mintz & Liu, 1994). Four years later, faculty across the nation in support of service learning established the Invisible College, now known as Educators for Community Engagement (ECE). The ECE is "a 501c3 non-profit organization committed to fostering more democratic classrooms and communities through learning circles, service-learning, and critical dialogue" (ECE, 2011, Who We Are). By the turn of the century, service learning received international attention.

Today, service learning continues to thrive and expand as an important pedagogical tool. In the 2009-2010 academic year, approximately 51 percent of Campus Compact institutions nationwide required service learning as part of the curriculum for at least one major (Campus
Seven percent of all faculty who responded to a Campus Compact (2010) survey indicated that they taught courses having a service learning component, and the number of service learning courses per campus increased significantly from 43 in 2008 to 64 in 2010. In context to the present study, which focuses on the population of adult undergraduates at Washington State University (WSU) – Pullman, the WSU Center for Civic Engagement (CCE, 2012) reported “3439 students completed 26,300 hours of community service in 124 academic course sections” (Academic Service Learning, bullet one) in the 2010-2011 academic year.

Through the collaboration of various faculty and leaders across the country, support for service learning as a pedagogical practice has grown tremendously over the last century and particularly in the last three decades. The work of Dewey (1910; 1916) and others (e.g. Eyler & Giles, 1999) emphasizes the importance of service learning in educating society, enhancing students’ personal and academic growth, and encouraging civic engagement and democracy to make the world a better place for all to live. As an active learning technique (Chickering & Gamson, 1987), service learning allows students to gain more knowledge, skills, and understanding from their college experience and to be more successful (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2007; LeBeau, 2008; Pascarella & Terenzini, 2005). For adult students, in particular, the link between coursework and real-life experiences is essential to college success.

**Adult Student Success.** For undergraduates of all ages, service learning is positively correlated with student success and satisfaction (Kuh et. al, 2005; Pascarella & Terenzini, 2005; Vogelgesang & Astin, 2000). As mentioned in Chapter One, participation in service learning has more positive effects on undergraduates than participation solely in a community service project outside of class work (Vogelgesang & Astin, 2000). Research also suggests that participation in service learning as an undergraduate may predict attitudes toward social and personal
responsibility and may encourage graduates to select service-related careers following graduation (Fenzel et al., 2003; Vogelgesang & Astin, 2000). As a form of student engagement, “service learning provides students with opportunities for both academic and social integration and provides them with the opportunity to become involved not only at their institution, but also in their community” (LeBeau, 2008, p.11). Participation in service learning has also been linked to higher academic achievement (Markus, Howard, & King, 1993).

As a pedagogical practice, service learning has foundations in or similarities to Chickering and Gamson’s (1987) seven Principles of Good Undergraduate Education, including: (1) Encourages contact between students and faculty, (2) Develops reciprocity and cooperation among students, (3) Encourages active learning, (4) Gives prompt feedback, (5) Emphasizes time on task, (6) Communicates high expectations, and (7) Respects diverse talents and ways of learning. Service learning encourages contact between students and faculty by establishing an environment that promotes holistic student development (LeBeau, 2008).

Braskamp et al. (2006) suggest that community service promotes student-faculty interactions in the following ways:

- Faculty and students engage in service together. Such immersion experiences break down barriers between students and faculty.
- Student service experiences enter into classroom discussions and shape interactions with faculty.
- Student involvement in service experiences can shape what [students] want to do with their careers and where they do it. Faculty can be part of the interaction and part of helping students decipher their vocation. (pp. 186-187)
In addition to connections made with faculty members, service learning provides opportunities for students to work together in the learning process. For adult students, however, connections made with peers may be less important than those made with faculty members (Graham & Gisi, 2000; MacFadgen, 2008).

In courses in which faculty make a concerted effort to incorporate community service with reflection and link service to coursework, service learning can clearly be viewed as an active learning technique (Braskamp et al., 2006; Eyler & Giles, 1999; Reising, Allen & Hall, 2006). Chickering and Gamson (1987) describe the principle of active learning in the following way:

Learning is not a spectator sport. Students do not learn much just by sitting in classes listening to teachers, memorizing prepackaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences and apply it to their daily lives. They must make what they learn part of themselves. (p.4).

For adult students, the fact that service learning promotes active learning may be one of the most important qualities of service learning for the adult student experience. Adults are engaged, lifelong learners who bring to the collegiate experience knowledge gained from life experiences, which they use to contextualize information learned in their classes (Cross, 1978; Kasworm, 2003). Adults learn best by: (1) taking control of their learning, (2) immediately using the information, (3) focusing on issues that concern them, (4) testing their learning as they go, (5) anticipating how they will use their learning, (6) expecting performance improvement, (7) maximizing available resources, (8) requiring a collaborative, respectful, mutual, and informal climate, and (9) and relying on information that is appropriate and developmentally paced
In essence, adult students are active learners in that they decide what they learn and use the information right away by applying information taught in classes to real-life settings, make the most out of their time and demand that courses are worth their time, prefer to learn in an environment that is inclusive of all students, and use information previously gained to have the most successful college experience possible (Fogarty & Pete, 2004; Knowles, 1973). In addition, the prompt feedback adult students receive from faculty members is essential in their learning experience. When done appropriately based on the theoretical underpinnings of the practice, service learning incorporates each of the aforementioned characteristics of adult learning.

In addition to meeting the first four of Chickering and Gamson’s (1987) principles of good practice, service learning emphasizes time on task by encouraging students to make the most of their time in completing service projects. For adult students, staying on task is particularly important as the service project may compete with outside demands on students’ time (Bean & Metzner, 1985). In addition, service learning requires faculty to be aware of time requirements and plan accordingly. Service learning also requires communication of high expectations from faculty, students, and the institution, as community members rely on students’ service to meet community needs, faculty members encourage students to make thoughtful connections between their service and coursework, and the work of both faculty and students reflects on the institution as a whole. Finally, service learning respects diverse talents and ways of learning by offering students the opportunity to expand their knowledge base through facilitation of different ways of learning. As adult students are a group of diverse individuals, service learning can be an effective tool for reaching multiple learning styles and for enabling adults to make the most of their collegiate experiences.
Although understanding of the impacts of service learning on adult students is limited (Smith, 2008), research on the topic is steadily increasing, particularly with respect to the comparison of traditional and nontraditional students (see Rosenberg et al., 2012). Perhaps most notably, Largent and Horinek (2008) found that adults aged 23 and over “first, need work tasks that are clearly meaningful; and second, they need to relate prior experience to their work in the community” (p. 40). The authors conducted a student satisfaction survey followed up by interviews with four randomly selected participants and found that adults whose community agency did not offer real-life application (e.g. required filing papers instead of working with people in need) were less satisfied with their service learning experience. Largent and Horinek also found that students with prior service experience were less satisfied. Rather than attributing the latter finding to redundancy, however, the authors rightfully note: “We conclude instead that this valuable previous knowledge and experience should be incorporated in the reflection process so that prior and current learning are better integrated” (p. 42).

To test their conclusion and to strengthen their service learning program, Largent and Horinek (2008) redesigned their service learning program based on students’ comments. The redesign included: (a) “an intensive training session designed to give instructors the tools necessary to foster ongoing and relevant reflection, rather than focusing solely on the summative reflection assignment” (p. 42), (b) providing students with a detailed orientation to service learning, including a reflection activity in the classroom, and (c) an intensive training for agency personnel on what to expect from students and suggestions on how to help students make the most of their service learning experiences. Administrators of the service learning program offered five suggestions for agency personnel: (1) design projects for a shorter span of time and encourage volunteers to work in groups, (2) communicate with volunteers by explaining how the
students’ work is contributing to the organization, (3) be sensitive about assigning tasks by working to understand what interests the student, (4) do not leave the volunteer alone, and (5) make training meaningful (p.45).

By re-designing the service learning program to better meet the needs of adult students, Largent and Horinek (2008) found that students’ satisfaction with service learning did not differ based on age. In other words, adult students were as satisfied with their service learning programs as traditional-aged students as long as: (a) agencies had clearly defined, applicable tasks that were meaningful to the student and that could be realistically accomplished in a given time frame, (b) teachers emphasized the connections to coursework in the class, and (c) students engaged in more in-depth reflection. Although Largent and Horinek’s study was conducted primarily with students at a community college, the results offer one piece of empirical evidence toward understanding adult students’ service learning experiences.

In addition to playing a role in student satisfaction, previous research implies that service learning may have positive impacts on adult student development (e.g. Donaldson & Graham, 1999; Rosenberg et al., 2012; Smith, 2008). Smith (2008) offers that adult development typically includes six domains: (1) **Cognitive**, for example: knowledge acquisition and organization, information processing abilities, growth of intellectual skills and problem solving abilities; (2) **Moral, ethical, spiritual**, for example: ability to reason about moral and ethical issues, development of respect and tolerance, development of faith beliefs, consideration of meaning and purpose of life; (3) **Social-emotional**, for example: autonomy, attachment relations, self-regulation, coping, generativity; (4) **Physical**, for example: general health and well-being, involvement in health-sustaining activities such as exercise; (5) **Cultural and civic**, for example: understanding social norms, role of laws, and customary practices in civil society; aesthetic
appreciation; participation in civic activities such as voting; and, (6) *Vocational*, for example: occupational exploration and development, skill building (p. 6).

While research on the impacts of service learning on these six domains has not been conducted for adult students, Smith (2008) argues that recent research has been completed on many of the areas with respect to youth service learning (e.g., Billig, 2002; Billig & Klute, 2003; Conrad & Hedin, 1982; 1991; Furco, 2002; Giles & Eyler, 1994; Morgan & Streb, 1999, 2001). The author aptly points out that the positive effects of service learning on youth's cognitive and intellectual development, sense of civic responsibility and self-concept, leadership skills, moral and ethical development, and individual and career development could be similar for adults.

Similarly, Donaldson and Graham’s (1999) Model of Student Outcomes has implications for the role service learning could play in adult student development. Each factor in Donaldson and Graham’s model influences the other factors and interacts with “the connecting classroom,” which Donaldson and Graham describe as the ways a student uses the classroom and their interactions with faculty to learn. Connections students make to the classroom ultimately lead to positive academic and personal outcomes (Donaldson & Graham, 1999). Service learning affords students the opportunity to reflect on their personal experiences, which leads to evaluation of their own social and psychological values and motivations, development of their learning and knowledge-acquisition structures, and strengthening of connections to their life-world environment. Donaldson and Graham note that “[the life-world environment] includes such aspects as their family, their work, and their communities in which they participate as citizens and leaders” (p.33). As suggested by the model, the influences of adults’ cognition, psychosocial well-being, value orientations, and life-world environment enhance adults’ interactions within the classroom, which in turn lead to positive outcomes “…such as learning new content to finish

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a course, to really understand it, to apply it in authentic settings, and to use it to improve the lives of others” (Donaldson & Graham, 1999, p. 28). Service learning offers students the opportunity to develop at each level (e.g., cognitive, psychosocial) and to achieve the positive outcomes described by the Model of Student Outcomes.

One aspect of Donaldson and Graham’s (1999) model that plays a significant role in adult student success is the “connecting classroom”. For adult students, connections made in the classroom are one of the most important ways meaning is made from the college experience. In their review of literature, Donaldson and Graham found adult students "may use the classroom as a stage to intensify their learning and enhance their interactions with peers and instructors to achieve additional benefits (Bean & Metzner, 1985; Donaldson, 1991; Kasworm, 2003a; Kasworm & Blowers, 1994)" (p. 27). Whereas peer interactions are most beneficial for traditional-aged students (Kasworm, 1995; Kasworm & Blowers, 1994; Kasworm & Pike, 1994), interactions with faculty are one of the most powerful forms of engagement for adult students (Graham & Gisi, 2000; MacFadgen, 2008). In fact, adults participating in a study conducted by Wyatt (2011) said their primary form of participation in campus life was interactions and engagement with faculty about coursework, assignments, and other academic issues.

For all undergraduates, interactions with faculty are positively correlated to academic success outcomes. Interactions with faculty both in and out of the classroom are related to students’ personal and intellectual growth, self-rated abilities, perceptual outcomes, student satisfaction, and academic achievement (Astin, 1978; 1993b). Astin (1993a) found that student-faculty interactions have “significant positive correlations with every academic attainment outcome: college GPA, degree attainment, graduating with honors, and enrollment in graduate or professional school” (p. 7). In addition, Chickering and Gamson (1987) suggest, “[f]requent
student-faculty contact in and out of classes is the most important factor in student motivation and involvement” (p. 3). By interacting with faculty members, students of all ages, and particularly adults, increase their academic achievement, are more motivated, and tend to persist through graduation (Tinto, 1993).

Service learning is a pedagogical practice that can lead to increased interactions with faculty for undergraduate students (Braskamp et al., 2006; Kuh et al. 2005; LeBeau, 2008). Although little is known about the ways in which service learning affects adult students (Smith, 2008), it is possible that service learning may play a key role in enhancing adult student-faculty interactions, in particular, which may ultimately impact adults’ academic and intellectual development and success as undergraduates (Donaldson & Graham, 1999; Smith, 2008). By impacting student-faculty interactions, students are more likely to be engaged in the classroom and better integrated into the institution.

Summary

Service learning provides students with opportunities for academic and social integration and provides them with the opportunity to become involved not only at their institution, but also in their community. Researchers agree that the more students are involved in and out of the classroom the more they will be academically and socially integrated into the institutional system (Astin, 1996; Braxton, 2003; Kuh, Schuh, Whitt, & Associates, 1991; Pascarella & Terenzini, 1983; Tinto, 1993). Students who feel more integrated in the system tend to have higher academic achievement and to persist (Tinto, 1975, 1993), leading to success not only for the student but also for the institution. For the adult learner, in particular, service learning may play an integral role in helping students make meaning of their experience by providing opportunities for reflection that stimulate cognitive development and by offering a curriculum that enhances learning connections between the classroom and the real-world. As a result, adult students’
academic achievement and interactions with faculty may be positively affected through service learning. The next chapter outlines the methodology and methods used in this study to gain insight into the impacts of service learning on adult student academic achievement and adult student-faculty interactions from an empirical standpoint.
CHAPTER THREE

METHOD

As discussed in Chapter Two, service learning has important implications for adult student success. As adults become more involved in and out of the classroom, they not only gain new knowledge, but are able to use prior knowledge to accentuate their learning experience. Service learning is a pedagogical practice that provides opportunities for reflection to stimulate cognitive development and that enhances learning connections between the classroom and the real-world. Despite the potential importance of service learning for adult students, the impacts of service learning on adult students’ academic achievement and interactions with faculty are not well understood.

This study uses an ex-post facto research design to explore how adult students are affected by participation in service learning using archival data from the National Survey of Student Engagement (NSSE). *Ex-post facto* designs are used to determine causal relationships or associations between independent and dependent variables from a retrospective point of view (Cohen, Manion, Morrison, & Morrison, 2007). Such designs are often critiqued because the researcher is unable to control or manipulate the independent variable, it can be difficult to distinguish between the cause and effect if a relationship exists, and additional causative factors may be unintentionally excluded or not considered (Cohen et al., 2007). Despite such limitations, *ex-post facto* designs can be appropriate for exploring simple cause-and-effect relationships. Cohen et al. (2007) describe that “the method can give a sense of direction and provide a fruitful source of hypotheses that can subsequently be tested by the more rigorous experimental method” (p. 268). Given the present study is exploratory and intends to be a starting point on which future research can build to better understand the ways in which service learning affects adult
students, an *ex-post facto* design is appropriate. Still, it is recognized that the design has limitations and, consequently, the results are interpreted with caution.

Data from the NSSE are analyzed using a Factorial Analysis of Variance (ANOVA) to explore how adult students are affected by participation in service learning. The goals of the study are to determine for adult students: (a) whether a relationship exists between service learning and academic achievement, (b) whether a relationship exists between service learning and student-faculty interactions, and (c) whether age, sex, and race affect GPA and student-faculty interactions. Specifically, the study addresses the following research questions:

*Research Question One:* Does participation in service learning influence adult student GPA?

*Research Question Two:* Does participation in service learning influence adult student-faculty interactions?

*Research Question Three:* Is the effect of service learning participation on each outcome (GPA and Student-Faculty Interactions) different for adult students depending on their age group?

*Research Question Four:* Is the effect of service learning participation on each outcome different for male and female adult students?

*Research Question Five:* Is the effect of service learning participation on each outcome different for white and non-white adult students?

This chapter includes a discussion of the participants, an in-depth review of the NSSE instrument’s psychometric properties, and the data collection and analysis procedures.

**Participants**

The participants in this study are 210 first-year (3 percent) and senior (97 percent) adults aged 25 and older who were randomly selected to take the 2004, 2006, 2008, or 2010 NSSE at
Washington State University (WSU) - Pullman. The sample included 116 men and 93 women. One respondent did not indicate his or her gender. The majority of students were white (62 percent) and the average age was 30, with students ranging in age from 25 to 60 and most being 25 years old. Most students were full-time (77 percent), first-generation students (63%) who had started college somewhere other than WSU (82 percent) and were not working on or off campus (61 and 70 percent, respectively). In addition, most students lived in residences either within walking distance of campus (46 percent) or within driving distance (45 percent), as opposed to living in residence halls, other campus housing, or a fraternity or sorority. On average, students reported having most of their grades at WSU up to the point of the survey as B+. Figure 2 shows a comparison of the sample to the population at WSU-Pullman on several of the aforementioned characteristics. As shown in the figure, the sample is fairly representative of the population.

Figure 2. Comparison of the sample to the population of adult students at Washington State University-Pullman, including: average age, mode for age, percent of women and men, percent of adults as part of the undergraduate population, percent of students living off-campus, and percent of transfer students. Percent of the undergraduate population for the sample was calculated by dividing the sample size (N=210) by the total
number of respondents on the 2004, 2006, 2008, and 2010 NSSE dataset provided by 
Institutional Research, which included both traditional- and nontraditional-aged students.

Source: IR Datamart (census day enrollment file) Fall 2011.

NSSE Instrument

This study uses data from the National Survey of Student Engagement (NSSE) to 
determine whether service learning affects adult student academic achievement and interactions 
with faculty. The NSSE instrument is suitable for the present study, as the instrument has played 
a major role in understanding student success and engagement for the last two decades. The next 
section provides an overview of the background and psychometric properties of the NSSE 
instrument as an important tool for understanding undergraduate student engagement and 
success.

Background

The NSSE instrument, also known as The College Student Report, was developed in 1998 
through a grant from the Pew Charitable Trust and was designed to better understand students’ 
educational experiences and to serve as a quality indicator for student learning (NSSE, 2012b). 
An exhaustive literature review by the NSSE group found that, “... the degree to which students 
are engaged in their studies impacts directly on the quality of student learning and their overall 
educational experience. As such, characteristics of student engagement can serve as a proxy for 
quality” (NSSE, 2012b, Background and Rationale, Paragraph Three). The group concluded that 
as a quality indicator, the NSSE could serve as a foundation not only for gathering information 
about students’ experiences but also for initiating necessary discussions at the local and national 
levels to improve the quality of higher education (NSSE, 2012b).
The NSSE team designed a survey that: (a) consisted principally of items that are known to be related to important college outcomes, (b) was flexible, (c) was administered by a third-party survey organization, and (d) could be administered to freshman- and senior-level students who have attended the institution for at least two terms at both public and private four-year colleges and universities, using adequate samples at participating institutions (NSSE, 2012b). The items stem from knowledge of best practices in undergraduate education and include derivatives of items on the College Student Experiences Questionnaire (CSEQ), The Cooperative Institutional Research Program (CIRP) freshman and follow-up surveys, and student and alumni surveys administered by the University of North Carolina system (NSSE, 2012b). The NSSE instrument was pilot-tested in 1999 and is now the most well-known instrument for studying student engagement at institutions of higher education, with over 1,400 colleges and universities across the United States and Canada participating in the NSSE since 2000 (NSSE, 2011a, About NSSE).

**Psychometric Portfolio**

The NSSE group has completed extensive psychometric testing of the NSSE instrument. The NSSE instrument is comprised of five benchmarks for Effective Educational Practice, constructed using a four-step process that combined theory and statistical analysis (NSSE, 2012a). As shown in Appendix A, 42 NSSE items comprise the five benchmarks, which include: (1) Level of Academic Challenge (LAC), (2) Active and Collaborative Learning (ACL), (3) Student-Faculty Interaction (SFI), (4) Supportive Campus Environment (SCE), and (5) Enriching Educational Experiences (EEE). A psychometric portfolio on the NSSE (2011b) website clearly outlines the validity and reliability frameworks and other quality indicators for the instrument.
The next sections summarize the frameworks and discuss the importance of the psychometric properties to the present study.

**Validity.** The NSSE validity framework includes studies of the following types of validity, as defined in the NSSE (2011b) Psychometric Portfolio: (a) *response process validity*, the extent to which the actions and thought processes of test takers or survey responders demonstrate that they understand the construct in the same way it is defined by the researchers; (b) *content validity*, the extent to which a measure represents all facets of a given scale or construct, (c) *construct validity*, the extent to which a measure correlates with the theorized construct that it purports to measure; (d) *concurrent validity*, the degree to which a construct correlates with other measures of the same construct that are measured at about the same time, (e) *predictive validity*, the extent to which a score on a scale or test predicts scores on some criterion measure in expected ways, (f) *known groups validity*, the extent to which a measurement is sensitive to differences and similarities in various groups (e.g., men and women, students in various programs of study, or students enrolled at different types of institutions) which are established in other studies, and (g) *consequential validity*, established by evidence of the intended and potential consequences of the instrument, such as to improve the undergraduate experience, inside and outside of the classroom (NSSE 2011b, Validity). The next sections describe the evidence supporting each type of validity.

**Response Process Validity.** The NSSE group conducted a series of focus groups and cognitive interviews to determine whether students, particularly those of different racial and ethnic groups, were interpreting survey items consistently and whether students’ responses accurately represented the authors’ intended response behaviors or perceptions (NSSE, 2011b, Validity). A total of 163 students participated in the cognitive interviews and focus groups.
conducted at four Minority-Serving Institutions (MSI) and four Predominately-White Institutions (PWI). Similarly, 221 students across eight institutions participated in focus groups to determine whether survey items were interpreted consistently and if behaviors and perceptions were captured accurately. Results of the interviews and first round of focus groups indicated that “the NSSE survey generally performs well for students from different racial and ethnic backgrounds across all eight institutions” (NSSE, 2010a, p.2). Participants in the interviews and the focus groups found the instrument format and item-wording to be clear and easy to read. Results of the focus groups suggested students found the web-based survey was faster to complete than the paper version (NSSE, 2010b). Further, several items were adjusted to be more psychometrically sound based on the results of the focus groups.

**Content Validity.** Evidence of content validity for the NSSE instrument stems from the history of engagement, through development of the NSSE, and through the impact NSSE has on institutional researchers. This information is presented in detail in Kuh’s (2009) work: *The National Survey of Student Engagement: Conceptual and Empirical Foundations.* In summary, the NSSE instrument is well-grounded in the construct of engagement and offers researchers the opportunity to better understand students and to identify areas in which improvements in teaching and learning can assist students in reaching their academic and personal goals.

**Construct Validity.** To measure construct validity, NSSE (2010c) tested the internal structure of NSSE items by replicating a study by Nelson, Laird, Shoup, and Kuh (2005) that identified a second-order factor solution with three subscales for facets of deep learning. The NSSE survey used 2009 data to determine whether the structure identified by Nelson, et al. (2005) fit with more current data. Participants included 160,755 first-year and 175,936 senior students from 617 colleges and universities. Exploratory factor analysis indicated three-factors
that explained nearly 60 percent of the variance in the 12 survey items for the first-year and the senior models, all with reliability scores of .70 or higher (NSSE, 2010c, p. 2). Strong factor loadings and moderately-related component correlations ranging from .36 to .50 supported previous work by suggesting the presence of a second-order model. Thus, evidence of construct validity exists for the NSSE instrument.

**Concurrent Validity.** The NSSE group examined concurrent validity by determining whether precollege student characteristics, high school engagement, and college environment scales on the Beginning College Survey of Student Engagement (BCSSE), an off-shoot of the NSSE, predicted NSSE first-year engagement benchmarks. As noted in NSSE (2010d), “as both of these instruments measure very similar constructs (student engagement, expectations, etc.), one would expect the earlier measured scale to predict the latter scale” (p. 1). The sample for the study included approximately 13,000 first-year, full-time students who took the BCSSE during the summer of 2008 and the NSSE in the spring of 2009. Results indicated “that both student characteristics as well their expectations and attitudes are important predictors of first-year student engagement, but there is still a large amount of variance unexplained…” (pp. 2-3). In addition, the high school academic engagement scale of the BCSSE and the NSSE academic challenge benchmark are related (effect size = .31), supporting evidence of concurrent validity.

**Predictive Validity.** NSSE established evidence of predictive validity through two venues: (1) the Connecting the Dots project and (2) a study on predicting retention and degree progress. The Connecting the Dots project aimed to determine whether a relationship existed between student engagement, as measured by the NSSE, and the following measures of student success: pre-college experiences, college grades, and persistence to the second year of study (NSSE, 2010e). NSSE responses, academic transcripts, financial aid information, and ACT/SAT
score reports were analyzed from approximately 11,000 first-year and senior students at 18 baccalaureate-granting institutions to “determine the effects of engagement on grades and persistence, controlling for a variety of pre-college and first-year experience variables” (NSSE, 2010e, p. 1). Results of the analyses indicated “…student engagement in educationally purposeful activities had a small, but statistically significant effect on first-year grades. Specifically, a one-standard deviation increase in “engagement” during the first year of college increased a student’s GPA by about .04 points” (NSSE, 2010e, p. 2). More notably, student engagement “during the first year of college had a positive, statistically significant effect on persistence, even after controlling for background characteristics, other college experiences during the first college year, academic achievement, and financial aid” (p. 2). With respect to senior year GPA, the engagement measures of hours spent studying and the global student engagement scale did not have a large impact on grades, even after controlling for prior academic year GPA (NSSE, 2010e, p. 2).

Like the Connecting the Dots project, the second predictive validity study conducted on retention and degree progress aimed to address research questions about the relationship between engagement as measured by the NSSE and student success outcomes. More specifically, the second study answered the following questions:

1) What is the relationship between student engagement and persistence?

2) What is the relationship between student engagement and credit hours earned?

3) Do these relationships differ by ability, and if so, which ability groups have stronger relationships than others?

Data for the study came from “approximately 4,000 first-year NSSE respondents from the Wabash National Study of Liberal Arts Education (http://www.liberalarts.wabash.edu/), a
longitudinal study aimed at better understanding the relationship between liberal arts educational outcomes and various college experiences” (NSSE, 2010f, p. 1). Participants started college in fall 2006 or fall 2007 and represented 22 institutions of varying types (research, masters, baccalaureate, and a school of business and management). Analyses examined whether a relationship existed between items from the five NSSE benchmarks (see NSSE, 2011b) and (a) persistence between the second and third semester and (b) cumulative grades at the end of the second year. Results suggested “the majority of NSSE measures do relate to important undergraduate educational outcomes, and these relationships are often influenced by pre-college academic ability” (NSSE, 2010f, p.6). More specifically, according to NSSE (2010f):

- **Level of Academic Challenge (LAC):** Persistence rates and credit hours earned increase as coursework becomes more rigorous and challenging. There is a statistically significant interaction between LAC and ability when modeling credit hours, but not for persistence. (pp. 2-3)

- **Active and Collaborative Learning (ACL):** Persistence rates and credit hours earned increase as students experience more ACL….Statistical models suggest no statistically significant interaction exists between ACL and ability for either outcome though. (p. 3)

- **Student-Faculty Interactions (SFI):** The frequency of faculty interactions does not appear to be related to persistence. In addition, there is no interaction with ability for persistence. Average credit hours, however, appears to be related to student-faculty interactions based on the Wabash data. (p. 3)

- **Supportive Campus Environment (SCE):** The more first-year students perceive their campus as a supportive environment, the more likely they will persist to the
second year and earn additional credit hours. Statistical models also suggest a statistically significant interaction effect between SFI and ability. (p. 4)

- **Enriching Educational Experiences (EEE):** First-year students from the Wabash study that experienced more enriching educational experiences were also more likely to persist and make greater progress towards their degree. Statistical models, however, suggest no statistically significant interaction between EEE and ability when predicting degree progress. (p. 4-5)

- **Deep Approaches to Learning:** Students who practice deep approaches to learning more often have slightly greater retention rates and earn slightly more credit hours than others. These relationships appear to vary by ability level. (p.5)

Given the results of the aforementioned studies, evidence of predictive validity exists for the NSSE instrument.

**Known Groups Validity.** As part of the validity framework, NSSE studied known groups validity. As noted by NSSE (2010g),

> With the known groups validation design (DeVellis, 2003), data is collected from two or more groups that have expected differences on the measure. If the measure is able to discriminate between the groups through statistically significant findings, this provides evidence for the validity of the measure. (p.1)

For the known groups study, expected differences based on group membership for student engagement included: gender, class status, enrollment status, transfer status, Greek membership, athletic participation, campus living, age category, distance education participation, parental education, ethnicity, and major (NSSE, 2010g). In addition, NSSE expected scores to differ
based on institutional-level characteristics, including: public or private control and Carnegie classification.

Results suggested the NSSE benchmarks were able to detect differences between groups (NSSE, 2010g). In addition, significant differences were present among the mean scores of groups based on several student-level characteristics, including age category, as well as among mean scores based on both institutional-level characteristics. Analysis of effect sizes indicated a very small amount of variance was explained based on group membership (NSSE, 2010g).

**Consequential Validity.** The final component of the validity framework established for the NSSE instrument is related to consequential validity, or providing evidence of the instrument’s intended and potential consequences (NSSE, 2010h). To gain such evidence, several examples were drawn from a NSSE database consisting of over 500 entries in which participating colleges have shared the ways in which they have used the NSSE instrument. NSSE (2010h) suggested “the examples…serve as evidence of institutional use of NSSE data coinciding with the intended purposes of the NSSE instrument” (NSSE, 2010h, p.3). Thus, evidence supports the consequential validity of the NSSE instrument.

**Summary.** The NSSE (2011b) Psychometric Portfolio provides evidence of response process, content, construct, concurrent, predictive, known groups, and consequential validity. The framework indicates: (a) respondents understand the constructs in the ways defined by the researchers, (b) the NSSE items represent facets of student engagement, (c) the items correlate with student engagement theory, (d) the NSSE correlates with another measure of student engagement, the BCSSE, (e) most measures on the NSSE predict second- to third-semester retention and second year cumulative GPA, (f) the NSSE is sensitive to group differences, and (g) institutions are using the NSSE as it was intended. Given the aforementioned results and the
fact that the validity framework was established using studies with student samples from various institutions, including public, four-year research institutions, analyses and interpretation of the data in the study can be completed with confidence in accuracy of the responses and results.

**Reliability.** In addition to psychometric properties for validity, the NSSE (2011b) Psychometric Portfolio contains evidence of a reliability framework for the instrument. More specifically, studies were conducted for the following types of reliability, as defined by NSSE (2011b): (a) **internal consistency**, the extent to which a group of items vary together, or intercorrelate; (b) **temporal stability**, the consistency of scores over time, as evidenced by the correlation of the score on two occasions, and (c) **equivalence**, measured by the correlation of scores between different versions of the same instrument, or between instruments that measure the same or similar constructs, such that one instrument can be reproduced by the other (NSSE 2011b, Reliability). Reliability evidence can be found in the Psychometric Portfolio on the NSSE (2011b) website and is summarized in the next section.

**Internal Consistency.** The first component of the reliability framework is internal consistency as measured by Cronbach’s alpha and intercorrelations between the instrument’s scales. All randomly sampled students from participating institutions were included in the analyses. Results suggested the NSSE scales are reliable. Cronbach’s alphas ranged from .702 for the first-year Integrative Learning subscale and .859 for the senior overall Deep Learning Scale and were slightly higher for seniors than for first-year students (NSSE, 2011c). Further, “the average inter-item correlations for the Integrative Learning subscale and Deep Learning scale fall within acceptable levels, but the correlations for the Higher Order Learning subscale and Reflective Learning subscale are a little high” (NSSE, 2011c, p. 2).
In a similar study, internal consistency was measured for the Gains Scales, which measure gains in practical competence, personal and social development, and general education (NSSE, 2011d). As with the Deep Learning scales previously mentioned, the Gains scales were found to be reliable NSSE scales. Cronbach’s alphas ranged between .878 for senior Gains in Personal and Social Development and .823 for senior Gains in Practical Competence (NSSE, 2011d). Average inter-item correlations were slightly high. Overall, the results suggest strong internal consistency of the NSSE items.

**Temporal Stability.** Temporal stability of an instrument’s results is best studied using an institution-level correlation analysis (NSSE, 2010e). Benchmark scores for an institution should be similar from one year to the next as long as policies have not shifted considerably. Further, while results can vary from one administration to the next, particularly for schools with a small number of respondents, the authors note that “gradual changes over longer periods of time are much more likely, and should not be interpreted as unreliability” (NSSE, 2010e, Purpose section). Benchmark scores for 237 institutions that had participated in the 2009 and the 2010 NSSE survey administrations were analyzed, 17 percent of which were doctoral-level institutions and 35 percent of which were publicly controlled, based on 2005 Carnegie classifications.

Overall, the results indicated that institution-level NSSE benchmark scores are relatively stable from year to year. Correlations ranged from .742 for first-year SFI and .931 for senior EEE, indicating reasonable consistency. Benchmark scores are most reliable for Doctoral-granting institutions, which supports use of the NSSE for the proposed study. Moreover, students at publicly controlled institutions have more stable ACL and SCE scores than those at private institutions, which further supports the proposed study, particularly with respect to service learning. Correlations are highest for EEE than for the other benchmarks, particularly for seniors,
although the items in this benchmark as not as applicable to the proposed study as the ACL and SCE findings. According to NSSE (2011e), the lower correlations within the other benchmarks, including SFI, “may be due to the changing population of faculty, staff, and students from year to year” (p.2). Although SFI had lower correlations than EEE, results of the temporal stability reliability testing suggest that various administrations of the NSSE (i.e., from 2004, 2006, 2008, and 2010) should be consistent.

**Equivalence.** In addition to internal consistency and temporal stability, NSSE researchers measured reliability using equivalence. The analysis focused on whether two different versions of items asked the same questions (NSSE, 2010i). The first version utilized vague quantifiers, such as “sometimes” or “often,” whereas the second version used quantifiable amounts of time, such as “three times per week.” Responses were analyzed from 26,204 first-year and 36,263 senior students from 149 colleges and universities that participated in the 2006 NSSE administration. As noted by NSSE (2010i), “students in this sample had characteristics similar to all 2006 respondents with regard to such demographics as race/ethnicity, parental education, and age” (p.1). The sample also included a variety of institutional types.

The two versions produced similar results, indicating a high degree of equivalence reliability. On average, students “assigned distinct and increasing quantities to “never,” “sometimes,” “often,” and “very often” (NSSE, 2010i, p. 2) (e.g., “never” meant 0 to 1 time per week; “sometimes” meant 2 times per week, etc.). In addition, students “adapted the meaning of the vague response options from item to item” (p. 2) (e.g., “very often” meant 15 times per week for one item and 5 times per week for another). Thus, the NSSE has evidence of equivalence reliability. A second study of equivalence is underway to determine whether students’ estimates
of individual co-curricular activities add up their estimates of total co-curricular activities (NSSE, 2010j).

**Summary.** The NSSE (2011b) Psychometric Portfolio provides evidence of internal consistency, temporal stability, and equivalence reliability. Results of studies pertaining to each form of evidence indicate: (a) the Deep Learning Scale inter-item correlations are adequate while the inter-item correlations on the Gains Scale are slightly high; (b) the items on the NSSE are consistent over time, from year to year; and, (c) response options have a distinct meaning and intervals between vague quantifiers progressively increase based on student responses. Given the reliability framework was established using studies with student samples from various institutions, including public, four-year research institutions, analyses and interpretation of the data in the present study can be completed with confidence in the consistency of responses and results.

**Other Quality Indicators.** In addition to establishing solid frameworks for the validity and reliability of the NSSE instrument, NSSE implemented a series of additional “procedures, standards, and other evaluations…to reduce error and bias, and to increase the precision and rigor of the data” (NSSE, 2011b, Other Quality Indicators). The “studies assess NSSE’s adherence to the best practices in survey design, and cover various stages of the survey, including sampling, survey administration, and reporting” (NSSE, 2011b, Other Quality Indicators). These indicators include reports on institution participation, item bias, measurement error, data quality, mode analysis, nonresponse error, and social desirability.

To briefly summarize, the results of the quality indicator studies conducted thus far show: (1) the institutions using the NSSE are similar to national distributions based on the Carnegie classification and NSSE participants are reflective of the United States undergraduate population
(NSSE, 2010k); (2) several National Center for Education Statistics (NCES) standards are applicable to the NSSE instrument (NSSE, 2010l); (3) there are differences in scores between respondents who take the web and the paper versions of the NSSE; however, those differences do not appear to be based on the medium used to complete the survey (NSSE, 2010m); (4) neither students’ previous high school engagement nor their attitudes toward engagement affect whether or not they respond to the NSSE (NSSE, 2010n); (5) an acceptable level of sampling error exists, with most institutions not having a high amount of sampling error (NSSE, 2010o); and (6) testing for social desirability is currently underway (NSSE, 2010p).

Summary. The results of the Other Quality Indicator studies have important implications for the present study. First, the NSSE participants are reflective of the U.S. undergraduate population and of multiple institutional types, meaning the instrument is sufficient for studying undergraduates at a four-year, public research institution. Second, the dataset, which will be described later in this chapter, includes responses from participants using the web- and paper-versions of the instrument. Therefore, the present study took into account that differences exist between these two groups, even though the differences are not thought to be a result of the medium. Third, the results can be interpreted with more confidence knowing that previous engagement or a propensity to be more civically-engaged does not impact students’ responses, as the present study looks at undergraduates who may have prior civic engagement experience. Finally, an acceptable level of sampling error exists among institutions participating in NSSE, including Washington State University (WSU); therefore, the sample collected by WSU that was used in this study should include an acceptable amount of accuracy in estimating values.
Based on the instrument’s psychometric properties and role in student development and engagement, the NSSE instrument is suitable for examining how service learning affects adult student academic achievement and student-faculty interactions.

**Data Collection**

This study examines whether participation in service learning affects adult student GPA and adult student-faculty interactions. Institutional Review Board (IRB) oversight was not needed because "the study does not involve human participants" (WSU IRB, December 22, 2011). On December 23rd, the Interim Director of the Institutional Research office at WSU posted a data file containing NSSE information from 2004, 2006, 2008, and 2010 to a SharePoint Website for the study. The Excel file included information from paper and web-based surveys, depending on the year of administration. In 2004 and 2006, only paper surveys were administered. In 2008 and 2010, freshman and seniors were sent web-based surveys and paper surveys were sent to 400 non-respondents (each year) as a follow-up. Surveys were completed in the spring semester of each year. The dataset included responses by traditional- and non-traditional-aged students, so data from adult students were extracted to a new file, cleaned, and organized for analysis.

**Data Analysis**

To gain a better understanding of the ways in which service learning impacts adult students, this study aims to answer the following research questions:

*Research Question One:* Does participation in service learning influence adult student GPA?

*Research Question Two:* Does participation in service learning influence student-faculty interactions?
Research Question Three: Is the effect of service learning participation on each outcome (GPA and Student-Faculty Interactions) different for adult students depending on their age group?

Research Question Four: Is the effect of service learning participation on each outcome different for male and female adult students?

Research Question Five: Is the effect of service learning participation on each outcome different for white and non-white adult students?

To best answer the research questions, Field (2009) suggests using a Factorial Analysis of Variance (ANOVA) with post hoc tests. A Factorial ANOVA with post-hoc tests examines differences between groups and allows the researcher to explore the effects of more than one independent variable (IV), as well as the interactions between the IVs, on a dependent variable (DV) (Field, 2009). The study is considered a 2x3x2x2 ANOVA based on the number of groups in each IV (Field, 2009). As described below, service learning participation, sex, and race consisted of two groups and age consisted of three groups. Post hoc tests were used instead of planned contrasts, as no specific hypotheses were tested (Field, 2009). The next sections describe the variables in the study, preliminary analysis methods, and methods used to answer each research question.

Variables

Variables in the study included: service learning, age, sex, and race (the independent variables), and student-faculty interactions and grade point average (the dependent variables). Service learning was measured using item 1k on the NSSE: About how often have you participated in a community-based project (e.g., service learning) as part of a regular course?
The item was measured at four levels: never, sometimes, often, very often. As shown in Table 1, the distributions were unequal, with a greater number of participants indicating they had never participated in service learning, or a community based project, as part of a course. Thus, the levels of “sometimes,” “often,” and “very often,” were summed, such that two groups were created: (1) never participated in service learning (coded 0) and (2) participated in service learning (coded 1).

Respondents’ ages were categorized into three groups based on a recent study by the National Student Clearinghouse Research Center that used the categories to study adult learners and “observe differences in trends based on age” (Newbaker, 2012, Paragraph 2). The three age groups were coded as follows: 1 = 25-29, 2= 30-39, and 3 = 40 and over. Males were coded as 0 and females were coded 1. Race was split into two groups: (1) White (coded 0) and (2) Non-White (coded 1). As shown in Table 2, a natural divide existed between the two groups based on the frequency distributions of each race.

Table 1

<table>
<thead>
<tr>
<th>About how often have you participated in a community-based project (e.g., service learning) as part of a regular course?</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>115</td>
</tr>
<tr>
<td>Sometimes</td>
<td>61</td>
</tr>
<tr>
<td>Often</td>
<td>22</td>
</tr>
<tr>
<td>Very Often</td>
<td>10</td>
</tr>
</tbody>
</table>

*Note: 2 cases missing*
Table 2

*Frequency Distribution for Race (N=210)*

<table>
<thead>
<tr>
<th>Race</th>
<th>Frequency (Percent of Total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian or Other Native American</td>
<td>7 (3%)</td>
</tr>
<tr>
<td>Asian, Asian American, or Pacific Islander</td>
<td>18 (9%)</td>
</tr>
<tr>
<td>Black or African American</td>
<td>9 (4%)</td>
</tr>
<tr>
<td>White (non-Hispanic)</td>
<td>131 (62%)</td>
</tr>
<tr>
<td>Mexican or Mexican American</td>
<td>7 (3%)</td>
</tr>
<tr>
<td>Other Hispanic or Latino</td>
<td>3 (1%)</td>
</tr>
<tr>
<td>Multiracial</td>
<td>9 (4%)</td>
</tr>
<tr>
<td>Other</td>
<td>8 (4%)</td>
</tr>
<tr>
<td>I prefer not to respond</td>
<td>17 (8%)</td>
</tr>
<tr>
<td>Total</td>
<td>209</td>
</tr>
</tbody>
</table>

Note: One respondent did not answer the question.

Student-Faculty Interactions was comprised of seven items on the NSSE: (1) Used e-mail to communicate with an instructor, (2) Discussed grades or assignments with an instructor, (3) Talked about career plans with a faculty member or advisor, (4) Discussed ideas from your readings or classes with faculty members outside of class, (5) Received prompt written or oral feedback from faculty on your academic performance, (6) Worked harder than you thought you could to meet an instructor’s standards or expectations, and (7) Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.). The Student-Faculty Interaction items closely match the items within the Student-Faculty Interactions benchmark established by NSSE (2012a), shown in Appendix A.
Academic Achievement was measured by students’ GPA. Because university grade data was not available, students’ grades were estimated by assigning a random number to each statistical case based on the grade that students’ reported as representing “most of their grades..up to now” (Item 25), as shown in Table 3. Values were estimated using anchor points set by the WSU Registrar for each letter grade, such that the anchor point was the average of the distribution. As an example, Equation 1 and Equation 2 show the calculation for the distribution of a B+:

\[
B^{+}_{\text{Upper Value}} = [(\text{Anchor Value of A-} + \text{Anchor Value of B+})/2] - 0.01
\]

\[
B^{+}_{\text{Lower Value}} = (\text{Anchor Value of B+} + \text{Anchor Value of B})/2
\]

Equation 3 and Equation 4 show the calculation for the distribution of a B+ with numerical values inserted:

\[
B^{+}_{\text{Upper Value}} = [(3.7 + 3.3+)/2] - 0.01 = 3.49
\]

\[
B^{+}_{\text{Lower Value}} = (3.3 + 3.0)/2 = 3.15
\]

Students indicating most of their grades as a B+ were then assigned a random value between 3.15 and 3.49, using the RANDBETWEEN function in Microsoft Excel. It should be noted that the RANDBETWEEN function only allows for whole numbers; therefore, in the Excel sheet, a random value that coincided with the numbers following each decimal point were computed, divided by 100 to get a decimal to the 100th place, and added to the nearest whole number. For example, the random values of grades for B+ were calculated by computing a random number between 15 and 49, then dividing by 100 to get a decimal (e.g., .23), and finally adding the decimal to 3, the nearest whole number to the B anchor point, to achieve a GPA of 3.23. This was done for each case in which respondents marked that most of their grades to the point of the
### Table 3

*Random Value Assignments for Self-Reported Grades (with statistical coding) on the NSSE, Calculated to Provide a Reasonable Distribution of Grades for Analysis*

<table>
<thead>
<tr>
<th>What have most of your grades been up to now at this institution? (Coding in parentheses)</th>
<th>Assigned a Random Value Between:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (8)</td>
<td>4.00-3.85</td>
</tr>
<tr>
<td>A- (7)</td>
<td>3.50-3.84</td>
</tr>
<tr>
<td>B+ (6)</td>
<td>3.15-3.49</td>
</tr>
<tr>
<td>B (5)</td>
<td>2.85-3.14</td>
</tr>
<tr>
<td>B- (4)</td>
<td>2.50-2.84</td>
</tr>
<tr>
<td>C+ (3)</td>
<td>2.15-2.49</td>
</tr>
<tr>
<td>C (2)</td>
<td>1.85-2.14</td>
</tr>
<tr>
<td>C- or Lower (1)</td>
<td>1.00-1.84</td>
</tr>
</tbody>
</table>

*Note:* The lowest value for GPA used in the estimation was 1.0 which is a D. Students mostly having letter grades of D- or F would most likely not be enrolled at the institution in the spring semester, particularly as a senior student, as WSU requires a 2.0 to remain in good standing (WSU Office of the Registrar, 2012, Undergraduate Academic Deficiency).

The survey had been B+, giving values between the range of 3.15 and 3.49. Grade ranges were used instead of the actual anchor points (e.g., 4.0, 3.7, 3.3, 3.0) to provide a continuous variable that took into account random error that may have occurred in a real grade distribution. While actual grade data would have been preferable, assigning random values provided a reasonable distribution of grades to more accurately understand the relationship between service learning and academic achievement. Students’ self-reported grades were, on average, B+, and the average for the computed grades as a 3.27, which is also B+. 
With respect to the use of self-reported data, Kuncel, Credé, and Thomas (2005) suggest that for high achieving students in particular, self-reported grades are fairly accurate reflections of actual grades. For students with low ability or low GPA, the accuracy does diminish; however, some “have argued in favor of using self-reported GPA (e.g., Cassady, 2001), arguing that the relationship, although imperfect, is close enough for research and practical purposes” (Kuncel, Credé, & Thomas, 2005, p. 64). The average GPA reported by students on the NSSE in this study closely matches the average GPA of students at WSU-Pullman (The Princeton Review, 2012, At a Glance).

**Preliminary Analyses**

Prior to the main analysis, descriptive statistics, including means and standard deviations, were computed and assumptions of the ANOVA were tested. Field (2009) states that:

> The assumptions under which the $F$ statistic is reliable are the same as for all parametric tests based on the normal distribution (see section 5.2). That is, the variances in each experimental condition need to be fairly similar, observations should be independent and the dependent variable should be measured on at least an interval scale. In terms of normality, what matters is that distributions within groups are normally distributed. (p. 359)

The assumptions were tested by (a) examining skewness and kurtosis statistics and P-P plots to determine whether distributions were normal within groups (Normality), (b) examining Levene’s test for non-significance at $p<.01$ (Homogeneity of Variance), (b) considering whether observations were sampled randomly from the population such that observations were selected in ways that prevented group linkage, whether students experienced a common historical event, and whether social interaction occurred at the time of the survey that could have caused students’
scores to be related (Kenny & Judd, 1986) (Independence), and (d) understanding whether data were randomly selected and measured at an interval level (Random Sampling). Field (2009) suggests that, though somewhat disputed, the ANOVA is robust to violations of the assumptions, with the exception of the assumption of Independence. If observations are dependent, an ANOVA should not be conducted because the Type I error rate can become considerably inflated. In other words, the researcher may find significant results when no effect actually exists in the population.

**Answering the Research Questions**

Two separate Factorial ANOVAs were conducted to answer the research questions. The first ANOVA explored the effects of service learning participation, age, sex, and race on adult students’ GPA. The second ANOVA explored the effects of service learning participation, age, sex, and race on adult student-faculty interactions. As shown in Table 4, each research question was answered by analyzing the statistical significance of the $F$ statistic to determine whether the independent variables (IVs) influenced the dependent variables (DVs). In addition, interactions between each of the IVs were also analyzed through $F$ statistics and interaction graphs for each outcome. Finally, *post hoc* tests using the Bonferroni correction procedure were conducted to “…compare all different combinations of the treatment groups” (Field, 2009, p. 372). The Bonferroni correction is the simplest and easiest way of correcting for familywise error rates that are associated with the pairwise comparisons conducted in *post hoc* tests. The Bonferroni correction ensures that the cumulative Type I error is below .05 by dividing alpha by the number of comparisons (Field, 2009). One limitation of the Bonferroni correction is a loss of statistical power such that true differences in the data might be missed, increasing the probability of a Type
II error (Field, 2009). Because group sizes were different and a small number of comparisons were made, however, the Bonferroni correction was appropriate for the study (Field, 2009).

Table 4

*Independent Variables Analyzed by Research Question*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Independent Variables Analyzed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does participation in service learning influence adult student GPA?</td>
<td>Service Learning Participation</td>
</tr>
<tr>
<td>2. Does participation in service learning influence student-faculty interactions?</td>
<td>Service Learning Participation</td>
</tr>
<tr>
<td>3. Is the effect of service learning participation on each outcome (GPA and Student-Faculty Interactions) different for adult students depending on their age group?</td>
<td>Service Learning Participation * Age Group</td>
</tr>
<tr>
<td>4. Is the effect of service learning participation on each outcome different for male and female adult students?</td>
<td>Service Learning Participation* Sex</td>
</tr>
<tr>
<td>5. Is the effect of service learning participation on each outcome different for white and non-white adult students?</td>
<td>Service Learning Participation * Race Group</td>
</tr>
</tbody>
</table>

**Summary**

While some have suggested that service learning may have significant implications for adult students (e.g., Smith, 2008), little is known about the ways in which service learning affects adult student success. Service learning is a pedagogical practice that provides students with opportunities to be engaged in their learning experience, to connect with faculty members, and to reflect on prior experiences that can stimulate growth and development. Students that are able to make greater connections to the classroom and to the institution are more likely to persist (Tinto,
As adult student attrition is a pressing issue in higher education, it is necessary to have a better understanding of the ways in which service learning affects adult students.

The purpose of this study is to determine (a) whether participation in service learning affects adult students’ GPA, (b) whether participation in service learning affects adult student-faculty interactions, and (c) how each outcome is affected by age, sex, and race. The study uses a Factorial (2x3x2x2) ANOVA design with post hoc tests to examine archival data from the 2004, 2006, 2008, and 2010 administrations of the NSSE at Washington State University-Pullman. Participants in the study closely represent the population of adult undergraduates at WSU. Despite some limitations, sufficient data was available to examine the effects of service learning on adult student academic achievement and student-faculty interactions and to generalize to other public, four-year research institutions. The next chapter offers the results of the study as they relate to the methods.
CHAPTER FOUR

RESULTS

The goal of this study is to explore how service learning affects adult students’ academic achievement and interactions with faculty members by analyzing data from the 2004, 2006, 2008, and 2010 administrations of the National Survey of Student Engagement (NSSE) at Washington State University – Pullman. The study addresses the following research questions:

Research Question One: Does participation in service learning influence adult student GPA?

Research Question Two: Does participation in service learning influence student-faculty interactions?

Research Question Three: Is the effect of service learning participation on each outcome (GPA and Student-Faculty Interactions) different for adult students depending on their age group?

Research Question Four: Is the effect of service learning participation on each outcome different for male and female adult students?

Research Question Five: Is the effect of service learning participation on each outcome different for white and non-white adult students?

The next sections describe the descriptive statistics, assumptions of the ANOVA, and results as they pertain to each research question.

Descriptive Statistics

As described in Chapter Three, the sample was comprised of mostly white students (62 percent) between the ages of 25 and 29 (69 percent). Females comprised 44 percent of the sample, while males comprised 55 percent. One student did not indicate his or her gender. The remainder of the sample included 21 percent of students in the 30-39 age group and 10 percent of
students in the 40 and older age group. Most (55 percent) had not participated in service learning.

Table 5 shows descriptive statistics for the age, race, sex, and service learning participation groups as well as for adult student GPA and student-faculty interactions. Statistics include the mean, median, mode, standard deviation, and sample size for each variable. In summary, most adults in the sample were: (a) in the 25-29 age group, (b) White, (c) male, (d) had not participated in service learning, and (e) interacted sometimes to often with faculty members. As mentioned in Chapter 3, the average GPA was 3.27.

Table 5

*Descriptive Statistics for Age Group, Race Group, Sex, Service Learning Participation (SL) Group, Adult Student Grade Point Average (GPA), and Adult Student-Faculty Interactions (SFI)*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>Median</th>
<th>Mode</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
<td>1.40</td>
<td>1.00</td>
<td>1.00</td>
<td>.67</td>
<td>210</td>
</tr>
<tr>
<td>Sex</td>
<td>.45</td>
<td>.00</td>
<td>.00</td>
<td>.50</td>
<td>209</td>
</tr>
<tr>
<td>Race Group</td>
<td>.38</td>
<td>.00</td>
<td>.00</td>
<td>.49</td>
<td>210</td>
</tr>
<tr>
<td>SL Group</td>
<td>.45</td>
<td>.00</td>
<td>.00</td>
<td>.50</td>
<td>208</td>
</tr>
<tr>
<td>GPA</td>
<td>3.27</td>
<td>3.31</td>
<td>3.05*</td>
<td>.52</td>
<td>206</td>
</tr>
<tr>
<td>SFI</td>
<td>15.83</td>
<td>15.50</td>
<td>15.00</td>
<td>3.46</td>
<td>206</td>
</tr>
</tbody>
</table>

*Note. Age group was coded as follows: 1 = 25-29, 2 = 30-39, and 3 = 40 and older. Race group was coded as: 0 = White, 1 = Non-White. Sex was coded: 0 = Male, 1 = Female. Service Learning Participation (SL) group was coded 0 = No Participation, 1 = Some Participation. Student-Faculty Interactions is a sum of seven items and was coded: Never (1), Sometimes (2), Often (3), Very Often (4). Thus, scores for student-faculty interactions could range from 7 to 28, with 7 = Never, 14 = Sometimes, 21 = Often, and 28 = Very Often. *Multiple modes exist; smallest value is shown.*
ANOVA Assumptions

Preliminary analysis suggested that the assumptions of the ANOVA were met, including: Independence, Random Sampling, Homogeneity of Variance, and Normality. The assumption of Independence was met, as students were randomly sampled from the population, the NSSE survey instrument was used to gather data at one point in time with no interventions, no common historical event was noted as occurring at the time of survey administrations, and social interaction was unlikely to affect students’ responses (Field, 2009; Kenny & Judd, 1986). In addition, data were measured at an interval level, indicating the assumption of Random Sampling was met (Field, 2009). Levene’s test was non-significant at p<.01 for both student-faculty interactions, \( F(22, 181) = 1.07, \ p=.38 \), and for GPA, \( F(22, 180) = 1.65, \ p = .04 \). Therefore, the assumption of Homogeneity of Variance was met and the \( F \) statistic could be interpreted with confidence (Field, 2009).

As shown in Table 6, skewness and kurtosis \( z \)-score statistics indicated that the distributions of residuals for the two dependent variables were mostly normal while the distributions for the independent variables were not normal. Field (2009) notes:

Positive values of skewness indicate a pile-up of scores on the left of the distribution, whereas negative values indicate a pile-up on the right. Positive values of kurtosis indicate a pointy and heavy-tailed distribution, whereas negative values indicate a flat and light-tailed distribution. The further the value is from zero, the more likely it is that the data are not normally distributed. (p. 138)

Field (2009) suggests \( z \)-scores with an absolute value greater than 2.58 are significant at \( p<.01 \). In other words, \( z \)-scores above \(|2.58|\) show significant skewness or kurtosis. Field (2009) notes, however, that: “if you have a large sample (200 or more) it is more important to look at the shape
of the distribution visually and to look at the value of the skewness and kurtosis statistics rather than calculate their significance” (p. 139). Analysis of the P-P plots for each variable in the study suggested adult Student-Faculty Interactions, GPA, service learning participation, and sex were mostly normal. Race and gender, however, were not normal, having significant skewness and kurtosis. Because the dependent variables and Service Learning Participation were normal and because Field (2009) suggests that “Skewed distributions seem to have little effect on the error rate and power for two-tailed tests (but can have serious consequences for one-tailed tests)” (p. 359), the assumption of normality was considered tenable. As group sizes were not exactly equal, however, the results are interpreted with caution and understanding that for race and gender, in particular, the Type I error rate may be higher than five percent (Field, 2009).

Table 6

Skewness and Kurtosis Statistics, Standard Errors (SE), and z-Scores for Age, Sex, Race, Service Learning Participation (SL), Adult Student Grade Point Average (GPA), and Adult Student-Faculty Interactions (SFI)

<table>
<thead>
<tr>
<th></th>
<th>Skewness</th>
<th></th>
<th></th>
<th>Kurtosis</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>SE</td>
<td>z-Score</td>
<td>Statistic</td>
<td>SE</td>
<td>z-Score</td>
</tr>
<tr>
<td>Age</td>
<td>2.09</td>
<td>.17</td>
<td>12.44*</td>
<td>4.44</td>
<td>.33</td>
<td>13.29*</td>
</tr>
<tr>
<td>Sex</td>
<td>.22</td>
<td>.17</td>
<td>1.32</td>
<td>-1.97</td>
<td>.34</td>
<td>5.88*</td>
</tr>
<tr>
<td>Race</td>
<td>1.28</td>
<td>.17</td>
<td>7.59*</td>
<td>.93</td>
<td>.34</td>
<td>2.77*</td>
</tr>
<tr>
<td>SL</td>
<td>1.21</td>
<td>.17</td>
<td>7.17*</td>
<td>.68</td>
<td>.34</td>
<td>2.01</td>
</tr>
<tr>
<td>GPA</td>
<td>-.76</td>
<td>.17</td>
<td>4.47*</td>
<td>.58</td>
<td>.34</td>
<td>1.73</td>
</tr>
<tr>
<td>SFI</td>
<td>.19</td>
<td>.17</td>
<td>1.14</td>
<td>-.495</td>
<td>.34</td>
<td>1.46</td>
</tr>
</tbody>
</table>

*Note: z-Score is calculated by dividing Statistic by Standard Error (SE). *Significant at p<.01
Answering the Research Questions

Following testing of the assumptions, each research question was answered through analysis of $F$ statistics and corresponding significance levels for each independent variable as well as for interactions between the independent variables. In addition, simple effects analyses and interpretation of interaction graphs aided in answering the research questions. Table 7 outlines the results as they answer each research question. To best organize the results of the data analyses, the following sections describe the results as they pertain to the two dependent variables: adult student GPA and adult student-faculty interactions. Table 9 at the end of the chapter outlines the answers to each research question based on the results.

Adult Student GPA

As shown in Table 7, results of the factorial ANOVA using GPA as the dependent variable indicate that the primary main effect influencing adult student GPA is gender, $F(1, 180) = 4.85, p = .03, \eta^2 = .01$. In other words, gender significantly influences adult student GPA when service learning participation, age, and race are not considered. Service learning participation alone does not influence adult student GPA, $F(1, 180) = .18, p = .68, \eta^2 = .00$. Yet, service learning participation does significantly affect GPA depending on students’ gender, $F(1, 180) = 4.48, p = .04, \eta^2 = .02$. Most notably, the interaction between service learning participation, age, and gender significantly influences adult student GPA, $F(2, 180) = 3.76, p = .03, \eta^2 = .04$. In other words, results of the study suggest that the effect of service learning participation on adult student GPA is different for men and women of different ages. Although post hoc tests show no difference in GPA based on age group ($p > .05$ for all age categories), simple effects analysis suggests that the simple effect of gender is most significant for students aged 30 to 39 who participated in service learning, $F(1, 191) = 6.08, p = .02, r = .14$. A slightly significant effect on
Table 7

F-Statistics and Significance Levels for the Effects of Service Learning Participation (SL), Age, Race, and Sex, as well as Interactions Among These Independent Variables, on Adult Student Grade Point Average (GPA)

<table>
<thead>
<tr>
<th></th>
<th>( F(1, 180) )</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL</td>
<td>.18</td>
<td>.68</td>
</tr>
<tr>
<td>Age Group</td>
<td>.80*</td>
<td>.45</td>
</tr>
<tr>
<td>Race Group</td>
<td>.57</td>
<td>.45</td>
</tr>
<tr>
<td>Sex</td>
<td>4.85</td>
<td>.03</td>
</tr>
<tr>
<td>SL * Age Group</td>
<td>.23*</td>
<td>.80</td>
</tr>
<tr>
<td>SL * Race Group</td>
<td>1.47</td>
<td>.23</td>
</tr>
<tr>
<td>SL * Sex</td>
<td>4.48</td>
<td>.04</td>
</tr>
<tr>
<td>Age Group * Race Group</td>
<td>.43*</td>
<td>.65</td>
</tr>
<tr>
<td>Age Group * Sex</td>
<td>.45*</td>
<td>.64</td>
</tr>
<tr>
<td>Race Group * Sex</td>
<td>1.51</td>
<td>.22</td>
</tr>
<tr>
<td>SL * Age Group * Race Group</td>
<td>1.25*</td>
<td>.29</td>
</tr>
<tr>
<td>SL * Age Group * Sex</td>
<td>3.76*</td>
<td>.03</td>
</tr>
<tr>
<td>SL * Race Group * Sex</td>
<td>.00</td>
<td>.95</td>
</tr>
<tr>
<td>Age Group * Race Group * Sex</td>
<td>1.25*</td>
<td>.29</td>
</tr>
<tr>
<td>SL * Age Group * Race Group * Sex</td>
<td>2.85</td>
<td>.09</td>
</tr>
</tbody>
</table>

**Note.** \( *F(2, 180)\). Items in bold are significant at \( p < .05 \).

GPA also exists for students aged 25 to 29 who participated in service learning, \( F(1, 191) = 4.01, p = .047, r = .18 \). Therefore, the effects of service learning participation on GPA for students aged 30 to 39, and to a lesser extent for those aged 25 to 29, significantly vary for male and
female students. Figure 3 shows graphical depictions of the aforementioned interactions between each age group, service learning participation, and sex.

![Graphs for interactions](image)

**Figure 3.** Graphs for interactions between (a) 25-29 year old age group, service learning participation, and sex; (b) 30-39 year old age group, service learning participation, and sex; and (c) 40 and older year old age group, service learning participation, and sex. Non-parallel lines suggest a significant interaction may be present (Field, 2009).

**Adult Student-Faculty Interactions**

Table 8 (following Figure 4) shows the results of the factorial ANOVA using Student-Faculty Interactions (SFI) as the dependent variable. Results suggest that when age, race, and sex are not considered, service learning participation has a significant influence on the frequency of adult student-faculty interactions, $F(1, 181) = 4.98, p=.03$, $\eta^2=.03$. In addition, service learning participation significantly affects SFI depending on race and gender, $F(1, 181) = 5.32, p=.02$, $\eta^2=.03$. Simple effects analysis suggests that the simple effect of gender is significant for non-white students who do not participate in service learning, $F(1, 181) = 6.65, p = .01, r = .18$. Simple effects analyses also suggest the simple effects of race are significant for females participating in service learning, $F(1, 196) = 5.86, p = .02, r = .17$. Therefore, lack of service
Table 8

F-Statistics, and Significance Levels for the Effects of Service Learning Participation (SL), Age, Race, and Sex, as well as Interactions Among These Independent Variables, on Adult Student-Faculty Interactions (SFI)

<table>
<thead>
<tr>
<th></th>
<th>$F(1,181)$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL</td>
<td><strong>4.98</strong></td>
<td>.03</td>
</tr>
<tr>
<td>Age Group</td>
<td>.92*</td>
<td>.40</td>
</tr>
<tr>
<td>Race Group</td>
<td>1.39</td>
<td>.24</td>
</tr>
<tr>
<td>Sex</td>
<td>.88</td>
<td>.35</td>
</tr>
<tr>
<td>SL*Age Group</td>
<td>.73*</td>
<td>.48</td>
</tr>
<tr>
<td>SL * Race Group</td>
<td>.22</td>
<td>.64</td>
</tr>
<tr>
<td>SL * Sex</td>
<td>2.16</td>
<td>.14</td>
</tr>
<tr>
<td>Age Group * Race Group</td>
<td>.07*</td>
<td>.93</td>
</tr>
<tr>
<td>Age Group * Sex</td>
<td>.16*</td>
<td>.85</td>
</tr>
<tr>
<td>Race Group * Sex</td>
<td>.00</td>
<td>.98</td>
</tr>
<tr>
<td>SL * Age Group * Race Group</td>
<td>.39*</td>
<td>.68</td>
</tr>
<tr>
<td>SL * Age Group * Sex</td>
<td>.52*</td>
<td>.59</td>
</tr>
<tr>
<td>SL * Race Group * Sex</td>
<td><strong>5.32</strong></td>
<td>.02</td>
</tr>
<tr>
<td>Age Group * Race Group * Sex</td>
<td>.25*</td>
<td>.78</td>
</tr>
<tr>
<td>SL * Age Group * Race Group * Sex</td>
<td>2.41</td>
<td>.12</td>
</tr>
</tbody>
</table>

Note. *$F(2, 181)$*. Items in bold are significant at $p<.05$.

Learning participation significantly affects non-white adult students’ interactions with faculty members, while being white may mean more interactions with faculty members for females. 

Post-hoc tests indicate no difference in Student-Faculty Interactions based on age group ($p>.05$).
for all age categories). Figure 4 graphically represents the interactions between service learning participation, race, and gender. Table 9 at the end of this section shows the results of the study as they pertain to each research question.

Figure 4. Graphs of the interactions between (a) men, race group, and service learning participation; and (b) women, race group, and service learning participation. Non-parallel lines suggest a significant interaction may be present (Field, 2009).
Table 9

Answers to the Research Questions

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Does participation in service learning influence adult student GPA?</td>
<td>Service learning participation does not influence adult student GPA, $F(1, 180) = .18$, $p=.68$, $\eta^2=.00$.</td>
</tr>
<tr>
<td>2. Does participation in service learning influence student-faculty interactions?</td>
<td>Service learning participation has a significant influence on the frequency of adult Student-Faculty Interactions, $F(1, 181) = 4.98$, $p=.03$, $\eta^2=.03$.</td>
</tr>
<tr>
<td>3. Is the effect of service learning participation on each outcome (GPA and Student-Faculty Interactions) different for adult students depending on their age group?</td>
<td>There is no significant effect on either GPA, $F(2, 180) = .23$, $p = .80$, $\eta^2=.00$ or Student-Faculty Interactions, $F(2, 181) = .73$, $p = .48$, $\eta^2=.00$, from an interaction between service learning participation and age group. Post-hoc tests confirm the lack of a significant effect ($p&gt;.05$ for all age categories for both dependent variables).</td>
</tr>
<tr>
<td>4. Is the effect of service learning participation on each outcome different for male and female adult students?</td>
<td>There is a significant effect of service learning participation on GPA based on gender, $F(1, 180) = 4.48$, $p = .04$, $\eta^2=.02$. There is no significant effect on Student-Faculty Interactions based on gender, $F(1, 181) = 2.16$, $p = .14$, $\eta^2=.01$. A significant effect does occur on student-faculty interactions from an interaction between service learning participation, gender, and race, $F(1,181) = 5.32$, $p = .02$, $\eta^2=.03$, particularly for White women, $F(1,196) = 5.86$, $p=.02$, $r = .17$.</td>
</tr>
<tr>
<td>5. Is the effect of service learning participation on each outcome different for white and non-white adult students?</td>
<td>There is no significant effect on either GPA, $F(1, 180) = 1.47$, $p = .23$, $\eta^2=.01$ or Student-Faculty Interactions, $F(1, 181) = .22$, $p = .64$, $\eta^2=.00$, from an interaction between service learning participation and race group. A significant effect does occur on student-faculty interactions from an interaction between service learning participation, gender, and race, $F(1,181) = 5.32$, $p = .02 \eta^2=.03$. Lack of participation also affects adult student-faculty interactions for non-white students, $F(1, 196) = 6.65$, $p = .01$, $r=18$.</td>
</tr>
</tbody>
</table>
Summary

The study begins to describe how service learning affects adult students by analyzing data from the 2004, 2006, 2008, and 2010 National Survey of Student Engagement (NSSE) using a 2x3x2x2 Factorial ANOVA. Results indicate that service learning participation alone does not significantly affect adult student GPA, but that service learning participation does significantly affect adult Student-Faculty Interactions when age group, race group, and sex are not considered. More detailed analyses suggest that service learning participation influences both adult student GPA and adult Student-Faculty Interactions when interactions between service learning participation, age group, race group, and sex are considered. The next chapter discusses the results of the study as they pertain to relevant theory, with an emphasis on directions for future research and practice.
CHAPTER FIVE

DISCUSSION

The study offers some of the first empirical evidence to support service learning as a pedagogical tool for increasing adult students’ levels of classroom engagement. By determining how service learning affects adult students, the study offers insight into the adult student college experience and, more broadly, to adult student retention and persistence. As adult students become more engaged in the classroom through service learning and through interactions with their faculty members, the likelihood of adults being academically integrated into the institution also increases. By being more academically integrated, adult students may persist through graduation and achieve their academic goals. Ongoing understanding of how service learning affects adult students addresses a larger piece of the departure puzzle (Braxton, 2000).

As presented in Chapter Four, results of the data analyses suggest that participation in service learning plays a significant role in the outcomes of adult students’ academic achievement and student-faculty interactions, particularly when interactions between service learning participation, age group, race group, and sex are considered. These findings have important implications for adult students as well as for the faculty, staff, and administrators who play a role in adult students’ college experiences. The next sections address the results in more detail as they pertain to each research question and relevant literature. In addition, the sections describe potential implications for adult students and faculty with respect to academic integration and student success. The chapter concludes with recommendations for future research and practice, including suggestions for adult students, faculty, and administrators.
Does participation in service learning influence adult student GPA?

Results of the study suggest that when age, race, and sex are not considered, service learning participation does not influence adult student GPA. Although a dearth of information exists on service learning and adult student academic achievement, this finding does not align with the available literature on either adult students or undergraduates in general. For example, Markus et al. (1993) suggest service learning has a positive impact on adult student academic achievement. In addition, Pascarella and Terenzini (1991) offer that students’ academic achievement will increase based on their participation in service learning alone; however, the present study provides one of the first pieces of empirical evidence suggesting this is not the case for adult students.

In their review of literature, Eyler, Giles, Stenson, and Gray (2001) found that “the impact of service learning on student academic learning as measured by course grades or GPA is mixed” (p. 3). The authors note that some studies show a positive impact of service learning on academic learning (Gray et al., 1998; Markus, et al., 1993; Strage, 2000; Vogelgesang & Astin, 2000), while others show no difference in academic learning based on participation (Boss, 1994; Hudson, 1996; Kendrick, 1996; Miller, 1994; Parker-Gwin & Mabry, 1998). Overall, limited research examines service learning as it relates directly to grade performance for undergraduate students (Vogelgesang & Astin, 2000), making it difficult to draw inferences about the finding on the existing literature.

Despite limited research on the effects of service learning on GPA, a multitude of research supports the fact that GPA is a key component of adult students’ academic integration and is a strong predictor of adult students’ intentions to persist. For example, Cabrera et al. (1993) found that next to intent to persist, GPA accounts for the largest total effect on adult
student persistence. Similarly, Sandler (2002) found that cumulative GPA has an indirect effect on adult students’ intent to persist. In a study of commuter students, Belcheir and Michener (1997) found first-term GPA to be an important predictor for persistence. In addition, Mercer (1993) found GPA has a significant effect on female adult students’ persistence. Similarly, Leppel (2002) found that GPA positively impacts the persistence of both men and women. Thus, GPA is linked to several academic success outcomes for both male and female adult students.

The results of the present study indicate that service learning participation alone does not influence the GPA of adult students. Based on this finding alone, an argument does not exist for institutional administrators or faculty to implement service learning in courses having larger numbers of adult students. Similarly, this result alone suggests that adult students would not benefit academically from enrolling in service learning participation courses. To gain a clearer picture of the effects of service learning participation on adult students’ GPA, the effects of students’ background characteristics need to be explored. In fact, an interaction between gender, age, and service learning participation demonstrates that service learning participation affects adult student GPA differently for men and women of different age groups. Broadly speaking, this means that for particular groups of adult students, service learning may be an effective way of increasing academic achievement and integration into the college or university setting. The results and implications of the interaction between service learning, age, and gender are discussed following explanation of the impacts of service learning participation on adult student-faculty interactions.

**Does participation in service learning influence student-faculty interactions?**

While service learning participation alone is not sufficient for impacting adult student GPA, results suggest that service learning participation does have a significant influence on
adults’ interactions with faculty. LeBeau (2008) found that a relationship exists between service learning and student-faculty interactions for traditional-aged undergraduates. The present study provides the first piece of empirical evidence supporting a relationship between service learning and student-faculty interactions for adult students. Given interactions with faculty are one of the primary ways adults make meaning of their coursework and of their college experience (Donaldson & Graham, 1999; Kasworm, 1990; Kuh, 1993; Smith, 2008), this finding has important implications for adult student success as well as for the faculty with whom adults interact.

For adult students, interactions with faculty members are one of the most important aspects of the college experience. Faculty play an important role in helping students make connections between their education and their “real world of family, work, and community” (Kasworm, 2012, Slide 14). Such connections encourage student engagement and, at the same time, foster meaningful learning and strengthen students’ motivation to reach their goals. In turn, students become academically integrated and committed to the institution, have higher academic achievement, and increase their likelihood of persisting through graduation (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006; Tinto, 1975, 1993). In other words, adult students may be more successful as a result of enhanced interactions with faculty members.

Kuh et al. (2006) suggest student success is supported by a framework of multiple “paths” necessary for students to reach their degrees, including: students’ precollege experiences, students’ behaviors, and institutional characteristics. The authors define precollege experiences as “…the effects of academic preparation in K-12 schools, family background, enrollment choices, and financial aid and assistance policies on various dimensions of student success” (Kuh et al., 2006, p. 7). Student behaviors are defined as “…the time and effort students put into their
studies, interaction with faculty, and peer involvement” (Kuh et al., 2006, p.8). Finally, institutional conditions are defined as the “...resources, educational policies, programs and practices, and structural features” (Kuh et al., 2006, p. 8) necessary for helping students reach their goals.

Student engagement lies at the intersection of students’ behaviors and institutional conditions. Unlike precollege characteristics, student engagement can be directly controlled by students and the colleges or universities in which they attend (Kuh et al., 2006). In essence, student engagement promotes student success through a process in which institutions are responsible for offering appropriate and effective services and resources, and undergraduates are responsible for actively working toward their degrees. Defined in this way, adult student success fits well within Kuh et al.’s (2006) framework. Adults come to college ready to learn and they require effective services and available resources to meet their varying needs and life demands in order to be actively engaged in their coursework (Kasworm, 1990).

As a student behavior, student-faculty interactions play a key role in student success. In fact, student-faculty interactions are related to many of the same positive outcomes as student engagement and success. Kuh et al. (2006) define student success as:

...academic achievement, engagement in educationally purposeful activities,
satisfaction, acquisition of desired knowledge, skills and competencies,
persistence, attainment of educational objectives, and postcollege performance. (p.7)

Similarly, student engagement is related to outcomes such as: satisfaction, persistence, educational attainment, learning, and development (Kuh et al, 2006). Likewise, interactions with faculty are positively correlated with: academic achievement, student satisfaction, degree
attainment, and enrollment in graduate or professional school (Astin, 1978; 1993a; 1993b). Student-faculty interactions, student engagement, and student success go hand-in-hand.

Based on the results of the present study, service learning may be one pedagogical tool for increasing adults’ interactions with faculty and thus, their overall engagement and success as students. As described in Chapter Two, service learning adheres to all of Chickering and Gamson’s (1987) *Seven Principles for Good Practice in Undergraduate Education*, the first of which is: “Encourages contact between students and faculty” and the third of which is “Encourages active learning” (Chickering & Gamson, 1987, p.1). Based on Chickering and Gamson’s principles, service learning offers adult students a way to actively engage in the service learning experience by applying their past knowledge to new knowledge gained in the course and through their community service projects. At the same time, adults are able to reflect on their community service experiences and apply new information to their current work or life circumstances to gain meaning from their college coursework.

In addition, service learning encourages student-faculty interactions, particularly if faculty become immersed in the service learning experience alongside students (Braskamp et al., 2006). Kuh (2005) suggests that through service learning, students “…see more clearly and appreciate the connections between the university and the community while coming to know their faculty members and peers in more authentic ways by working closely with them over an extended period” (p. 204). As the present study indicates service learning participation increases adult student-faculty interactions, service learning could offer adult students a way to connect with some of the most influential people in their college experience (Wyatt, 2011). Given adult students’ limited time on campus already inhibits such interactions with faculty, finding ways to
connect faculty and adult students is of particular importance to the higher education community (Bean & Metzner, 1985).

In considering faculty as a key player in the “connected classroom” (Donaldson & Graham, 1999; Kasworm, 2012), the findings of the present study are important as faculty play a crucial role in helping adult students make connections between their prior experience and concepts learned in class. Faculty members that play a more active role in all students’ service learning experiences “break down barriers between students and faculty” (Braskamp et al., 2006, p. 186). Because faculty play such a key role in adult students’ college experiences, teaching techniques that reduce barriers are essential for maintaining student enrollment. Wyatt (2011) found that for students to be engaged in the classroom, students must like the instructor, course, or students, or they will participate only as needed or required. To enhance adults’ levels of engagement and satisfaction with the college experience, faculty must not only offer service learning opportunities but must also be active participants in the learning process (Braskamp et al., 2006).

Based on the results of the study and on the aforementioned literature, faculty members that incorporate service learning into their curriculum are poised not only to assist adult students in learning course material, but also to help students feel that their lives outside of school are important. As adults strive to balance their home and school life, thoughtful interaction on the part of the faculty member can make a considerable difference in adults’ motivation to persist. In other words, by being attentive to adult students, faculty members play a key role in helping students achieve their academic goals and feel that they matter to the institution (Schlossberg, 1989). Chickering and Gamson (1987) suggest that:

Frequent student-faculty contact in and out of classes is the most important factor in
student motivation and involvement. Faculty concern helps students get through rough
times and keep on working. Knowing a few faculty members well enhances students’
intellectual commitment and encourages them to think about their own values and future
plans. (p.3)

Faculty members can work closely with adult students and community agencies to establish
service learning projects that best meet the needs of the community agency as well as the needs
of the student, including the ability to work at different hours, in locations near their home, or in
settings that coincide with their prior experience or the experience they hope to gain (Largent &
Horinek, 2008). By strengthening connections with students through consideration of students’
diverse needs, faculty members allow adult students to feel comfortable in the classroom and to
gain the most meaning from their learning experiences (Kasworm, 2003b; Knowles, 1973).

In summary, finding that service learning has a significant effect on adult student-faculty
interactions is important for adult students and for faculty. Adult students who choose to enroll in
courses offering service learning may be able to expect to have greater interaction with their
faculty members, which could lead to a more positive college experience. In addition, the
findings are important for faculty members as faculty play a key role in adult students’
motivation and sense of belonging to the institution. At research institutions, in particular, which
tend to have smaller numbers of adult students (Kasworm, 2010), faculty need to be keenly
aware of the role they play in students’ lives and be flexible in allowing adults the opportunity to
craft their service learning projects in ways that take into account students’ prior experience. In
doing so, adult students will have a greater chance of succeeding and reaching their academic
and personal goals. In turn, faculty can feel more fulfilled and institutions will benefit from
greater financial success as more students persist through graduation.
Is the effect of service learning participation on each outcome different for adult students depending on their age group?

This study is the first to explore the role of service learning participation on adult students’ GPA and interactions with faculty based on age. The results suggest that service learning participation does not have a significant effect on either adult students’ GPA or student-faculty interactions based on students’ age. In other words, for adult students, service learning participation may have the same effect on grade performance or interactions with faculty no matter the age group into which students fall. Based on the answers to the previous two research questions, this means that a lack of higher grades or an increase in the frequency of student-faculty interactions can occur for adult students of any age. Knox (1977) suggests adult learning tends to level off with age; therefore, it is not surprising that GPA is not affected by aging. With respect to adult student-faculty interactions, the results are encouraging as adult students in any age group may interact with their professors and instructors as a result of participation in a service learning project. As described in the previous section, student-faculty interactions play a significant role in adult student success.

The study compares the effects of service learning participation on adult students’ GPA and student-faculty interactions for the following age groups: 25-29, 30-39, and 40 and older. To understand the results more fully, it is important to understand the development of adults as individuals in each age group. As described in Chapter Two, Smith (2008) offers that adult development typically includes six domains that are understudied, but could be applicable for adult student service learning, including: (1) Cognitive; (2) Moral, ethical, spiritual; (3) Social-emotional; (4) Physical; (5) Cultural and civic; and, (6) Vocational. While this and other models of human development may be applicable for understanding the results of the study, the prior
experience that adults draw on to make their coursework meaningful and the life contexts to which adults apply new material learned in courses are often founded on or are the result of major life transitions and experiences that come with age. Given the present study delineates the impact of service learning on adult student GPA and interactions with faculty based on specific age categories, the results are discussed in reference to theories of age development.

Some of the most significant work done on age development is that of Erikson (1968) and Levinson (1978; 1996). Based on Erikson’s and Levinson’s work, choices made at each life stage as well as at each transition between life stages contribute to adults’ development toward his or her life structure. Although Levinson’s and, primarily, Erikson’s work has been criticized for being dated, male-centered, overly generalized and complex, and essentialist (Barnett & Baruch, 1979; Evans, Forney, & Guido, 2010; Gilligan, 1982; Levinson, 1996; Rodgers, 1980), their perspectives appear to have implications for adult student enrollment and success as undergraduates. In addition, the frameworks established by Erikson and Levinson “...have had the most impact on work in higher education” (Mann, 1987, p. 22), making them suitable for understanding various nuances of age-related stages of development.

In the present study, the work of Erikson (1968) and Levinson (1978; 1996) is applied to adult students to provide a deeper understanding of the life experiences that may affect adult students’ college experiences and, ultimately, their decisions to persist or depart from institutions of higher education. This study uses the identity frameworks to understand the roles and responsibilities as well as the emotional and psychological changes that occur for adults at different ages and life transitions. Kasworm (2012) suggests staff and faculty that work with adult students need to be aware of and provide support for adult students’ identity and role changes. Thus, while the present study recognizes that adult development may not be as linear as
Erikson and Levinson suggest, the frameworks are used to offer a way of understanding adult students and to provide insight into the results of the study with respect to age.

Within Erikson’s framework, students in the aforementioned age groups would develop their identity through stages of Young Adulthood, Middle Adulthood, and Maturity. According to Erikson (1968), adult students in the 25 to 29 year old category as well as most of those in the 30 to 39 year old age group are in the identity development stage of Young Adulthood. Young adulthood occurs between the ages of 19 and 40, in which adults are in the stage of *intimacy versus isolation*. Young adults in this stage seek to build strong relationships with other people, with failure to do so resulting in isolation and loneliness. It is during this time that adults often marry and begin families, establish their careers, or both. In fact, research suggests that many adult students serve in the capacity of spouse or partner, parent, and worker while simultaneously being a student (Kasworm, 1990; Hadfield, 2003). Although the personal backgrounds of the adult students in the present study are unknown, the majority were between the ages of 25 and 39. According to Erikson, most students in the study, then, would be in the stage of intimacy versus isolation, establishing the work and family aspects of their lives while at the same time trying to reach their academic goals.

In the next life stage, Middle Adulthood, people aged 40 to 65 years experience the stage of *generativity versus stagnation*. Adults in this stage of life seek to make the world better for the next generation through productivity and creativity (Erikson, 1968). According to Erikson, “Generativity, then, is primarily the concern for establishing and guiding the next generation” (p. 138). Adults who feel they are unable to make a positive impact on the world for future generations become stagnant or uninvolved in their surrounding world and thus, unfulfilled. Many adult students enroll in college for reasons of personal fulfillment and making a difference
in the world. As Kasworm (2003) notes, for some adults, enrolling is a matter of proactive life planning in which adults are “…purposeful and proactive about creating change and seeking a new world of opportunities” (p.6). While adult students of any age could be entering for reasons of fulfillment, Erikson’s framework suggests the fulfillment may carry more powerful meaning for adults in the 40-65 year age range.

Finally, Erikson (1968) describes Maturity as involving the stage of ego integrity vs. despair. Erikson defines the attributes of integrity in the following way:

It is the ego’s accrued assurance of its proclivity for order and meaning – an emotional integration faithful to the image-bearers of the past and ready to take, and eventually to renounce, leadership in the present. It is the acceptance of one’s one and only life cycle and of the people who have become significant to it as something that had to be and that, by necessity, permitted of no substitutions. It thus means a new and different love of one’s parents, free of the wish that they should have been different, and an acceptance of the fact that one’s life is one’s own responsibility. It is a sense of comradeship with men and women of distant times and of different pursuits who have created orders and objects and saying conveying human dignity and love. (p. 139)

In Maturity, adults tend to either look back on their life in fulfillment or regret. According to Erikson, depending on whether adults are satisfied with their life, their feelings can either lead to a sense of acceptance of a fruitful life or to a fear of death. There were no students in the stage of maturity in the present study; however, adult students of any age may reflect on the quality of their life and the attainment of their goals, which could impact their college experiences.

Levinson (1978; 1996) builds on Erikson’s (1968) work to more clearly delineate adult behaviors and experiences with respect to age. Levinson (1996) rightfully notes that:
“[Erikson’s] view of the adult years from roughly 20 to 60, and of the two ego stages within them, provides a valuable starting point for the study of adult development, but much more is needed” (p. 26). According to Levinson (1978; 1996), adults in the present study are in the midst of early adulthood (17-45), middle adulthood (40-65), or late adulthood (60 and older). At each stage, adults have varying roles and responsibilities as well as psychological and emotional changes that stem from life experiences related to growing older (Levinson, 1978; 1996).

According to Levinson (1978), adult students in the 25 to 29 year old category of the present study would be considered as stepping into adulthood, “...[making] and [testing] a variety of initial choices regarding occupation, love relationships (usually including marriage and family), peer relationships, values and life style” (p. 57). These young adults are caught between exploring life without making strong commitments and creating a stable life for themselves that includes attending to new responsibilities. Levinson (1978) notes, “Finding a balance between these tasks is not an easy matter” (p. 58). For adult undergraduates, maintaining such a balance can be even more difficult as students have the added responsibility of negotiating coursework with the rest of their life demands.

Between the ages 28 and 33, adults experience the “Age Thirty Transition” (Levinson, 1978; 1996). In this transition period, life becomes more serious and many adults find themselves trying to make up for lost time in fulfilling their life goals and dreams. For men, in particular, the stress from a disruptive transition can lead to a developmental crisis (Levinson, 1978). Levinson remarks: “A developmental crisis occurs when a man has great difficulty with the developmental tasks of a period; he finds his present life structure intolerable, yet seems unable to form a better one” (p. 58). For other adults, the transition into their thirties is less difficult. Levinson (1978) states: “They modify their lives in certain respects, but they build
directly upon the past and do not make fundamental changes. It is a time of reform, not
revolution” (p. 58). The author (1978) notes that decisions adults make in the Age Thirty
Transition are critical for determining the success or hardship of the next period in their lives.
Choices adults make that align well with their goals and dreams establish a strong foundation for
life, whereas poor choices create a “seriously flawed” life structure (Levinson, 1978, p. 59). For
adult students, seeking to align goals and dreams is a reason why adults enroll in college
(Kasworm, 2003). Moreover, the challenges that occur at the Age Thirty Transition have the
potential to affect students’ decisions to enroll in or remain enrolled in college, depending on the
degree of hardship adults face as they progress toward middle adulthood.

Adults between 34 and 40 years of age experience a second life structure that Levinson
(1978; 1996) terms “Settling Down.” In this stage, “a man [or woman] seeks to invest himself [or
herself] in the major components of the structure (work, family, friendships, leisure, community
–whatever is most central to him [or her]), and to realize his [or her] youthful aspirations and
goals” (Levinson, 1978, p. 59). According to Levinson (1978; 1996), adults at this stage of
development seek to position themselves within society and to accomplish their goals and
dreams. They seek advancement in the world and move from junior to senior membership in
society (Levinson, 1996). Between the ages of 36 and 40, adults become their own person and
experience both rewards and challenges as a result of progressing to seniority within society.
Students in the 40 and older category experience a variety of changes in life structure that can
impact their decisions to persist or depart, including the “Mid-life Transition,” often referred to
today as the “mid-life crisis,” as well as other transitions similar to those in the younger years
(Levinson, 1978; 1996).
Changes experienced at the transitions between life stages are often the driving force behind adult students’ return to college as well as their decisions to persist or depart once enrolled (Aslanian & Giles, 2009; Weathersby, 1978). Weathersby (1978) notes, “some people seem to enroll in the middle of a life transition while others enroll in anticipation of changed life circumstances” (p. 20). Adults in transitional periods of life often seek redirection by enrolling in college; yet, in times of stability, students may enroll for purposes of gaining knowledge, skills, and personal enjoyment (Weathersby, 1978). For example, adults transitioning into Levinson’s (1978; 1996) Middle Adulthood may experience a major life event such as divorce or job loss and decide to attend college to gain a new perspective or to increase their earning potential.

Students in Erikson’s (1968) generativity stage of Middle Adulthood, on the other hand, may attend college in an effort to seek personal fulfillment by seeking new opportunities and making a difference in the world. Still for others, enrolling in college may be the result of a combination of experiencing a life change and hoping to make a positive difference in the world (Kasworm, 2003).

In addition to impacting their decisions to enroll in college, transitions in life stage or identity development continue to impact adult students as they progress toward their degrees. In the context of Erikson’s (1968) and Levinson’s (1978; 1996) frameworks of development, adults experience different values, relationships, and emotional, psychological, and situational changes that could ultimately impact their attitudes toward and involvement in higher education (Mercer, 1993). For example, because of increased responsibilities and multiple roles outside of being a student, adults often experience a variety of situational and dispositional barriers that affect their decisions to persist or depart (Fairchild, 2003). Situational barriers are those that involve emotional demands from trying to balance home and family life, finances, and job
responsibilities, such as: parental guilt about time spent away from children, stress from making ends meet, and reduction in spare time (Fairchild, 2003).

Dispositional barriers, on the other hand, are associated with increased demands from multiple roles, particularly for women (Fairchild, 2003). Examples include the constant juggling of multiple, competing demands (role conflict), lack of adequate time to meet various demands (role overload), and distraction from attempting to perform multiple tasks at the same time (role contagion) (Fairchild, 2003). Adults in the stages of Early Adulthood, in particular, may experience such strains as they strive to establish themselves and support their families (Levinson, 1978; 1996). For adult students of all ages and life stages, heightened responsibilities from holding multiple roles play a significant role in their enrollment and persistence decisions. Therefore, finding ways to improve adult students’ experiences while in college are important for retaining them through graduation.

The results of the study coupled with knowledge of Erikson’s (1968) and Levinson’s (1978; 1996) adult development frameworks suggest that service learning participation positively impacts interactions between adult students of any age with faculty members despite the fact that adults experience a variety of challenges as they transition from one life stage to the next (Erikson, 1968; Levinson, 1978; 1996). As described in the previous section, this means that adults in any age group may be more successful undergraduates if they participate in courses offering service learning. Research suggests service learning for all students promotes holistic student development and enhances the meaning of interactions with faculty by encouraging more in-depth and comprehensive interactions (Braskamp et al., 2006; Kuh et al., 2005). Given adult students’ integration and achievement are most heavily influenced by class-related learning and interactions with faculty, the results of the study are important for adult student success.
In addition, the results coupled with Erikson and Levinson’s work have implications for faculty members instructing courses that include adult students. Namely, faculty need to be aware of adult students’ multiple roles and responsibilities and be sensitive to the transitions students undergo as they develop as adults. In many cases, this may be challenging for faculty members, as adult students are often older than their instructors, making it difficult for the instructor to comprehend the challenges and responsibilities associated with aging. Interactions between adult students and their younger faculty members may not only be paramount for the student to succeed in the course and to feel that they matter to the institution (Schlossberg, 1989), but may also provide a learning experience for the faculty member. In these situations in particular, respect and patience are required on the part of the instructor as well as the on the part of the student to navigate what may be unfamiliar territory for both (Celli, 2008). Faculty who care about their students and who immerse themselves in the service learning experience may have a greater chance of helping adult students succeed (Braskamp et al., 2006).

Limited, if any, research examines the role that service learning plays on adult student development (Smith, 2008). Moreover, the present study is one of the first to apply Levinson’s (1978; 1996) and Erikson’s (1968) frameworks to adult student engagement and the role age plays in the relationship between service learning and GPA or student-faculty interactions for adult students. While the frameworks established by Erikson and Levinson are useful in understanding the results, it is also noted that, among the previously mentioned critiques, the works contain certain flaws that impede interpretation of the findings of the present study. For example, the frameworks suggest linear movement between identity stages; however, it can be argued that movement within the stages is more dynamic and that adult students may experience the attributes of one stage while being in an age category that corresponds to a different stage. In
addition, Erikson’s and Levinson’s frameworks tend to be based on western culture and fail to consider the development of adults from various cultural backgrounds. By failing to recognize the experiences of adults from all backgrounds and cultures, Erikson’s and Levinson’s models are biased and fail to provide an accurate understanding of all adults, and, in the context of the present study, an understanding of all adult students. Clearly, future research is necessary to better understand the ways in which Erikson’s and Levinson’s frameworks can be applied to adult student development and engagement.

As described in the next section, a potential link may exist between service learning participation and GPA based on age and gender. Therefore, although further research is necessary to more fully understand the impact of age on adult student engagement, the results of the study coupled with Erikson’s and Levinson’s stages of adult development may have potential links to the achievement of students of various ages and life stages, suggesting implications may exist for adult student development. Future research is necessary to more fully understand such a conjecture.

Is the effect of service learning participation on each outcome different for male and female adult students?

In contrast to the results for the previous research question, no significant effect of service learning participation was found for adult student-faculty interactions based on gender, except when race was considered. According to the results, white females who participate in service learning and non-white students who do not participate in service learning have more interactions with their faculty members. While the intent of the present section is to address the results of the study based on gender, overlap between the effects of race and gender clearly exists for the results related to student-faculty interactions. To help provide clarity in understanding the
findings, the results related to adult student-faculty interactions are discussed in the next section, while the remainder of the present section focuses on the results with respect to gender and GPA.

Analyses indicated that service learning participation significantly affects GPA differently for men and women and that service learning affects GPA differently for men and women of different age groups. Specifically, effects were seen for adults in the 25 to 29 age group and, more significantly, for those adults in the 30 to 39 age group. Simple effects analysis was non-significant for both sexes with respect to age, meaning a distinction could not be made to determine whether service learning participation more positively affects GPA for men or for women in each age group. The remainder of this section makes relevant connections between literature relevant to the results first as it pertains to gender and then as it pertains to age, followed by a discussion of the implications for adult students.

Understanding the ways in which service learning participation varies by gender for adult students is important, particularly as men and women have historically played different roles in service and as those historic roles remain conceptually similar to today (Damon-Moore, 2000). From an historical standpoint, women are at the heart of service and of the service learning movement in the United States (U.S.) while men have been less involved (Damon-Moore, 2000). Women have been recognized for their service to others since the 1700s. In particular, European women of privilege who settled in the U.S. in the colonial period formed the foundation of service by joining together to help those in need. Together, women in the 18th century established “…community institutions such as orphanages, homes for widows, schools, and poorhouses” (Damon-Moore, 2000, p. 56) making a difference in the public and “…filling critical gaps in the social structure” (p. 56). Additionally, African American women, and later European-American women, in the 19th century made major contributions to society by creating
antislavery groups, libraries, hospitals, kindergartens and other youth programs, and literary societies (Damon-Moore, 2000).

In addition to being an avenue for assisting others in need, service for many women was and remains to be an outlet for political and social reform (Walter, 2000). Unlike for men, service was often the only outlet privileged European-American women had for public participation (Damon-Moore, 2000). As noted by Damon-Moore (2000): “…[European-American] men of privilege, who had more outlets for public activity, were less likely to give time than money to others and were more likely to come together for ritualistic rather than service reasons” (p. 56). African American men volunteered less than women as well, although for reasons of devaluation and exclusion from society as opposed to reasons of increased public and civic opportunities (Damon-Moore, 2000). Today, service remains an important aspect of and a motivational tool for women’s political involvement (Walter, 2000). In addition, the gender differences in service seen two centuries ago are reflected in today’s service learning participation, with more women participating in service learning than men (Astin, et al., 2000; Damon-Moore, 2000). Clearly, women’s history plays a key role in contemporary service learning, making gender an important aspect of service learning that needs to be considered in studies of civic and student engagement, including the present study.

Although limited research exists regarding the impacts of service learning on adult student GPA, the results of the study coincide with research showing that service learning is positively linked to academic achievement for all undergraduates (Astin, 1993b). While Pascarella and Terenzini (1991) suggest that students should have higher academic achievement based on their participation in service learning projects alone, results of the present study indicate that for adult students, impacts on academic achievement occur only when considering
an interaction between service learning participation, age, and gender. In particular, adult students between the ages of 30 and 39 and, to a lesser extent, adults aged 25 to 29 who participate in service learning at some level have higher GPAs than students in the 40 and older age group.

According to Levinson (1978; 1996), adults in the present study are in the midst of early adulthood (17-45), middle adulthood (40-65), or late adulthood (60 and older). Adults in the 25 to 29 year old category are entering a stage of life in which they are establishing relationships, creating their own family structure, and becoming more stable adults (Levinson, 1978). Students in the age group of 30 to 39 are experiencing transitions between younger adulthood and middle adulthood, with older students beginning to settle into their own position in life and actualize their goals and dreams (Levinson, 1978; 1996). Students in the earlier ages of the 40 and older category complete the transition into middle adulthood, often with mid-life crises that involve major life changes. As adults continue to age, they experience similar transitions and growing experiences that lead them to acceptance (or rejection) of the life they have lived.

The results of the study suggest that men and women in the two younger age categories tend to have higher GPAs than those in the 40 and older category. According to the National Service-Learning Clearinghouse (2012b) service learning provides students with positive, meaningful, and real-life experiences that promote teamwork, community involvement, and citizenship. In addition, service learning experiences are personally meaningful to students and encourage higher thinking that challenges and strengthens values thereby impacting the community at large (National Service-Learning Clearinghouse, 2012b). While it may seem that, based on the descriptions of Levinson’s (1978; 1996) and Erikson’s (1968) life stages, college students over the age of 40 may benefit more from service learning experiences based on these
characteristics of service learning, the present study finds that younger adults are more positively affected. As younger students are more focused on balancing their roles and responsibilities, it is possible they tend to focus more on their academics, as opposed to trying to impact the world, and therefore have higher GPAs. It is also possible that service learning provides adult students with a sense of stability by allowing them to utilize their previous knowledge and apply information to their current life. Through such stability and interaction with course material, adult students may learn better and have higher GPAs, potentially leading to greater academic integration and retention through graduation.

As faculty members seek ways to assist adult students in achieving their academic goals, it is important that faculty consider adults’ development and recognize that the experiences adults bring to the classroom and the meaning that adults apply to their coursework are based on their experiences of progressing through various life stages and transitions (Aslanian & Giles, 2009; Weathersby, 1978). Adults’ contextualization of material learned in class to their own life drives development of metacognitive skills that impact their motivation to succeed (Donaldson & Graham, 1999; Justice & Dornan, 2001; Richardson, 1994, 1995). Based on the results of the present study, faculty may play a particularly important role in assisting students in the 25-39 year age range with forming connections between their life and their coursework. More research is necessary to better understand the effects of age and gender on the interaction between service learning and adult student-faculty interactions in order to have the most complete picture of adult student development and success and to assist faculty in understanding their role in helping adult students achieve their academic goals.
Is the effect of service learning participation on each outcome different for white and non-white adult students?

Results suggest that there is no significant effect from an interaction between service learning participation and race group on either GPA or on Student-Faculty Interactions. When an interaction between service learning participation, race, and gender is considered, however, there is a significant effect on adult student-faculty interactions. The results show that the simple effect of gender is significant for non-white students who do not participate in service learning, but that the simple effects of race are significant for females participating in service learning. More specifically, non-white adults who do not participate in service learning may have more interactions with faculty, whereas interactions with faculty may be more likely for white female adult students who participate in service learning. As described in the next sections, both findings are grounded in the literature on student engagement, particularly the latter finding. Given the key role student engagement plays in academic integration, the study has implications for adult undergraduate success.

Findings with respect to race, gender, and service learning participation as they relate to interactions with faculty are grounded in the literature on student engagement. For example, a study conducted by Kim and Sax (2007) examined the effects of three types of student-faculty interactions across five outcomes, exploring whether the effects of each interaction differed by race, gender, social class, and first-generation status. Among other findings, the study found that student-faculty interactions vary across racial subgroups. Namely, the authors found that student-faculty interactions improve Latino, Asian American, and White students’ cultural appreciation and self-awareness as well as Asian American and White students’ critical thinking and communication (Kim & Sax, 2007). The authors also found that students in all racial subgroups
who assisted faculty in research with course credit had higher GPAs, degree attainment, and integration. The effects of increased GPA were “...more pronounced for African American students than Latino, Asian American, and White students” (Kim & Sax, p. 10). Similarly, the impact of the research experience on higher degree aspirations “...is stronger for White students than Asian American students,” and the research experience “has a significant and positive impact on student integration for Asian American and White students only, and on gains in critical thinking and communication for Latino and White students only” (Kim & Sax, p. 10). Based on the results of Kim and Sax’s study, students may experience different outcomes of engagement depending on their racial group.

In addition to students’ race being a factor in undergraduate engagement and student-faculty interactions, the race of the instructor may play a role in shaping student-faculty interactions (Lundberg & Schreiner, 2004). Research suggests that students from both white and non-white groups tend to interact more with faculty members who share their same racial background, with the quality and quantity of such interactions playing a key role in students’ satisfaction and success (Lundberg & Schreiner, 2004). In addition, certain groups are more likely to share information with faculty members of their own race, particularly White, African American, and Mexican American students (Lundberg & Schreiner, 2004; Noel & Smith, 1996). Although non-white students tend to have a more difficult time initiating contact with faculty, they also typically spend more time with faculty members (Lundberg & Schreiner, 2004). Given the majority of faculty members at college campuses are white (NCES, 2011), the role faculty members play in student-faculty interactions may have significant implications for the engagement and success of non-white and white students.
Research on service learning suggests that white privilege is a factor that needs to be addressed, as service is often provided to people of color who live in low-income environments by middle or upper class white students (Green, 2001; 2003). Such an imbalance in race, and often class, has implications for the ways in which adult students and faculty members approach service learning. Green (2003) suggests that:

If service-learning takes place, as it often does, when mostly white students at predominantly white institutions serve mostly poor people of color in urban settings, then teachers of service-learning need to reflect on how whiteness and class privilege function in the service-learning paradigm. (p. 277)

Green (2001) suggests faculty play a key role in facilitating students’ understanding of their own racial identities and the ways in which identity plays a role in students’ service learning experiences. By combining in-depth reflection activities and intentional conversations in the classroom about race, faculty can push students to think more critically, develop appreciation for members of other racial backgrounds, and consider ways of reducing bias in their service and in society overall. Green (2001; 2003) asserts that students should be encouraged to tell difficult stories from their service experiences to help reduce the impacts of racism and white privilege and to acknowledge differences in class that can affect students’ self-perceptions. By encouraging reflection and by having intentional conversations in the classroom that are directed toward understanding race and privilege, faculty can aid in students’ identity development and strive to diminish social and economic injustices.

Green’s (2001; 2003) work has important implications to the present study, as over 60 percent of the students are white and race was found to be an important factor in the effect of service learning on adult student-faculty interactions. Adults, and particularly females, engaging
in service learning projects may benefit not only from a better understanding of their coursework through reflection, but such reflection may help adults see and address injustices and be more civically engaged (Green, 2001; 2003). In turn, faculty and adult students may be able to engage in more advanced discussions that stimulate critical thinking about race, class, and racial identity. According to Green (2001), “it is absolutely important to talk about the intersections of race, class, and service in order to prevent service-learning from replicating the power imbalances and economic injustices that create the need for service-learning in the first place” (p. 18). Faculty and students must work together to avoid the unintentional perpetuation of power imbalances that service learning is designed to minimize.

Similar to race, the importance of women’s interactions with faculty are grounded in the student engagement literature. For example, Kuh (2003) and Kuh et al. (2006) report that women are one group that is somewhat more engaged than other undergraduates. In their review of literature, Kuh et al. (2006) found that first-year and senior women at women’s colleges, in particular, have higher levels of academic challenge, more active and collaborative learning, more interaction with faculty members, and more diversity-related experiences (p. 39). Similarly, Kinzie et al. (2007) suggest that women’s engagement differs greatly from the experiences of men with respect to various aspects of the college experience, such as perceptions of the learning environment, types of educationally purposeful activities in which undergraduates participate, and interactions with faculty. For example, Kinzie et al. (2007) found that women at four-year, baccalaureate-granting institutions tend to have more gains in critical thinking, an educationally purposeful activity.

Research regarding the effect of gender differences on student-faculty interactions is limited and mixed (Kinzie et al., 2007). Yet, at least two studies suggest student-faculty
interactions affect men and women differently. Sax, Bryant, and Harper (2005) examined the effects of student-faculty interactions on students’ achievement, goals, self-confidence, well-being, and attitudes. In particular, their study examined gender differences in the frequency of faculty interaction and the impact of involvement with faculty. Sax et al. (2005) found that: “Women generally reported more frequent and more positive interactions with their faculty than did men” (p. 646). Additionally, the authors found that faculty feedback plays an important role in undergraduate women’s self-rated physical health, math ability, and degree aspirations (Sax, Bryant, & Harper, 2005).

The results of the study suggest that service learning may be one effective pedagogical practice for increasing white, female adult undergraduate’s interactions with faculty. For all undergraduates, service learning participation gives students a deeper sense of self-awareness and uses coursework and community involvement to engage students in problem-solving, critical thinking, teamwork, and civic engagement (Eyler & Giles, 1999; Vogelgesang & Astin, 2000). For adult students, such aspects are necessary for a positive, successful college experience. In fact, adults gain the most from their college and classroom experiences when they can apply their coursework to real-life settings, derive meaning from the learning experience through reflection, and utilize the classroom experience as a foundation for interacting with faculty and peers (Donaldson & Graham, 1999). The results of the study coupled with studies of race and gender as it pertains to student engagement imply that white women of any age group may be able to increase their sense of integration and belongingness to the institution by participating in service learning. In addition, through service learning, female adults may have the opportunity to enhance their learning and development by being immersed in a setting that promotes self-awareness, critical thinking, and civic mindedness and, at the same time, meets students’ and
faculty members’ expectations for high academic standards (Kim & Sax, 2007; Sax, Bryant, & Harper, 2005).

While the results suggest that service learning participation may enhance the frequency of white adult female’s interactions with faculty members, the results also suggest that non-white students who do not participate in service learning may have increased interactions with faculty. Although the intersection between race, gender, and service learning participation needs to be further explored to understand this result, the finding is somewhat supported in the literature. One explanation for the result could be the mere fact that non-white students tend to participate in service learning less than white adult students (Green, 2001; 2003). A similar, though less plausible explanation could be that it is possible that students who are not white are already interacting more with their faculty members than white students, meaning non-white students naturally have a greater propensity for interacting with their faculty members (Lundberg & Schreiner, 2004). This does not adequately address the result, however, as based on such logic, non-white students would also have increased interactions with faculty if they participated in service learning, which the study did not find. Additionally, it is possible that faculty race played a role in shaping adult students’ interactions with faculty; although, this result is inconclusive because faculty members’ race was not identified or considered as part of the NSSE administrations. Overall, the finding that non-white students who do not participate in service learning tend to have greater interactions with faculty members is perplexing and needs to be explored in future research.

Given the results of the study, faculty members should be more aware that their interactions with white, female students, in particular, may help improve student learning and engagement. Regardless of race, faculty provide women “...with intellectual challenge,
stimulation, and respect” (Sax, Bryant, & Harper, 2005, p.646). Moreover, the feedback female undergraduates receive from faculty play a key role in their academic achievement and motivation. Women who receive honest, constructive feedback from faculty members tend to have better physical and emotional health as well as increased academic performance and motivation to achieve their goals (Sax, Bryant, & Harper, 2005). For adult students, faculty feedback is necessary for a successful college career, as adults utilize timely, thoughtful feedback to improve their academic performance, which ultimately leads to attainment of their educational goals (Fogarty & Pete, 2004; Knowles, 1973). The findings of the present study suggest that faculty can enhance their opportunities to provide meaningful feedback to adult students, and to white females in particular, through incorporation of service learning. Additionally, the findings coupled with literature on race and student-faculty interactions suggest that the quality as well as the quantity of interactions faculty have with students are necessary, particularly for non-white students (Lundberg & Schreiner, 2004).

The findings with respect to race and gender are difficult to navigate not only because of the degree of overlap between the results, but also because race and gender are complicated issues in and of themselves. Yet, as women make up the majority of nontraditional students and typically participate in service learning more than men (Astin et al., 2000), the role of gender in studies of adult student engagement, and particularly those of service learning, is necessary to explore. Similarly, given the issue of white privilege and the fact that more white students tend to participate in service learning (Green, 2001; 2003), race cannot be ignored in studies of adult student engagement. The present study aims to understand the effects of race and gender as background characteristics of adult students that may impact or explain adults’ academic experiences (Kuh & Pascarella, 2004). The study only begins to address the issues of race and
gender with respect to adult students’ experiences. As more is known about the effects of service learning on adult students, future research can begin to explore and better understand the implications of race and gender on adult student engagement and success.

**Theoretical Considerations**

As the number of adult students enrolling in and departing from institutions of higher education continues to rise, it is necessary for faculty and staff on college campuses to find effective methods of retaining this group of undergraduate students. Research institutions, in particular, must find ways of engaging adults, as adults in these institutions are typically enrolled with higher credit loads so they can obtain a degree in a shorter amount of time, making it more difficult to balance their multiple roles as worker, caretaker, and student (Compton, Cox, & Laanan, 2006; Kasworm, 2010). Although adult students find ways to compensate for their limited time on campus and, thus, their lack of campus involvement (Donaldson & Graham, 1999), research suggests that a need exists “…for institutional leaders to design effective educational practices and strategies to engage the nontraditional student, particularly in the area of volunteer service” (Wyatt, 2011, p. 14). The results of the present study suggest service learning may be one practice that could be implemented to engage adult students through the incorporation of volunteer service.

Overall, the study provides the first pieces of empirical evidence supporting the fact that service learning may positively affect adult students. Results indicate that service learning participation alone does not significantly affect adult student GPA, but that service learning participation alone does significantly influence adult student-faculty interactions. More in-depth analyses suggest that service learning participation influences adult student GPA differently for men and women in the 25-29 and 30-39 age groups. Given Erikson’s (1968) and Levinson’s
frameworks of adult development, the study may have implications for understanding adult students’ experiences with respect to their development as individuals. Analyses also indicate that adult student-faculty interactions are increased by participation in service learning, particularly for white, female adults. In fact, the implications for adult students with respect to student-faculty interactions are perhaps the most interesting findings of the study. More research is needed to understand the finding that a lack of service learning participation significantly affects non-white adult students as a whole, as the finding is not firmly grounded in the literature.

The study suggests that service learning may be one pedagogical practice that could lead to greater academic integration for adult students. In particular, the finding that service learning participation affects adult student-faculty interactions is interesting with respect to theories of student engagement and success. Service learning and student-faculty interactions are two forms of engagement that have been linked to academic achievement, retention, and persistence for undergraduates of all ages (Kuh, 2006). For adults, in particular, interactions with faculty and class-related learning are the most important aspects of the college experience (Donaldson & Graham, 1999). Institutions that can find ways to academically integrate adult students and help them feel connected to their learning experience and to the university will be more successful in retaining adult students through graduation (Cleveland-Innes, 1994; Kasworm & Pike, 1994; Miller Brown, 2002; Tinto, 1975). In turn, adult students can attain their educational goals, while at the same time having grown and developed as individuals. Based on the results of the study, adults who participate in service learning have the potential to be more academically successful as a result of increased interactions with faculty members. Although the study suggests service learning participation may more significantly affect white women, solely encouraging white
women to participate in service learning only perpetuates the status quo. Therefore, institutions need to seek ways of engaging all adult students regardless of their background characteristics.

To be complete, theories of student success need to focus on the entire undergraduate population. Yet, many studies aimed at building such theories fail to recognize the unique characteristics of adult students and the fact that adults have different roles, responsibilities, and experiences that affect their success as students (Erikson, 1968; Kasworm, 2003; Levinson, 1978; 1996). The present study offers a starting point on which future studies can begin to build a theory of adult student engagement and success, with implications for theories of adult student development. While many studies have explained the characteristics of adult students and the ways in which adults’ backgrounds and life experience impact their success (e.g., Hadfield, 2003; Fairchild, 2003; Kasworm, 1990; 2003), few examine the ways in which adult development affects engagement in the classroom or how engagement affects adult student success, particularly with respect to service learning (Smith, 2008). The present study begins to address that gap. As adult student engagement leads to academic integration (Kuh, 2006) and academic integration leads to persistence for adult students (Sandler, 2002), finding that service learning may affect adult student-faculty interactions could mean that adults enrolled in service learning may experience greater success as undergraduates. Understanding the ways in which service learning may play a role in the adult undergraduate experience has significant implications for adult students, faculty, and administrators. Recommendations for each of these three groups are described in the next section.

Limitations

The primary limitations of this study are (1) that it was conducted at a research institution that has at the focus of its services, programs, and curricula the traditional-aged student, (2) that
the data used in the study was only from students at the Pullman campus, and (3) that small, varying numbers of responses were available per level of service learning, such that only two groups could be compared. The first limits the study in understanding the effect of service learning on adult undergraduate students at different types of institutions. Because of the second limitation, the experiences of students at the regional campuses were not examined, which could have impacted the results, particularly as a larger portion of students at the regional campuses is likely to be over age 25. Finally, the limited number of responses per level of service learning prevented interpretation of the results to determine how varying levels of participation in service learning may affect GPA or student-faculty interactions. Despite these limitations, however, sufficient data was available to examine the effects of service learning on adult student academic achievement and student-faculty interactions and to generalize to other public, four-year research institutions.

**Recommendations**

While the study has implications for adult student engagement and success, it should be noted that the practical significance of the results was small. Therefore, additional research is needed before drawing major inferences or making significant changes to policies or programs. Based on the statistical significance of the results, however, some recommendations are offered for administrators, faculty, and adult students with respect to incorporation of service learning as a pedagogical tool to increase adult student achievement, engagement, and success. The recommendations are based on an understanding of the data and of the supporting literature, as described in the previous sections of this chapter and throughout Chapters One and Two.

**For Administrators**

Based on the results of the study, it is advisable for administrators at research institutions to at least consider the ways in which adult students are being supported in their educational
endeavors and to identify the current structures in place to support service learning as a pedagogical practice. Faculty and staff need the resources to adequately support adult student service projects and to sustain service learning as a routine practice. Administrators should assess the current service learning program structure and make design changes as necessary that better enable all students to have productive service learning experiences. The work of Largent and Horinek (2008) suggests such a re-design may have significant implications for all students and particularly for adults. Enhancing connections within the community would allow for more readily available service opportunities that could be geared toward adult students’ needs. Strengthening ties to the community would also help anchor the institution in the community (The Netter Center for Community Partnerships, 2008) and open the door for students seeking employment in the community post-graduation.

**For Faculty**

As key players in the connected classroom (Donaldson & Graham, 1999), faculty who instruct adult students need to consider the various backgrounds and experiences that may affect adult students in the classroom. Consideration of adults’ life stages (Erikson, 1968; Levinson, 1978; 1996) may provide faculty with insight as to adults’ reasons for taking a particular course, participating in certain ways, or desiring certain types of service learning experiences. Service learning affords men and women the opportunity to work alongside community members to fill needs, break stereotypes, challenge society, and advocate for important causes (Walter, 2000; Ward & Wolf-Wendel, 2000). Faculty should work closely with community agencies to help adults build a service learning experience that is tailored to his or her needs, time allowances, and abilities to achieve such outcomes. For students of any age, tailoring of service experiences may be beneficial for student development and meaning making. As a result, communities will
also benefit from having students who have a stake in the service experience (Eyler & Giles, 1994). In addition, faculty should recognize that many adults are community members benefiting from service (Smith, 2008). In such cases, it is important that faculty work especially close with adults and community members to help both feel fulfilled. Most importantly, faculty need to be sensitive to the needs of adult students and provide adults with a learning environment that encourages open discussion, sharing of previous experiences, and learning of relevant material. In doing so, faculty will be more satisfied and adults will be more successful.

For Adult Students

Adult students who choose to enroll in courses that have a service learning component may experience a variety of positive outcomes. Adults are responsible for being open to service learning experiences and to working closely with faculty and community agencies to design service learning experiences that meet their needs as well as the needs of the community. In addition, adults need to be proactive and act as advocates in situations in which faculty are resistant to allowing such personalized experiences. Based on the results of the study, male, non-white students may need to find alternative ways to interact with their faculty. For these students, service learning participation may not lead to increased academic engagement or integration as it might for white females. In addition, the findings suggest that men and women aged 25-39 may find that service learning participation increases their academic achievement. Therefore, adults in these age groups in particular are strongly encouraged to enroll in courses with a service learning component. Students in the 40 and older age group may need to find other ways of increasing or maintaining their GPA, which may lead to increased persistence. As institutions and faculty strive to learn more about the undergraduate population, the primary recommendations for adult students are to make their voices known, to share their needs with administrators and faculty, and
to remain enrolled through graduation to achieve their academic and personal goals. Doing so will result in success for all involved.

For Community Agency Personnel

While the study focuses on the importance of service learning for adult students, faculty, and administrators, it is recognized that community agency personnel play a significant role in service learning experiences. For adults in particular, communication with community agency personnel is important for a successful service learning experience (Largent & Horinek, 2008). Community agencies can work closely with college and university faculty and administrators to make service opportunities known and available for inclusion in service learning courses. In addition, community agency personnel can work closely with adult students to better understand adults' previous life experiences, including past service, that may positively impact adults' service experiences and assist them in drawing meaningful inferences to their coursework. Community agency personnel may also need to be aware of and sensitive to any external constraints that may be impacting adults' abilities to complete service in a timely manner, particularly for those adults who hold multiple roles outside of being a student. In cases in which adults' time is limited, it may be necessary for the student and the community agency to compromise and find ways to formulate service experiences that have meaning for the adult student as well as for the community agency. As with many of the recommendations listed above, such practices may be useful for all undergraduate students, whether they are traditional- or non-traditional- aged. Overall, future research is necessary to understand the role community agency personnel play in adult students' service experiences. The next section offers additional suggestions for future research.
Future Research

Future research is essential to gaining a more complete picture of the effect service learning has on adult students. First, it is necessary to establish a suitable measure of service learning for understanding undergraduate’s experiences and particularly those of adult students. In the present study, one item on the NSSE was used to measure service learning, making it difficult to capture the entire essence of service learning. Yet, because of the complexity of service learning, clearly identifying items that describe service learning is challenging. While the NSSE instrument is a strong measure of student engagement, the survey is limited in its use for studying service learning. Future research should identify more effective measures of service learning or utilize an instrument that is more focused on service learning to best understand how service learning affects adult students. If such an instrument does not exist, one should be created.

At the student level, future studies need to consider in greater depth and dimension how race, gender, and class affect the relationship between service learning, student-faculty interactions, and GPA. As previously mentioned, race and gender are complex issues that need to be further explored as more is learned about service learning for adult students. Moreover, research suggests the intersection of race and class may impact the ways in which service learning is experienced and conducted. For example, students participating in service learning projects are often white and from middle or upper class families while the recipients of the service are often from poor, non-white urban communities (Green, 2001; 2003). Research also suggests potential differences based on class, or socioeconomic status, in the reasons why students, particularly women, volunteer (Damon-Moore, 2000; Walter, 2000). Therefore, future research needs to examine how class or socioeconomic status may affect the results.
In addition, future research using data from WSU or from other institutions should explore how service learning varies by age group using Levinson’s (1978; 1996) and Erikson’s (1968) stages of life development. The present study uses age categories that coincide with current studies of adult student research (i.e. Newbaker, 2012). As described in Chapters Two and Five, service learning has implications for adult student development; however, further research is needed to better understand the ways in which service learning impacts adults at various ages. The results of the study suggest that age plays an important role in the relationship between service learning and adult students’ academic achievement and engagement. Additional research is needed to better understand the ways in which age plays a role in student success. More research is also needed on the differences in GPA and adult student-faculty interactions with respect to service learning and gender.

Future research could focus on student-faculty interactions as one measure, as in the present study, or it could examine the relationship between service learning participation and individual aspects of adult student-faculty interactions, such as communication via email, research conducted with professors, or interactions occurring outside of class, to more clearly understand the effects of life stage on adult student-faculty interactions. Studying an interaction between service learning participation and student-faculty interactions based on ages specific to life stages may inform practice to help faculty and administrators identify additional ways of retaining adults through graduation and may help adults more successfully attain their academic goals.

While the present study offers some of the first empirical evidence showing positive effects of service learning on adult student GPA and interactions with faculty, more research is needed regarding the effects of service learning participation on both outcomes. In addition,
research is necessary that focuses on the connections between GPA, student-faculty interactions, and other academic outcomes. Rosenthal, Folse, Alleman, Boudreaux, Soper, and Von Bergen (2000) suggest that much of the research on student-faculty interactions focuses on how student-faculty interactions can be enhanced, but that most research fails to link to student-faculty interactions to academic outcomes. More specifically, future research should focus on how service learning impacts academic integration, retention, and persistence for adult students as these areas are understudied from an empirical standpoint and have important implications for students as well as for institutions. The role of the institution in advancing service learning for adult students should also be explored, as student engagement is the result of cooperation between students and the institutions in which they attend (NSSE, 2011a).

More broadly, future research needs to focus on how service learning affects adult students at different institutional types. The present study focuses on adult students at a public, predominantly white, research-extensive institution. Ward and Wolf-Wendel (2000) suggest that special-focus colleges and universities (SFCUs) “…dedicated to serving the needs of students from racial and ethnic minority groups” (p. 768) integrate service and service learning into their mission and curriculum differently than predominantly white institutions. Research also suggests that the engagement experiences of female and male students of various races are different based on institutional type (Kuh et al., 2006). Given the results of the present study, the impacts of service learning on adult students should be explored at all-women’s or all-men’s colleges, Historically Black Colleges and Universities (HBCUs), Hispanic-Serving Institutions (HSIs), and other special-focus institutions as well as at Predominantly White Institutions (PWIs). Additionally, future research needs to examine the effects of service learning participation on adult students at public and private two- and four-year institutions to gain a more complete
picture of the effect of service learning on adult students. Research institutions have fewer adult
students, making it difficult to fully understand the role service learning plays in adults’ college
experiences. Future research at WSU could examine the effects of service learning participation
at the regional campuses, which tend to have more adult students than the main campus in
Pullman. Future research should also focus on differences in academic achievement or student-
faculty interactions based on quality of the service learning programs offered at different
institutions.

Because little is known about service learning and the adult student, the fields of adult
student development and student success may benefit greatly from deeper exploration into the
essence of service learning to establish a theoretical foundation for adult student success before
future studies are conducted. For example, an in-depth phenomenological study to get at the
essence of service learning and the role it plays for adult students would provide a vast amount
of knowledge and would strengthen theories related to service learning and adult students. At
the very least, interviews and focus groups or a mixed methods approach are necessary for
gaining more in-depth information about the adult student experience with respect to service
learning and its effects on adult students. It is evident from the present study that service learning
may affect adult students. Future research can help clarify the effects that occur on multiple
student outcomes and build a stronger foundation for adult student success.

Summary

As the population of undergraduates gradually shifts to include larger numbers of adults
over the age of 25, it is necessary for institutions of higher education to find ways to foster adult
student success. This study aims to provide better understanding of the effects of service learning
on adult student academic achievement and adult student-faculty interactions in an effort to
increase adults’ engagement and academic integration. The study uses an ex-post facto design to
examine archival data from the 2004, 2006, 2008, and 2010 administrations of the National Survey of Student Engagement at Washington State University - Pullman. Results of a Factorial Analysis of Variance (ANOVA) show that service learning participation alone does not significantly affect adult student GPA, but that service learning participation does significantly affect adult student-faculty interactions when age group, race group, and sex are not considered. Further analyses suggest that service learning participation influences both adult student GPA and adult student-faculty interactions when interactions between service learning participation, age group, race group, and sex are considered.

The study addresses a small piece of the student departure puzzle (Braxton, 2000) by providing a deeper understanding of how service learning affects adult students. The student departure puzzle is a complicated one to solve and complete. The goal of the research presented throughout this dissertation is to try and more fully address the role that service learning and student-faculty interactions play in the academic lives of adult undergraduate students. Based on the results, faculty and administrators may be able to look to service learning as a way to engage adult students and enhance adults’ college and learning experiences. As adults encounter many challenges to their decisions to persist through graduation, it is important to find ways to improve their engagement and academic integration. Given the importance of understanding student learning and development, and, in particular, that of adult student populations, the results provide an important first step toward building and expanding the knowledge base and theoretical foundation to foster adult student engagement and success.
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APPENDIX A

NSSE Benchmarks
<table>
<thead>
<tr>
<th>Construct</th>
<th>Items</th>
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| Level of Academic Challenge (LAC)     | ▪ Time spent preparing for class (Studying, reading, writing, rehearsing, and other activities related to your academic program)  
  (11 items)  
  ▪ Worked harder than you thought you could to meet an instructor’s standards or expectations  
  ▪ Number of assigned textbooks, books, or book-length packs of course readings  
  ▪ Number of written papers or reports of 20 pages or more  
  ▪ Number of written papers or reports between 5 and 19 pages  
  ▪ Number of written papers or reports fewer than 5 pages  
  ▪ Coursework emphasizes: Analyzing the basic elements of an idea, experience, or theory  
  ▪ Coursework emphasizes: Synthesizing and organizing ideas, information, or experiences  
  ▪ Coursework emphasizes: Making judgments about the value of information, arguments, or methods  
  ▪ Coursework emphasizes: Applying theories or concepts to practical problems or in new situations  
  ▪ Campus environment emphasizes spending significant amounts of time studying and on academic work |
| Active and Collaborative Learning (ACL) | ▪ Asked questions in class or contributed to class discussions  
  (7 items)  
  ▪ Made a class presentation  
  ▪ Worked with other students on projects during class  
  ▪ Worked with classmates outside of class to prepare class assignments  
  ▪ Tutored or taught other students  
  ▪ Participated in a community-based project as part of a regular course  
  ▪ Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.) |
| Student-Faculty Interaction (SFI)     | ▪ Discussed grades or assignments with an instructor  
  (6 items)  
  ▪ Talked about career plans with a faculty member or advisor  
  ▪ Discussed ideas from your readings or classes with faculty members outside of class  
  ▪ Worked with faculty members on activities other than coursework (committees, orientation, student-life activities, etc.)  
  ▪ Received prompt written or oral feedback from faculty on your academic performance  
  ▪ Worked with a faculty member on a research project |
| Supportive Campus Environment (SCE)   | ▪ Campus environment provides support you need to help you succeed academically  
  (6 items)  
  ▪ Campus environment helps you cope with your non-academic responsibilities (work, family, etc.)  
  ▪ Campus environment provides the support you need to thrive socially  
  ▪ Quality of relationships with other students  
  ▪ Quality of relationships with faculty members  
  ▪ Quality of relationships with administrative personnel and offices |
| Enriching Educational Experiences (EEE)| ▪ Talking with students with different religious beliefs, political opinions, or values  
  (12 items)  
  ▪ Talking with students of a different race or ethnicity  
  ▪ An institutional climate that encourages contact among students from different economic, social, and racial or ethnic backgrounds  
  ▪ Using electronic technology to discuss or complete assignments  
  ▪ Participating in:  
    - Internships or field experiences  
    - Community service or volunteer work  
    - Foreign language coursework  
    - Study abroad  
    - Independent study or self-assigned major  
    - Culminating senior experience  
    - Co-curricular activities  
    - Learning communities |
APPENDIX B

Curriculum Vita
CURRICULUM VITA

Jennifer E. LeBeau

Washington State University
Department of Educational Leadership and Counseling Psychology
Learning and Performance Research Center
Pullman, WA  99164-2136
(509) 335-8394 (W)
jlebeau@wsu.edu

EDUCATION

Washington State University, January 2009 – present. Candidate, Doctor of Philosophy in Education with emphasis in Higher Education Administration, cognate in Educational Psychology. Dissertation: Service Learning and the Adult Student: Implications for Academic Achievement.


University of Idaho, August 1997-May 2001. Bachelor of Science degree, Biology

PROFESSIONAL EXPERIENCE

August 2008 to present  Washington State University, Educational Leadership and Counseling Psychology
Graduate Research Assistant, Dr. Michael Trevisan

- Analyze data for the Senior Engineering Capstone Assessment Project (SECAP) by retrieving information from TIDEE website and reviewing for themes, statistically summarizing item scores, analyzing correlations among items, and analyzing correlations with student feedback forms, as well as analyzing other information relating to the impact of the project.
• Conduct student and faculty interviews for the Integrated Design Engineering Assessment and Learning System (IDEALS) project, and analyze and report data from the interviews.
• Report data from analyses mentioned above using technical reporting format
• Interview faculty members participating in SECAP to determine means of implementing components of project
• Write technical reports for the IGERT Program in Evolutionary Modeling (IPEM) and Building Science Teaching Capacity projects
• Write and edit the 21st CCLC report
• Write papers for presentation at the American Evaluation Association and American Educational Research Association conferences
• Prepare manuscripts relating to various aspects of program evaluation
• Perform other duties as assigned

June 2008 to present  Association for the Study of Higher Education Monograph Series
Editorial Assistant, Washington State University

• Assist with the completion of the ASHE Monograph Annual Report
• Perform administrative responsibilities including record keeping and occasional correspondence
• Attend the ASHE conference in November 2008 to assist in the Advisory Board meeting

June 2008 to August 2008  Washington State University, Educational Leadership & Counseling Psychology
Graduate Assistant, Dr. Kelly Ward

• Maintain accurate records, print transcripts, and perform other duties as assigned for an AAUW-funded academic motherhood study
• Assist in the preparation of promotion packet, including photocopying and filing documents and maintaining organizational system
• Assist with the preparation and delivery of an academic course by completing tasks as assigned.
• Primary duties for the upcoming year will include completing tasks for the motherhood study and checking mail and phone messages as professor is on sabbatical

August 2007 to August 2008  Washington State University, Center for Civic Engagement
Graduate Assistant, Academic Programs

• Assisted in the facilitation and coordination of service learning programs with faculty members
• Developed relationships with faculty members in various WSU academic departments
• Coordinated in-class presentation schedules
Presented information about the Center for Civic Engagement and the process of establishing an account in the online database, Service Learning Pro (SLPRO)

Coordinated monthly peer mentor visits, in which students may submit service hours, ask questions, or receive assistance in setting up a service placement, project or position.

Acted as a liaison between students, faculty members, and the CCE

Troubleshoot SLPRO and relayed information to the Student Program Coordinator for assistance from the SLPRO vendor

Assisted in the creation and administration of the Fall and Spring Student Surveys

Presented to the Future Cougars of Color

Presented to potential Cougars via the Experience Life Workshops, for students who have been admitted but are undecided on acceptance

Chaired the Student Recognition Committee, which recognizes students on a monthly basis for exemplary service and commitment to community.

Participated as a member of the Distinguished Service Learning Award Committee, which recognizes one outstanding faculty member, student, and community partner for the academic year

Prepared and mailed reminder post-cards for a Caregiver Support Group that meets twice each month

Participated in all-staff training sessions and service projects

Students in Service – 450 hours; Washington Campus Compact

July 2006 to August 2007 University of Idaho, University Residences, Academic Champions Experience (ACE-it)

Program Facilitator

Implemented and coordinated the ACE-it Social Norms Educational Program by using a media campaign to disseminate accurate, positive educational messages that reflected the current research findings regarding student performance of academic success behaviors

Developed relationships with faculty across UI academic units

Presented workshops and seminars on academic success in classes, as well as to university and community groups and organizations

Served as a resource to and a liaison for University community members

Participated in university programs and activities to distribute material about academic success behavior performance on campus (New Faculty Orientation, Student Activities Fair, Palousafest, Social Norms Conference)

Updated the ACE-it website, including moderation of two forums for discussion

Evaluated the effectiveness of the ACE-it Program by administering an electronic survey, as well as an in-class survey

Provided program management by ensuring appropriate ACE-it Grant budget/financial accountability, including producing and presenting needed accounting/budget forms and reports

Scheduled and coordinated logistics for the annual Advisory Board retreat and Campus Liaison Committee Meetings
• Hired, trained, and supervised work-study students, student employees, and interns
• Participated in university committees and task forces, including the UI Strategic Enrollment Management, UnderGraduate Student Success (SEMUGSS) Retention Committee
• Participated in the Freshmen Contact Program
• Wrote a UI Assessment Assistance Grant Proposal to receive further funding
• Wrote the ACE-it Implementation Guide to be used at other institutions of higher education intending on implementing a social norms campaign to promote academic success
• Adhered to ethical standards of professional conduct by acting in a manner consistent with the University’s mission and core values of learning, community, responsibility, integrity and quality
• Performed other tasks and duties as needed.

August 2004 to June 2006 University of Idaho, Tutoring and Academic Assistance Programs

Learning Specialist

• Instructed University of Idaho Freshman Transition Seminar and Study Skills Refresher courses (INTR 101 & 102).
• Presented study skills and Tutoring and Academic Assistance Programs promotion seminars to groups such as Core Discovery classes, graduate teaching assistants, high school students, living groups, and community members.
• Scheduled, presented and developed marketing strategies for the “College Success Series: On the Road Delivering Success to Your Door” program, which offers study skills to classes and groups on campus by request.
• Assisted students individually with learning and study skills by assessing their needs, evaluating their progress, and formulating future plans and goals.
• Organized and facilitate learning groups, primarily for members of Student Support Services, to enable students to apply study skills and discuss current issues with school and studying.
• Conducted Supplemental Instruction for Biology 115 to teach students to apply study skills using a specific course.
• Provided individual career and academic advising, as well as mentoring, to students from all backgrounds, particularly low income, first generation, or students with disabilities.
• Assisted in the development of the Freshmen Year Experience Student Success Initiative Grant Proposal.
• Participated in the Freshmen Calling Program conducted by the Dean of Students Office, including follow-up activities.
• Researched information for Freshmen Transition Seminar proposals, as well as for grants and various online information, including supplemental instruction, study skills, and free screen reading programs.
• Tutored for Student Support Services and Tutoring and Learning Services in Chemistry and Biology.
• Maintained TAAP and UI policies and procedures, as well as FERPA standards.
LEADERSHIP POSITIONS

- **Education Graduate Organization (EGO) President:** peer-nominated and elected for 2010-2011
- **Education Graduate Organization (EGO) Executive Officer:** peer-nominated and elected for 2008-2009 Department Representative, Educational Leadership and Counseling Psychology (ELCP)
- **Member:** Emerging Scholars Committee, EGO, 2008-2009
- **Senator:** Graduate and Professional Student Association, representing Higher Education Administration and ELCP, Fall 2007
- **Discussant:** College of Education 4th International Globalization, Diversity, and Education Conference, March 1, 2008
- **Member:** President’s Award Committee, March 2008
- **Member:** Distinguished Service Learning Award Committee, Spring 2008
- **Chair:** Student Recognition Committee, Center for Civic Engagement, 2007-present
- **Member:** Education Graduate Organization, 2007-Present
- **Member:** University of Idaho Strategic Enrollment Management, UnderGraduate Student Success (SEMUGSS) Retention Committee, 2006-2007
- **Member:** Sophomore Website Subcommittee, SEMUGSS, 2006-2007
- **Chair:** ACE-it Campus Liaison Committee, 2006-2007
- **Chair:** ACE-it Advisory Board, 2006-2007
- **Chair:** ACE-it Statistical Analyst Search Committee, 2006-2007
- **Chair:** ACE-it Web Designer Search Committee, 2006-2007

PUBLICATIONS (published and under review)


**REFERENCED CONFERENCE PROCEEDINGS (published and under review)**


**TECHNICAL REPORTS**


**PRESENTATIONS**


LeBeau, J. (2012, March). *Service learning and student-faculty interactions*. Roundtable discussion to be facilitated at the Adult Student Recruitment and Retention conference, Madison, WI.


**SERVICE**


**PROFESSIONAL ASSOCIATIONS**

American College Professionals Association
Association for the Study of Higher Education
American Educational Research Association
American Evaluation Association

**SCHOLARSHIPS and AWARDS**

Graduate Student Travel Grant, Graduate and Professional Student Association, $400 for Spring 2012
Travel Award, Association for Institutional Research - IPEDS Workshop, $500 for Nov. 20, 2011
George Brain, College of Education, Washington State University, $2750 for 2011-2012
Karen DePauw Leadership Award, $1000 for 2010-2011
George Brain, College of Education, Washington State University, $2000 for 2010-2011