Interdisciplinary Studies Students' Academic And Social Engagement: A Quantitative Study

2011

Jessica Simmons
University of Central Florida

Find similar works at: https://stars.library.ucf.edu/etd

University of Central Florida Libraries http://library.ucf.edu

Part of the Educational Leadership Commons

STARS Citation

Simmons, Jessica, "Interdisciplinary Studies Students' Academic And Social Engagement: A Quantitative Study" (2011). Electronic Theses and Dissertations. 1714.
https://stars.library.ucf.edu/etd/1714

This Doctoral Dissertation (Open Access) is brought to you for free and open access by STARS. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of STARS. For more information, please contact lee.dotson@ucf.edu.
INTERDISCIPLINARY STUDIES STUDENTS’ ACADEMIC AND SOCIAL ENGAGEMENT: A QUANTITATIVE STUDY

by

JESSICA SIMMONS
B.A. Wright State University, 2004
M.A. University of Central Florida, 2007

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Education in the Higher Education & Policy Studies Program in the Department of Educational and Human Sciences in the College of Education at the University of Central Florida Orlando, Florida

Fall Term
2011

Major Professor: Tammy Boyd
ABSTRACT

This study explored interdisciplinary studies students’ academic and social engagement. As the review of literature demonstrated, student engagement and satisfaction are important to retention and institutions can adopt policies and practices to foster student engagement. Because interdisciplinary studies programs often struggle to maintain relevance, fostering student engagement is one way to ensure maximum student satisfaction and retention. This study identified factors of student engagement that were positively related to satisfaction and confirmed that requiring core interdisciplinary studies courses had a positive impact on engagement.

A quantitative instrument, the Interdisciplinary Studies Student Engagement Survey, was adapted from the National Survey of Student Engagement questionnaire to collect self-reported responses. The following eight factors of student engagement were found to be relevant: (a) diversity-related activities, (b) shared understanding and experiences, (c) interaction with peers, (d) interaction with faculty members, (e) active and collaborative learning, (f) integrated learning, (g) out-of-class experiences, and (h) academic challenge. Respondents reported the most frequent participation in integrated learning and the least frequent participation in out-of-class experiences.

It was determined that students with nontraditional characteristics tended to participate more frequently in academic engagement, whereas students with traditional characteristics tended to participate more in social engagement. In addition, enrollment in mandatory interdisciplinary core courses was found to positively influence engagement in seven of the eight identified factors. Enrollment in core courses was also positively
related to satisfaction. Finally, all eight engagement factors positively correlated with satisfaction to some degree.
ACKNOWLEDGMENTS

After nearly 12 years of college, this culminating experience has left me with more people to thank than this small acknowledgments section can accommodate. Given the topic of this study, and the importance of faculty and staff to undergraduate student engagement and persistence, it is only fitting for me to begin at the beginning. I must thank my freshman academic advisor at Wright State University, the late Pat Caprio, for listening to me cry after my very first history class when I swore that I would never be able to succeed. He encouraged me to get involved on campus, and after several internships, work study, involvement in numerous clubs and organizations, and a position in student government, I entered a career following in his footsteps as an academic advisor.

Twelve years later, I find myself with another amazing advisor, my dissertation chair, Dr. Tammy Boyd. Although at first I thought that her relaxed advising style would clash with my type A personality, we were able to work in almost seamless harmony. Thank you so much for your guidance and support throughout this process. I feel privileged to be your first doctoral graduate. To the other members of my committee, Dr. Monifa Beverly, Dr. Rosa Cintrón, and Dr. Michael Hampton, thank you all for your insightful suggestions and edits. All of your time and efforts are greatly appreciated. My appreciation also goes to my editor, Dr. Mary Ann Lynn. Thank you for your expertise and prompt feedback.

I must also thank everyone who made it possible for me to complete my dissertation during professional development leave from my job at the University of
Central Florida. A special thanks to my supervisor, Dr. Michael Hampton. You authorized my leave knowing that it would make your job more difficult, and for that selflessness, I am truly grateful. A huge thank you also goes to my colleagues in the Interdisciplinary Studies Office who took over my job responsibilities while I was writing. I could not have completed this dissertation without all of you. Thank you to everyone who made my professional development leave possible. I am so lucky to work in an environment where such wonderful support exists.

Thank you to my friends and classmates for offering an ear when I needed to vent and for giving me that little extra push when I didn’t want to write anymore. A special thanks to Melissa, Amy, Erin, Jill, and Elayne for all of your guidance, advice, and motivation.

Finally, thank you to my family. To my parents and sisters, thank you for understanding when I was only half present for family events because the other half was thinking about classes or my dissertation. You can finally get the whole me back again! To my wonderful husband, Scott, I know that if you had the beauty of hindsight, you would probably not have encouraged me to start this doctoral program all those years ago, but I am glad you did. Thank you for sticking with me through my bad moods and many stressed-out days. You truly do deserve a graduation gift, so I will give you the gift of a life free of dissertation stress and the gift of a happier wife. Finally, to my son, Braxton, I know you won’t remember this, but thank you for being the best distraction I could have ever had.
I could never have accomplished this without the love and support of so many people. Whether you offered suggestions, guidance, support, an ear to listen, a shoulder to lean on, or merely put up with me, thank you all. You mean more to me than you will ever know.
### TABLE OF CONTENTS

**LIST OF FIGURES** ........................................................................................................... xi

**LIST OF TABLES** ........................................................................................................... xii

**VIGNETTE** .................................................................................................................... xiv

**CHAPTER 1 INTRODUCTION** ....................................................................................... 1
  Background ...................................................................................................................... 1
  Problem Statement .......................................................................................................... 6
  Purpose .............................................................................................................................. 8
  Context .............................................................................................................................. 9
  Theoretical Framework .................................................................................................. 11
  Research Questions ....................................................................................................... 13
  Definition of Terms ....................................................................................................... 14
  Limitations ...................................................................................................................... 19
  Summary ......................................................................................................................... 23
  Organization of the Study .............................................................................................. 24

**CHAPTER 2 LITERATURE REVIEW** ........................................................................... 25
  Introduction ..................................................................................................................... 25
  Involvement ..................................................................................................................... 26
    Involvement Theories .................................................................................................... 29
    Engagement ................................................................................................................... 39
    Eight Measures of Engagement .................................................................................. 48
    Criticisms of Engagement Research .......................................................................... 68
  Interdisciplinary Studies ............................................................................................... 82
    Interdisciplinary Study Defined .................................................................................. 83
    History of Interdisciplinary Study .............................................................................. 86
    Critiques of Interdisciplinary Studies Programs ....................................................... 89
    Benefits of Establishing Interdisciplinary Studies Programs ................................. 92
    Students in Interdisciplinary Studies Programs ....................................................... 95
    Interdisciplinary Studies Curriculum ........................................................................ 103
    Engagement in Interdisciplinary Studies Programs ................................................ 116
    Theoretical Framework: Engagement Theory of Academic Program Quality ... 121
      Elements of Engagement Theory of Academic Program Quality .................... 122
      Engagement Theory in Interdisciplinary Programs .............................................. 130
  Summary ......................................................................................................................... 137

**CHAPTER 3 METHODOLOGY** ..................................................................................... 138
LIST OF FIGURES

Figure 1. Engagement Theory of Program Quality ........................................... 12

Figure 2. History of Student Engagement ......................................................... 27

Figure 3. History of Interdisciplinary Studies ..................................................... 87

Figure 4. Average Engagement Scores of All Alumni ....................................... 174

Figure 5. Interrelationship of Engagement Factors and Best Practices ............... 189

Figure 6. Engagement Factor Mean Scores for All Alumni ............................. 193
LIST OF TABLES

Table 1  Engagement Theory Clusters................................................................. 123
Table 2  NSSE Demographic and Engagement Items ........................................... 145
Table 3  NSSE Items, Variables, and ISSES Pilot Items ........................................ 146
Table 4  Original ISSES Items ............................................................................. 146
Table 5  NSSE Student Faculty Items ................................................................. 154
Table 6  Factor Loadings ..................................................................................... 157
Table 7  Reliability for Factors ........................................................................... 158
Table 8  Factor Loadings in Final ISSES ............................................................... 160
Table 9  Response Rate by Graduation Term ....................................................... 169
Table 10 Demographic Characteristics: Gender and Race ................................... 170
Table 11 Normality of Engagement Factors .......................................................... 173
Table 12 Average Engagement Scores of All Alumni .......................................... 174
Table 13 Results of t-test for Enrollment Type .................................................... 176
Table 14 Results of t-test for Course Modality .................................................... 177
Table 15 Results of t-test for Transfer Student Status .......................................... 178
Table 16 Between-Subjects Effects for Age Groups ............................................ 179
Table 17 Between-Subjects Effects for Residence ............................................... 180
Table 18 Results of t-test for Completion of Core Courses .................................. 182
Table 19 Pearson Product Moment Correlations of Engagement Factors With Satisfaction.......................................................... 186

Table 20 Relationship of Engagement Theory Attributes and ISSES Factors of Engagement................................................................. 191

Table 21 Traditional vs. Nontraditional Characteristics on Engagement......................... 205
After a couple of years in college and changing her major four times, Jennifer has finally found the perfect major. She is able to take a variety of courses and integrate her love for fitness and helping people with her entrepreneurial spirit by completing a major in Interdisciplinary Studies. She anxiously waits for her Motivational Psychology course to begin as she sits in the hard plastic chair and flips through the textbook that still has that new book smell. Many of the students in the class seem to know each other, and a few groups of students are gathered together. Jennifer looks around for a familiar face but does not recognize anyone. The professor enters the room and passes out the syllabus as she introduces herself. The first task of the day is for all 35 students in the class to introduce themselves stating their names and majors. Jennifer is sitting toward the back of the room and listens while the first few rows of students introduce themselves. She quickly notices that everyone seems to be either a Psychology or Education major.

When it came to be Jennifer’s turn, she quickly said “Jennifer--Junior Interdisciplinary Studies major”. The professor’s face turned quizzical as she asked, “Interdisciplinary Studies? I don’t think I’ve heard of that major. What’s that all about?” Jennifer could feel the blood rush to her face as she fought to come up with a good explanation. As she stumbled through a quick description of the program, she could feel all of the students in the class looking at her as though she didn’t belong in this psychology course.
On her way out of class Jennifer received a phone call from her aunt who was checking in to see how her first day of the semester was going. During the conversation Jennifer’s aunt asked, “So, what’s your major?” Remembering her difficulty explaining the Interdisciplinary Studies program in class, Jennifer quickly responded, “Psychology.”
CHAPTER 1
INTRODUCTION

Background

It is well known that student engagement in college matters. As an abundance of research has demonstrated, how students spend their time in college--their involvement or engagement--has been positively associated with student persistence, student learning, and student satisfaction, e.g., Astin, 1984, 1985, 1993; Kuh, Schuh, Whitt, & Associates, 1991; Mallette & Cabrera, 1991; Nora, 1987; Ory & Braskamp, 1988; Pace, 1980, 1984; Parker & Schmidt, 1982; Pascarella & Terenzini, 1980, 1991, 2001; Terenzini & Pascarella, 1977; Tinto, 1975, 1993, 1997. Simply put, the more students are socially and academically engaged in college, the more likely they are to graduate and achieve higher levels of learning and development. In addition, the more engaged a student is the more satisfied he or she will be in almost all measurable areas (Astin, 1985; Kuh, 2001).

Learning and engagement can occur both in the classroom as well as outside of the classroom (Kuh et al., 1991). Many opportunities exist on a college campus for students to become engaged including interacting with people from diverse backgrounds, having common understandings and experiences with peers, spending time with other students, interacting with faculty, participating in active and collaborative learning such as group projects, integrating classroom content with real life experiences, attending events and activities outside of class, and being challenged academically (Chickering & Gamson, 1987; Haworth & Conrad, 1997; Kuh, 2001).
According to Astin (1999), “The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement” (p. 519). Further, student learning in an academic program is directly proportional to the amount of student involvement or effort put forth, e.g., Astin, 1999; Kaufman & Creamer, 1991; Ory & Braskamp, 1988; Pace, 1984. In other words, simply offering various programs and resources is not sufficient to promote student engagement. Students must actually take advantage of purposeful and relevant opportunities to be engaged (Kuh, Kinzie, Schuh, Whitt, & Associates, 2005, 2010). Therefore, it is important for academic programs and departments to consider student engagement when developing policies and practices (Pascarella & Terenzini, 2001). It has been proposed that classrooms and academic programs may be the most logical places to examine student engagement. However, this is also one of the most neglected areas of research (Lounsbury & DeNeui, 1996; Pascarella & Terenzini, 2001, Spitzberg & Thorndike, 1992; Tinto, 1997). In addition to academic programs being a neglected area of research in engagement literature, nontraditional students, including part-time, commuter, transfer, adult, and distance learning students, have also been largely ignored (Kember, Lee, & Li, 2001; Mitzel, 1982; Pascarella & Terenzini, 1991, 2001; Terenzini, Pascarella, & Blimling, 1999; Tinto, 1975).

Given the limited research on engagement of nontraditional students within a singular academic program and the documented benefits of student engagement, it is a logical next step to study nontraditional student engagement in an academic major. One such group includes students enrolled in an undergraduate interdisciplinary studies
program. Interdisciplinary programs can be utilized in varied ways across campuses (Casey, 1994; Flexner & Hauser, 1979; Klein, 1990; Newell, 1986), but the common understanding has been that there is integration among two or more disciplines using concepts, methods, data or terms from all disciplines involved to produce a new way of thinking (Mansilla, 2005). Many general interdisciplinary undergraduate programs have traditionally catered to the nontraditional student population (Klein, 1999, 2010; Newell, 1990; Welch, 2003), meaning those students who are “commuters, part-timers, or adult learners who attend class during evenings and in satellite locations” (Klein, 1999, p. 21). It has also been suggested that nontraditional students benefit most from interdisciplinary studies programs and pedagogies (Newell, 1990; Ntiri, Schindler, & Henry, 2004; Toynton, 2005).

With an increasing percentage of college students falling into the nontraditional student category (Bean & Metzner, 1984; Kember et al., 2001; Klein, 1999; Richardson & King, 1998), and colleges and universities vying to have the latest, greatest, and most innovative programs and research, interdisciplinary programs have become very popular in recent decades (Holley, 2009; Schneider, 2010). Although departments and disciplines have continued to be the dominating organizational structures of American colleges and universities (Abbott, 2002; Klein & Newell, 1996), the growth of interdisciplinary programming in higher education has come to be widely recognized as a notable feature of the changing academic landscape (Brint, Turk-Bicakci, Proctor, & Murphy, 2009; Edwards, 1996; Klein, 2010; Klein & Newell, 1996; Newell, 1986). In 2000, one researcher reported finding over 1,600 interdisciplinary programs in a sample of 294
institutions (Brint et al., 2009). According to the National Center for Education Statistics, 33,792 undergraduate students nationwide graduated with some type of interdisciplinary degree in 2006-07. This was an 89% increase from the 1991-92 school year (U.S. Department of Education, 2008).

Interdisciplinary programs and courses have been found to foster many developmental and learning gains for students (Astin, 1993; Holley, 2009; Lattuca, Voigt, & Fath, 2004; Newell, 1990, 1992, 2006; Newell & Green, 1982). The influence of interdisciplinary programs on student engagement has, however, faced mixed reviews. Some researchers have suggested that interdisciplinary programs lend themselves well to engaged learning communities (Astin, 1985; Newell, 1992, 1998; Newswander & Borrego, 2009; Nuhfer, 1999; Pajewski, 2006). Other researchers have argued that interdisciplinary programs may seem fragmented, borderless, and incoherent and may cause feelings of confusion, uncertainty, and isolation for students (Augsberg & Henry, 2009; Barnett & Brown, 1981; Johnston & McCormack, 1997; Mann, 2001; Newell, 1990, 1999; Nuhfer, 1999; Twale, Schaller, Hunley, & Polanski, 2002; Welch, 2003).

Because of the disconnected nature of most interdisciplinary studies programs academicians have recently called for the establishment of a core curriculum for interdisciplinary studies programs (Holley, 2009; Klein, 1999, 2010; Newell, 1990, 1998; Nuhfer, 1999; Repko, 2006; Welch, 2003). The argument for the development of core interdisciplinary courses has been threefold: (a) they are beneficial in assessing student work and development (Holley, 2009; Rhoten, Mansilla, Chun, & Klein, n.d.); (b) they are appropriate for teaching integration skills (Newell, 2006); and (c) they can build
community and engage students (Klein, 1999; Welch, 2003). There have been very few studies conducted to address these potential outcomes of core interdisciplinary curricula (Augsberg, 2003; Newell, 2006), and there has been a lack of empirical evidence to substantiate the argument that core courses facilitate student engagement (Lattuca et al., 2004; Vess, 2001). Though common core curricula may benefit students in some ways, Newell (1990) argued that core courses alone could not create a learning community. Interdisciplinary studies programs must create an environment that promotes and nurtures this engagement. He encouraged institutions and interdisciplinary studies programs to utilize the traditional methods of engagement in conjunction with interdisciplinary studies core courses to facilitate student engagement.

According to Pascarella and Terenzini (2001), a growing body of evidence suggests that an academic department may have an influence on personal and educational development in students, especially in “departments where faculty and students share common attitudes and values; where interpersonal exchanges are frequent, friendly, and not rigidly hierarchical; and where there is a departmental esprit de corps” (pp. 652-653). Facilitating student engagement in an interdisciplinary studies program may enhance student learning, satisfaction, and persistence, thus increasing the sustainability of interdisciplinary studies programs (Augsberg & Henry, 2009). Therefore, it may be important to consider the engagement of interdisciplinary studies students in order to assist interdisciplinary studies programs in designing and sustaining successful programs.
Problem Statement

Although there has been an abundance of data supporting the claim that engagement has a positive impact on college students, most studies have been conducted using traditional populations, predominantly white students ages 18-22 (Kember et al., 2001; Pascarella & Terenzini, 1991, 2001; Terenzini et al., 1999; Tinto, 1975). A growing population of nontraditional students, like interdisciplinary studies students, has been ignored. According to a paper prepared for the U.S. Department of Labor (2007), 44% of U.S. postsecondary students were adult learners over the age of 24, excluding the number of part-time and distance learning students under the age of 24. Part-time, transfer, and distance learning students have all been found to be less engaged with the college community than their full-time residential counterparts (Kerka, 1996; Kuh, 2003; Mann, 2001; Pittman, 1997; Twale et al., 2002). Adult students have also been found to have higher levels of attrition (Bean & Metzner, 1985; Berger, 1997; U.S. Department of Labor, 2007). Because engagement has been found to have a positive influence on student satisfaction, learning, and persistence, it was important to examine the experiences of engagement for nontraditional students.

Many college and university administrators have pursued the same engagement strategies for both traditional and nontraditional students based on past research and recommendations. For example, researchers have encouraged the use of traditional modes of engagement with interdisciplinary studies students (Newell, 1990) without considering the differences that may be implicit for nontraditional students. Others have recommended that engagement strategies be tailored to fit individual types of students.
Astin, 1985; Kuh et al., 2005, 2010; Newswander & Borrego, 2009; Pascarella & Terenzini, 2001). Astin (1985) suggested, “It would be useful to know whether particular student characteristics . . . are significantly related to different forms of involvement and whether a given form of involvement produces different outcomes for different types of students” (p. 155). Kuh and colleagues (2010) recommended that programs and policies intended to foster engagement “be tailored to and resonate with the students they are intended to reach” (p. 264). Newswander and Borrego (2009) found in their study of interdisciplinary studies graduate programs, “that not every participant will want to be involved in the same way” (p. 558), and successful interdisciplinary studies programs will need to enable different levels of engagement for students in ways that are meaningful to them.

Limited studies on engagement within an academic program have been conducted despite the call for research in this area (Lounsbury & DeNeui, 1996; Spitzberg & Thorndike, 1992; Tinto, 1975). According to Feldman and Newcomb (1969), a major department is like a community, a home for faculty and students, where much of the student’s engagement takes place. It therefore, makes sense for academic programs to conduct research on student engagement as a regular part of their evaluation or assessment.

There has also been an assumption that requiring core interdisciplinary courses would increase student engagement in interdisciplinary studies programs. However, there has been a lack of empirical evidence to substantiate this assumption (Lattuca et al., 2004). Therefore, it was important to explore these suppositions by considering how
interdisciplinary studies students experience academic program engagement, considering the impact of interdisciplinary core courses, in order to help colleges and universities design and sustain successful interdisciplinary studies programs.

**Purpose**

The primary purposes of this study were to determine the types of academic program engagement that interdisciplinary studies students report and to explore the impact of mandatory core courses on engagement. Interdisciplinary studies students’ experiences of engagement and the impact on student satisfaction were studied as they related to diversity-related activities, shared understanding and experiences, interaction with peers, interaction with faculty members, active and collaborative learning, integrated learning, out-of-class experiences, and academic challenge. By studying students’ engagement experiences, recommendations were developed for establishing successful interdisciplinary studies programs. The literature review presented in Chapter 2 supports the idea that a positive relationship exists between engagement and student success and satisfaction (Astin, 1985; Bailey, Bauman, & Lata, 1998; Berger, 1997; Cheng, 2004; Ke, 2006; Lounsbury & DeNeui, 1996; Rovai, 2002; Sanders, Basham, & Ansburg, 2006; Wright, 2004). Also supported was the notion that empirical evidence on nontraditional populations has been lacking (Kember et al., 2001; Pascarella and Terenzini, 1991; Terenzini et al., 1999). The literature review also acknowledged contradictory evidence that interdisciplinary studies programs may espouse characteristics that foster isolation and disconnection but also provide an engaging learning environment. Therefore, it was
of benefit to interdisciplinary studies programs to examine engagement within their programs to ensure maximum student satisfaction and retention.

**Context**

The setting of this study was the Interdisciplinary Studies Program at the University of Central Florida (UCF). At the time of the present study, UCF was one of 11 State University System institutions in Florida. It was the second largest university in the country with over 56,000 students (University of Central Florida, 2011a) and was classified as a Research University by the Carnegie Foundation offering bachelor’s, master’s, and doctoral degrees. Over 45,000 UCF students were undergraduates with over 1,200 enrolled in the interdisciplinary studies major.

The Interdisciplinary Studies Program, first known as the Bachelor of General Studies degree, was established at UCF in 1969, one year after the institution, then known as Florida Technological University, welcomed its first students. The Interdisciplinary Studies Program has since grown to one of the largest majors at UCF. Researchers found that growth in interdisciplinary studies programs was outpacing the growth rate of student enrollment (Brint et al., 2009), and the Interdisciplinary Studies Program at UCF provided an example of this exceptional growth. Almost 9,000 degrees in General Studies, Liberal Studies, and Interdisciplinary Studies have been awarded since 1971. The number of degrees awarded in General Studies in 1974-75 was 37 compared to 564 degrees awarded in Interdisciplinary Studies in 2008-09, a 1,424% increase in degrees conferred in a 34-year period, nearly triple the growth rate of
bachelor’s degrees conferred university-wide in the same timeframe (University of Central Florida, 2011a).

The results of this study were useful in the evaluation of the Interdisciplinary Studies Program’s core courses that were implemented in the 2007-2008 academic year. As a result of an internal program review in 2006, the core curriculum was established to help students “integrate the knowledge and modes of thinking of multiple disciplines” (Hampton, 2009, p. 1) and create a sense of community (University of Central Florida, 2006). One attribute of the engagement theory of academic program quality that was examined in this research was that academic program engagement fosters a community of learners. If a sense of community is to develop, there is an implication that academic program engagement will also occur. Following this relationship between sense of community and engagement, this study was conducted to evaluate one goal of the core courses, that of developing a sense of community, by examining how students who have and have not taken core courses experience engagement. This investigation sought to determine whether or not the Interdisciplinary Studies Program influenced student engagement as a result of mandatory interdisciplinary courses.

The researcher was an academic advisor in the Interdisciplinary Studies Program at UCF during the time of this study. As a result, the recommendations in Chapter 5 were made with professional experiences taken into consideration. Although the researcher remained objective throughout this study, according to Phillips and Pugh (2005), “there is no such thing as an unbiased observation” (p. 50). The limitations of conducting backyard research are addressed in the Limitations Section in this Chapter.
Theoretical Framework

Given that the researcher was considering engagement as a result of enrollment in a specific academic program and was also evaluating an academic program decision, the selected framework needed to include a variety of components. After reviewing multiple theoretical frameworks including McMillan and Chavis’ (1986) sense of community theory, Mann’s (2001) perspective on alienation and engagement, and Lev-Wiesel’s (2003) construct of perceived community cohesion, the final framework selected for this study was Haworth and Conrad’s (1997) engagement theory of academic program quality. This theory was developed to assist in evaluating and improving academic program quality and is organized around a central theme: “student, faculty, and administrative engagement in teaching and learning” (p. xii). The authors composed their theory from five clusters of attributes including: (a) diverse and engaged participants, which they coin as the most important, (b) participatory cultures, (c) interactive teaching and learning, (d) connected program requirements, and (e) adequate resources. The engagement theory of program quality is displayed in Figure 1.
This study was framed using three of the five clusters that are most relevant to student engagement including (a) diverse and engaged participants, (b) participatory cultures, and (c) interactive teaching and learning. These three clusters incorporate some attributes that were addressed in this study: diverse and engaged faculty, diverse and engaged students, shared program direction, community of learners, risk taking.
environment, cooperative peer learning, integrative learning, out of class activities, and mentoring. This theory will be examined in detail in Chapter 2.

**Research Questions**

This study was guided by the following research questions:

1. How do interdisciplinary studies students report academic program engagement as measured by eight engaging activities

   a. diversity-related activities
   b. shared understanding and experiences
   c. interaction with peers
   d. interaction with faculty members
   e. active and collaborative learning
   f. integrated learning
   g. out-of-class experiences
   h. academic challenge

and how does reported engagement differ based on selected enrollment and demographic characteristics?

   a. age
   b. place of residence
   c. course modality
   d. transfer status
   e. enrollment type
2. What is the difference in academic program engagement between students who participate in interdisciplinary studies core courses and those who do not?

3. What is the relationship between academic program engagement in an interdisciplinary studies program and perceptions of satisfaction?

Definition of Terms

The following definitions are offered to clarify terms used in this dissertation:

Academic Integration: Integration into the academic system of the college is measured in terms of grade performance and “intellectual development during the college years” (Tinto, 1975, p. 104).

Academic Program Engagement: Engagement in an academic program occurs when there are diverse and engaged faculty, students, and administrators participating in a culture promoting a shared program direction, a risk taking environment, and a community of learners where there is interactive teaching and learning including cooperative peer learning, integrative learning, critical dialogue, mentoring, and out of class activities (Haworth & Conrad, 1997).

Core Courses: Core courses are common courses that all students in an academic major must take. These courses are designed to create common understanding and experience and create a sense of community.

Discipline: A discipline is “the basis for the organization of knowledge for teaching purposes” (Apostel, Berger, Briggs, & Michaud, 1972, p. 9), and “it refers to a
particular branch of learning or body of knowledge” (Moran, 2002, p. 2). For example, history, accounting, and mechanical engineering are all disciplines.

**Engagement:** Engagement is the emotional involvement or commitment requiring the presence of a connection or a relationship to a group or activity in which one desires or is expected to belong or be involved (Case, 2007).¹

**Interdisciplinary Studies Programs:** For this study, interdisciplinary studies programs are classified as those generic undergraduate degree-granting programs where there is interaction among two or more different disciplines using concepts, methods, data and terms from all disciplines involved to produce a new way of thinking. In addition, these programs are “individualized or self-designed majors that students put together from disciplinary offerings” (Newell, 1998, p. 63).

**Involvement:** “Involvement refers to the quality and quantity of the physical and psychological energy that the student invests in the college experience” (Astin, 1985, p. xiv). Involvement in the literature may be used interchangeably with engagement or integration (Pascarella & Terenzini, 1991).

**Learning Community:** Learning communities are “small subgroupings of students. . . characterized by a common sense of purpose. . . used to build a sense of group identity, cohesiveness, and uniqueness; to encourage continuity and the integration of diverse curricular and cocurricular experiences; and to counteract the isolation that

¹ Engagement in the literature may be used interchangeably with involvement or integration (Pascarella & Terenzini, 1991).
many students feel” (Astin, 1985, p. 161). A learning community must have three primary components: the academic component, the social component, and the physical component meaning that academic content and social interactions are integrated in a common space or place (Brower & Dettinger, 1998).

**Nontraditional Students:** In this study nontraditional students refer to those students who fit into one or more of the following categories: part-time (less than 12 credit hours a semester), commuter (live off campus), transfer, adult (over the age of 24), or distance learning (online, video streamed, or other correspondence learning mode).

**Peer Group:** A peer group is “a collection of individuals with whom the individual identifies and affiliates and from whom the individual seeks acceptance or approval” (Astin, 1993, p. 398).

**Social Integration:** Social integration is defined as “The interaction between the individual . . . and other persons of varying characteristics within the college” primarily with “informal peer group associations, semi-formal extracurricular activities, and interaction with faculty and administrative personnel within the college” (Tinto, 1975, p. 107).

**Student Success:** There are many different measures of student success in college. Ewell and Wellman (2007) identified three different dimensions including student flow through an educational career to degree completion, “the quality and content of learning and skills achieved as a result of going to college”, and “positive educational experiences (such as student engagement or satisfaction)” (p. 2).
The following terms are used to help define the measures of academic program engagement used within this study:

**Academic challenge:** Academic challenge is the level of expectation for learning that is placed on students and the challenge that students feel in coursework (Haworth & Conrad, 1997; NSSE Survey, 2010).

**Active and collaborative learning:** This occurs when students actively engage in class discussions, come prepared to class, share experiences and views with others, participate in various learning activities and group projects, and collaborate with peers and faculty on projects (Haworth & Conrad, 1997).

**Diversity-related activities:** This refers to the amount of diversity to which students are subjected. In this study, high levels of diversity-related activities occur when students interact with students from diverse backgrounds and contribute diverse perspectives to class discussions (Haworth & Conrad, 1997; NSSE Survey, 2010).

**Integrated learning:** Integrated learning is accomplished when students put together ideas and concepts from various sources or courses to complete assignments or during class discussions (NSSE Survey, 2010), when students “tie the knowledge and skills they learn in class” to real world issues and problems, or when they “participate in hands-on instructional activities... where they make connections between theory and practice” (Haworth & Conrad, 1997, p. 189).

**Interaction with faculty members:** These interactions are the relationships that students have with faculty members both in and out-of-class. In this study, positive student-faculty interaction occurs when there is a “two-way, interactive approach to


“teaching and learning” (Haworth & Conrad, 1997, p. 188) where students and faculty discuss ideas and work on projects both in and out-of-class and students are mentored by faculty advisors.

Interaction with peers: These interactions are the relationships that students have with each other both in and out-of-class. In this study, positive student-student interaction occurs when students interact and cooperate by collaborating on projects, having discussions, and being involved in clubs and other social events (Haworth & Conrad, 1997).

Out-of-class experiences: This describes an assortment of co-curricular activities that occur outside the classroom. These can include seminars, clubs, social events, committees, student life activities, internships, volunteer work, service learning, program or campus sponsored events, or athletic events (Haworth & Conrad, 1997; NSSE Survey, 2010).

Satisfaction: For this study, satisfaction describes students’ overall satisfaction with their academic department as measured by items in the NSSE quality of relations and academic and social campus climate factors which measure overall satisfaction and quality of personal relations.

Shared understanding and experiences: Students in the same academic program have “similar understandings of the program’s overall direction” (Haworth & Conrad, 1997, p. 183) and those understandings are consistent with the actual program direction. Students also “share a common identity” (p. 185) with one another and have shared learning experiences.
Limitations

This study contained several limitations:

1. There is a small degree of generalizability considering that this study was conducted using alumni from one interdisciplinary studies program at one university. One of the major methodological challenges when dealing with students in interdisciplinary programs is the basic operationalization of the term interdisciplinary. According to Moran (2002), “There are potentially as many forms of interdisciplinarity as there are disciplines” (p. 15). For example, interdisciplinary curricula in American higher education can include interdisciplinary universities, freshman and senior seminars, four-year undergraduate programs, interdepartmental majors, independent study courses, core curricula, interdisciplinary clusters, and interdisciplinary research (Flexner & Hauser, 1979; Casey, 1994; Klein, 1990). This can make it very difficult to replicate studies or to generalize results of studies to a larger population.

2. The potential existed for some researcher bias given that the researcher was professionally involved with the program and participants being studied. Phillips and Pugh (2005) stated that, “There is no such thing as an unbiased observation” (p. 50). Researchers must constantly analyze their own thoughts, feelings, beliefs, and assumptions as they relate to the research, participants, community, and any other related aspects of the study. Glesne (2006) warned about the dangers of conducting backyard research or research within one’s
own institution or agency because previous experiences may set up expectations, and the researcher’s role may be confused with other roles the researcher may hold. However, familiarity with a research site has its benefits because of easy access to research participants, an established rapport, and research results that may be directly applicable to the researcher. It is important to understand that every feeling, idea, or thought by the researcher can be important or relevant to a research study, whether positive or negative. These researcher biases must be recognized, addressed, and then transcended.

3. The self-reported nature of the survey data restricted the results to reported behaviors and perceptions only. This was a critique of Haworth and Conrad’s (1997) study on the engagement theory of academic program quality. Brown (1999) critiqued the fact that the theory emphasized student-learning experiences such as attitudinal and behavioral effects of quality programs rather than direct student learning outcomes. This study was also limited in the scope of data collection and did not examine specific student learning outcomes.

4. Because this study used an anonymous survey, confirming the accuracy of self-reported data was impossible. There may have been respondents who did not honestly or accurately answer the survey questions.

5. The survey participants may not have reflected a representative sample of the entire population of Interdisciplinary Studies alumni surveyed. Those who responded, because they chose to respond to an email survey, may have been
more engaged people in general and therefore, may have been more engaged as students. Alumni who responded may also have had an overly positive or negative experience in the Interdisciplinary Studies Program and that is why they chose to respond to the survey.

6. Only alumni from the interdisciplinary studies program were surveyed. Current students, faculty, staff, and administrator perceptions were not included in this study.

7. Students’ pre-college characteristics that may have influenced engagement while in college were not measured. According to Mitzel (1982), a methodological challenge for many studies on how college affects students is that “the research design must separate the effect of the college environment from (1) the effects of maturation and time, and (2) the effects of existing individual characteristics” (p. 537). This study did not control for background characteristics.

8. All constructs of the engagement theory of academic program engagement were not investigated in this study. Within the scope of this study, only those components directly related to student engagement were investigated.

9. A true comparison of engagement between alumni who took the core courses and those who did not may not be possible because the two groups of alumni may have different background characteristics. Because the Interdisciplinary Studies Program changed its curriculum in 2007, the background characteristics of the students who enrolled in the Program may have also
changed. For example, students who enrolled in the Interdisciplinary Studies Program in 2007 were required to participate in the program for at least two semesters whereas prior to 2007, students could enroll and graduate from the major in the same semester.

10. The academic challenge factor in this study was based on a single question, “To what extent did the Interdisciplinary Studies Program at the University of Central Florida emphasize spending significant amounts of time studying and on academic work?” This question asked respondents to rate, on a Likert scale ranging from very little to very much, the amount of emphasis the Interdisciplinary Studies Program placed on studying and academic work. This did not ask students whether or not they felt challenged by the academic work. The questions on the ISSES instrument that would have been more representative of the academic challenge factor in the literature were, “Select the circle that best represents the extent to which you were challenged to do your best work while you were a student in the Interdisciplinary Studies Program at the University of Central Florida” and “In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, about how often did you work harder than you thought you could to meet an instructor's standards or expectations?” However, both of these items loaded under the active and collaborative learning factor. Therefore, the results of this study related to the academic challenge factor should be interpreted with caution.
11. In this study, it was assumed that student engagement was a necessary component of student success. However, some researchers have questioned the importance of certain types of integration (Braxton, Sullivan, & Johnson, 1997; Berger & Braxton, 1998).

12. A common definition of non-traditional students was used in this study, i.e., students who fit into one or more of the following categories: part-time (less than 12 credit hours a semester), commuter (live off campus), transfer, adult (over the age of 24), or distance learning (online, video streamed or other correspondence learning mode). However, due to the uncommon nature of the Interdisciplinary Studies major, all Interdisciplinary Studies students could be considered non-traditional.

**Summary**

With nationally recognized interdisciplinary studies programs coming under attack and even terminated (Augsburg & Henry, 2009), it was appropriate to examine what makes an interdisciplinary studies program successful and sustainable. It has been established that student engagement is key to student learning, persistence, and satisfaction for traditional college students. Nontraditional student engagement in undergraduate interdisciplinary programs, however, has not been addressed. There has also been a lack of empirical evidence to substantiate the belief that core courses in an interdisciplinary studies program will influence student engagement. Therefore, it was
imperative to the success of interdisciplinary studies programs to examine student engagement within the program considering the use of core curricula.

**Organization of the Study**

Chapter 1 of this study consisted of a brief description of background issues related to the study. Also presented were the research questions, the context of the study, and the theory that was used to frame this study. Chapter 2 contains a review of the relevant literature and research on engagement, interdisciplinary studies students, and the engagement theory of academic program quality. Chapter 3 provides the methodology and procedures that were used to collect and analyze the data for this study. The results of the statistical analysis conducted to answer the research questions are presented in Chapter 4. Finally, Chapter 5 summarizes the findings of the research, recommends best practices for colleges and universities, and provides recommendations for further study.
CHAPTER 2
LITERATURE REVIEW

Introduction

In order to validate the call for a study exploring academic program engagement in interdisciplinary studies programs, a number of topics will be examined in the literature review. First, a discussion on student engagement in higher education will address student involvement theories and social and academic integration, which gave birth to the idea of academic program engagement. The variables traditionally used to measure engagement will be identified including: diversity-related activities, shared understanding and experiences, interaction with peers, interaction with faculty members, active and collaborative learning, integrated learning, out of class experiences, and academic challenge. Engagement in nontraditional student populations will also be examined, as will studies regarding engagement in an academic program.

The second section of the literature review will focus on interdisciplinarity in higher education in order to provide a background of knowledge from which the reader will develop a frame of reference for topics discussed later in the chapter. The discussion on interdisciplinarity is meant to provide a basic overview of the topic rather than a comprehensive review. A brief synopsis of the definitions, history, challenges, and benefits of interdisciplinarity in higher education will be included followed by a more thorough review of the research on the interdisciplinary student and a discussion of interdisciplinary curricula, core courses, and engagement in interdisciplinary programs.
In the final segment of Chapter 2, the engagement theory of academic program quality will be discussed in detail. In this discussion, the constructs and attributes of the theory and their relation to previous measures of college engagement will be presented. Also included will be a summary of one study that was conducted to explore academic program engagement in an interdisciplinary graduate program. This will provide an argument for using the engagement theory of academic program quality to study undergraduate interdisciplinary studies student engagement.

Involvement

Student involvement in higher education has been a frequently researched area of interest for over four decades, but much earlier than that, Lewin (1936), in his environmental theory, noted that behavior is a function of the interaction between a person and the environment. Given this theory, if university administrators want to influence student behavior by increasing student learning and development, they must consider the college environment. Since the development of Lewin’s theory, a substantial body of research has supported this premise and strongly suggests that student learning and development is influenced by the college environment, social climate, and available learning opportunities, e.g., Astin, 1975, 1977, 1984, 1985, 1993; Chickering & Gamson, 1987; Kuh et al., 1991; Kuh et al., 2005, 2010; Pace, 1980, 1984; Pascarella & Terenzini, 1980, 1991, 2001; Tinto, 1975. Figure 2 below represents a timeline of student engagement.
In examining the college environment, Chickering and Gamson (1987) recommended seven principles of good practice intended to shape the environment in ways that would positively impact the undergraduate student experience. Their suggested practices included student and faculty interaction, cooperative and reciprocal learning among students, active learning, prompt feedback, effective time management, high expectations, and respect for diversity. These good practices have been cited frequently in involvement literature, and the influence of these practices will be observed throughout this study. The campus environment can create opportunities to enhance student learning.
and development, but according to Astin (1984), student involvement in higher education depends strongly on the amount and quality of energy, both physical and psychological, that the student devotes to his or her college experience. Consequently, it is clearly a responsibility of both the institution and the student to create and maintain engaging experiences. Students are responsible for putting the necessary energy and effort into their college experiences, and institutions are responsible for providing engaging opportunities for students to interact with faculty, staff, and students in the learning process (Tinto, 1993).

As mentioned previously, studies on involvement have been popular for over four decades and in varying capacities. Involvement has been studied early on in terms of social and academic integration (Spady, 1971; Terenzini & Pascarella, 1977; Tinto, 1993; Tinto & Pusser, 2006), quality of effort (Kaufman & Creamer, 1991; Pace, 1980, 1984), institutional commitment (Nora, 1987; Spady, 1971; Tinto, 1975), and later, engagement (Case, 2007; Haworth & Conrad, 1997; Kuh, 2001; Mann, 2001; Newswander & Borrego, 2009). Most early work on student involvement was conducted primarily in four-year residential institutions studying white males ages 18-22 (Kember et al., 2001; Pascarella & Terenzini, 1991, 2001; Terenzini et al., 1999; Tinto, 1975, 1982). Since that time, investigations have expanded in the area of student involvement incorporating students with diverse racial backgrounds, commuter students, adult students, and community college students (Bean & Metzner, 1985; Nora, 1987; Tinto, 1997; Tinto & Goodsell-Love, 1993; Tinto & Russo, 1994).
Many factors have been found to influence involvement including diversity-related activities, shared understanding and experiences, interaction with peers, interaction with faculty members, active and collaborative learning, integrated learning, out-of-class experiences, and academic challenge (Chickering & Gamson, 1987; Haworth & Conrad, 1997; Kuh, 2001). This portion of the literature review will focus on the evolution of involvement theories, highlight the most common theories on student involvement, further investigate the influential factors of student engagement, discuss nontraditional student engagement, and examine how classrooms and academic programs have been found to influence student engagement.

Involvement Theories

Retention

The study of student involvement emerged out of research on college student retention and attrition (Astin, 1975; Pascarella & Terenzini, 1980; Spady, 1971; Terenzini & Pascarella, 1977; Tinto, 1975, 1993). Spady (1971), in his early study of college dropouts at the University of Chicago, found that the largest factor contributing to college dropout was academic performance. To a lesser extent, however, student satisfaction, institutional commitment, and social integration, also had a bearing on the dropout process. Spady found evidence to suggest that academic and social rewards were inversely related; students had to sacrifice gains in one area in order to excel in the other. For example, his findings suggested that interpersonal contacts actually inhibited
academic performance; however, faculty contacts had a more positive influence on intellectual development than peer relations. Despite the promising findings regarding faculty contacts, academic performance was still the ultimate predictor of college dropout.

In contrast, a few years later, Astin (1975) and Tinto (1975) separately argued that student involvement and integration into the college environment had the greatest impact on student retention. Astin, in his 1975 longitudinal study on college dropouts, found that students who lived on campus and participated in extracurricular activities were less likely to drop out of college. Similarly, Tinto (1975), in studying student drop out, related his theoretical model to Durkheim’s theory of suicide and postulated that academic and social integration in college were the factors most directly related to retention. Therefore, other things held constant, the higher the level of academic and social integration in college, the higher the level of institutional commitment and persistence. Tinto, in his study, introduced the importance of both academic and social integration in college persistence.

Other researchers have tested Tinto’s theory of student attrition with varying results. Terenzini and Pascarella (1977) conducted a study to assess the validity of Tinto’s theory, and their findings supported Tinto’s assertion that there was approximately equal importance between academic and social integration. They also suggested that policies and programs developed to increase retention must address both the academic and social aspects of student life. In addition, they found that informal faculty interaction might play a more important role in student integration than Tinto had
previously indicated. In a 1980 study, Pascarella and Terenzini also indicated that academic and social integration could help predict voluntary dropouts by freshmen students. On the other hand, Nora’s (1987) study of Chicano community college student retention “was not entirely supportive of Tinto’s (1975) model” (p. 49). She found neither academic nor social integration to significantly affect retention rates. Rather, she found institutional and goal commitment to have a greater influence. Finally, Mallette and Cabrera (1991) explored the difference between students who withdrew from an institution and students who transferred to a different institution. Their results supported Tinto’s proposition that it may be important to differentiate among types of voluntary withdrawal behavior such as stopping out, withdrawing, or transferring. Their results may provide an explanation for some of the differing findings of previous researchers related to academic integration, social integration, institutional commitment, and goal commitment. They argued that the contradictory findings “may be explained, in part, by the type of students exhibiting various voluntary withdrawal behavior” (p. 190). There may be a difference in social and academic integration and goal and institutional commitment between students who drop out and those who transfer. As a result of studying student retention and attrition, researchers have found that student involvement does matter and that colleges and universities can make purposeful decisions and take actions that will create opportunities for student involvement.
Theory of Student Involvement

Astin’s 1977 research greatly contributed to his widely cited theory of student involvement. According to Astin’s (1984) theory, “The greater the student’s involvement in college, the greater will be the amount of student learning and personal development” (pp. 528-529). Astin (1984) also postulated, “The effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement” (p. 519). In this theory, it was proposed that colleges and universities had a large responsibility in developing programs and policies that took student involvement into consideration. However, merely exposing students to engaging opportunities would not result in the desired objectives. Rather, to achieve maximum learning and development, the program “must elicit sufficient student effort and investment of energy” (Astin, 1984, p. 522).

Astin (1984) found that nearly all types of student involvement significantly influenced changes in freshman characteristics. In fact, some student outcomes were impacted more by involvement than by either entering student characteristics or institutional characteristics. His findings strengthened previous beliefs that living on-campus and faculty interactions positively impacted persistence and satisfaction. Pascarella and Terenzini (2001), argued, however, that Astin’s theory of involvement was actually more of a principle than a formal theory.

Since Astin’s theory of student involvement, many studies have been conducted to assess different factors on student persistence. Variables that have been considered in previous studies include: (a) student background characteristics, (b) student behavioral
measures, (c) student perceptions, (d) academic integration, (e) social integration, (f)
organizational influences, (g) environmental factors, (h) psychosocial factors, (i) active
learning, (j) goal commitment, (k) institutional commitment, and (l) quality of effort
(Berger & Braxton, 1998; Berger & Milem, 1999; Braxton, Milem, & Sullivan, 2000;
Napoli & Wortman, 1998; Pace, 1980, 1984). Given the extensive research on goal and
institutional commitment, quality of effort, and social and academic integration, these
factors will be examined in more detail.

**Goal and Institutional Commitment**

Tinto’s (1975) model of college dropout placed a strong emphasis on goal
commitment and institutional commitment. Goal commitment is the amount of dedication
a student has to his or her goals that will ultimately assist him or her in persisting in
college. Institutional commitment is the level of dedication a student has to his or her
institution. Tinto (1975) postulated that academic integration most directly influences a
person’s goal commitment, whereas social integration most directly relates to
institutional commitment. Berger and Braxton (1998) confirmed that social integration
positively predicts institutional commitment. However, they argued that only institutional
commitment has been robustly supported by empirical evidence. Goal commitment was
not found to influence student persistence. Berger (1997) found that students’ initial
levels of institutional commitment upon enrollment were relatively unimportant
compared to later levels of institutional commitment that might have been influenced by
campus experiences that students had. These findings suggested that although a student’s
institutional commitment might have been low upon entering the university, the experiences that he or she had while in attendance might have altered the level of institutional commitment thus increasing or decreasing persistence.

Other researchers have also explored the influence of institutional and goal commitment. Nora (1987) found that institutional and goal commitment had a significantly greater influence on student retention measures than did academic and social integration. She also found that initial institutional and goal commitment had a positive direct effect on social integration because freshmen “entering college with higher levels of commitment to the institution and to their educational goals had more informal interactions with faculty members, met more often with counselors, and attended and participated more in peer-related activities” (p. 52). Pascarella and Chapman (1983) found that institutional commitment was more relevant for students at 4-year institutions whereas goal commitment was more influential for students at 2-year institutions. Finally, Spady (1971) studied gender differences and reported that female students’ decisions to leave college were strongly influenced by institutional commitment but for male students, institutional commitment is secondary in importance to academic performance.

Quality of Effort

Around the same time that Astin was researching student involvement, Pace was studying a phenomenon he called quality of effort. Pace (1980, 1984) studied students’ investment of time and effort by developing a measure of quality of effort based on
college student experiences. He (1980) found that students who had a higher quality of effort were more likely to persist. He concluded that the prediction of achievement in college was not based on student characteristics or demographics or type of institution, but what students did while they were in college. Pace (1980, 1984) also found that students who lived on campus had greater quality of effort scores and had larger gains in personal and social development than students living off-campus. However, he reported that merely living on campus did not guarantee a higher quality of effort. Quality of effort was more dependent on what students did and not where they lived.

Pace’s (1980) quality-of-effort scales were grouped into three clusters; the first cluster was effort in academic experiences or academic integration and the last two clusters dealt with social integration including personal and interpersonal experiences and effort using group facilities and programming. Pace (1980) found differences in quality-of-effort scores in the social integration clusters and the academic integration cluster. Mean scores of quality of effort in academic integration increased as grade level increased; however, there was no significant relationship between year in college and quality of effort in social integration. Pace (1980) also found that the higher the academic integration, the higher the grade earned; however, there was little relationship between social integration and grades. Kaufman and Creamer (1991) supported Pace’s findings when they reported that the quality of effort in academic experiences “had a much greater impact on reported intellectual gains than did quality of effort invested in nonacademic pursuits” (p. 202). In addition, they found that the quality of effort in social integration, namely peer relationships, significantly impacted students’ personal-social gains. Pace
(1980) also discovered a reciprocal relationship between academic and social integration. Social experiences contributed to intellectual gains whereas academic experiences contributed to personal and social development. Following Pace’s conclusions regarding academic and social integration, others began to examine the interaction between and effects of social and academic integration on students.

Social and Academic Integration

Tinto (1975) distinguished between academic and social integration in his model of student dropout from college. Academic integration is related to the academic system, which includes grade performance and intellectual development whereas social integration is related to the social system including peer-group relationships and faculty interactions. He postulated that academic integration most significantly affected goal commitment, whereas social integration most directly related to institutional commitment. Tinto (1993) later noted that when there was an absence of integration it was either because there was incongruence or isolation occurring with the student. He explained:

Incongruence, or what is sometimes referred to as lack of institutional fit, refers to that state where individuals perceive themselves as being substantially at odds with the institution…Isolation, however, refers to the absence of sufficient interactions whereby integration may be achieved. (p. 50)

Tinto (1975) argued that both academic and social integration were important to college persistence; however, social integration had the most direct association. These
findings were supported by Milem and Berger (1997) and were reconfirmed by them again in 1999. Berger and Braxton (1998) further found that single-institution empirical studies supported the inclusion of social integration in a model for student persistence but not academic integration, supporting Tinto’s argument that social integration had the most influence on persistence.

On the other hand, Kaufman and Creamer (1991) found that academic integration was more important to intellectual gains than social integration. This supported Spady (1971) who found that academic performance was a higher predictor of college attrition than social integration. Tinto (1993, 1997) noted that for most institutions, academic involvement mattered more than social involvement on student learning; however, both types of involvement influenced persistence. Terenzini and Pascarella (1977) supported Tinto’s assertion of approximately equal importance between academic and social integration. On the other hand, Borglum and Kubala (2000) found no correlation between academic and social integration and attrition at a community college.

Just as there are arguments about which type of integration is more influential to persistence, there are also arguments about the relation between academic and social integration. Some researchers have found that a positive correlation exists between the two forms of integration, meaning that getting involved in the social aspect of campus increases the likelihood of involvement in the academic aspect and vice versa (Borglum & Kubala, 2000; Huang & Chang, 2004; Ory & Braskamp, 1988). On the contrary, many researchers have proposed that excessive involvement in one aspect, such as academics, can retard development in the opposite area, social integration (Astin, 1977, 1984, 1985;
Milem & Berger, 1997; Spady, 1971; Tinto, 1975). In studying this supposition, Stage (1989) found that there is a difference in the reciprocal relationships between academic and social integration based on student gender. He found that for males, “the more academically integrated a student was, the more likely he was to be socially well integrated” (p. 528). However, social integration in males did not have a significant effect on academic integration. On the other hand, for females, the relationship was reversed. He found that higher levels of social integration in females indicated higher levels of academic achievement, but academic integration had no significant effect on social integration. Stage (1989) concluded that the answer to increasing retention and satisfaction was not one size fits all. He suggested that students not be encouraged to simply become more involved in all aspects of academic and social life. Because all students have different needs and different time commitments, he recommended that colleges and universities take time to learn about their students and understand how different types of involvement may help or hinder other aspects of college life.

Berger and Milem (1999) suggested that students who were most like the dominant peer group on campus in terms of their values, behaviors, and norms were more likely to be socially and academically integrated. In addition, Tinto (1997) presupposed that social integration was a developmental prerequisite to academic integration for many students. He noted,

As students progress through the first year and toward their degree, their concerns appear to shift toward a greater emphasis on academic issues. Once social membership has been achieved, or at least once concerns over it have been
addressed, student attention appears increasingly to center on academic involvements. (p. 618)

While some research has shown a divide between social integration and academic integration, Tucker (1999) argued that academic and social integration were parts of the same phenomenon and indistinguishable from one another. He found in one study that students did not distinguish between the two forms of integration. Other researchers (Kuh et al., 2005, 2010; Terenzini & Pascarella, 1977) believed that social and academic aspects of students’ lives were so integrated that institutions provide policies and practices that support students both socially and academically in order to enhance student success and reduce attrition. One example of a program that touches both the academic and social aspects is the campus learning community. Tinto and Russo (1994) found that participation in a “shared learning experience enabled new college students to bridge the academic-social divide that typically confronts students” because learning communities allowed students “to meet two needs, social and academic, without having to sacrifice one in order to meet the other” (p. 2). A learning community is just one example of how students can become engaged both academically and socially on campus, but there are many more ways to foster student engagement.

Engagement

According to the National Survey of Student Engagement (2010a), there are two critical features of student engagement. The first feature relates to student responsibility and the amount of effort students put toward educationally engaging activities. The
second feature regards institutional responsibility in creating and facilitating engaging opportunities for students. Therefore, student engagement is the responsibility of both students and institutions. Engagement is an emotional involvement or commitment and requires the presence of a connection or a relationship to a group or activity in which one desires or is expected to belong or be involved (Case, 2007).

Engagement in the literature may be difficult to distinguish because it has been used interchangeably with involvement or integration, and studies on engagement in higher education tend to overlap with research on involvement and integration (Pascarella & Terenzini, 1991; Tinto, 1998; Tinto & Pusser, 2006). For example Tinto (1998) used involvement and integration interchangeably in his research. In addition, Tinto and Pusser (2006) noted that involvement was exchangeable with social and academic integration. Pascarella and Terenzini (1991) used involvement and engagement synonymously when they found that engagement positively influenced cognitive development and knowledge acquisition. Although research on student engagement can be found under other terms, much of the research on engagement in higher education has been related to student learning, residence halls (Berger, 1997; Devlin, Donovan, Nicolov, Nold, & Zandan, 2008), and living-learning communities (Falls, 2009; Lounsbury & DeNeui, 1996). To a lesser extent, there has also been research regarding engagement in academic departments (Harris, 2006; Sanders et al., 2006), in classrooms (Ke, 2006; Tinto, 1997), and even in non-traditional programs (Rovai, 2002; Newswander & Borrego, 2009; Tinto, 1997, Tinto & Goodsell-Love, 1993; Twale et al., 2002). Researchers have found that college students’ benefit significantly from
engagement, and institutions can provide “instructional and programmatic interventions that...increase a student’s active engagement in learning and academic work” (Pascarella & Terenzini, 1991, p. 616). Therefore, it is important to further understand why and how students become engaged in college and what institutions can do to foster engagement.

**National Survey of Student Engagement**

Due to evidence in the literature that engagement is one of the single best predictors of student learning, development, satisfaction, and persistence, it has become increasingly important to identify educational practices that encourage student engagement. In response, the National Survey of Student Engagement (NSSE) was founded in 1998 to explore the ways in which “institutions emphasize effective teaching practices and students engage in educationally purposeful activities” (NSSE, 2010b, para. 1). NSSE was piloted in 1999, and the first official administration began in 2000 followed by annual administrations that collect data on student engagement. Since 2000 over 1,400 U.S. and Canadian institutions have participated in NSSE. According to NSSE (2010a), “The results provide an estimate of how undergraduates spend their time and what they gain from attending college” (para. 2). The results have also been used to identify five national benchmarks of good practice including: “level of academic challenge, active and collaborative learning, student interactions with faculty members, enriching educational experiences and supportive campus environment” (Kuh, 2001, p. 13).
NSSE surveys students on the frequency with which they participate in dozens of engaging activities known to represent good educational practice (Kuh, 2003a). The instrument also assesses the amount of reading and writing, homework, extracurricular activities, and non-school related activities students spend time on. It also asks students to report whether or not they feel challenged in school, the quality of their relationships with peers and others at the institution, and their overall satisfaction levels at the institution. Students are asked to give their perceptions of certain engaging features of the college environment as well as give self-assessments of their personal and education growth since entering college. Students complete the survey by providing background and demographic information. There was an average institutional response rate of 36% in the 2009 administration and NSSE has been tested to ensure high levels of validity and reliability (NSSE, 2009).

According to the NSSE 2009 annual report, significant findings included:

1. Of institutions with at least four administrations of the survey between 2004 and 2009, 41% reported an improvement trend in at least one measure for freshmen, and 28% showed improvement in at least one measure for seniors.

2. All institutions, both public and private, of every size and type showed evidence of systematic improvement.

3. More than 50% of students reported having frequent conversations with students of a different race or ethnicity regarding a serious matter.
4. Over 75% attributed a senior seminar or capstone course to substantial gains in intellectual curiosity, independent learning, critical thinking, and reason-based decision making.

5. Transfer students participated in fewer engaging activities, had less interaction with faculty, and rated their campus relationships lower than non-transfer students.

6. About 20% of students frequently went to class unprepared.

7. 40% of freshmen never discussed classroom ideas with faculty members outside of class.

These findings and other data from NSSE are being used at hundreds of institutions and by hundreds of researchers to help frame studies and explain student phenomena.

The most engaged students according to NSSE were women, full-time students, students living on campus, non-transfer students, students enrolled in learning communities, international students, and students who had experiences with diversity. The 2006 NSSE supported previous findings that student engagement was positively associated to freshman and senior year grades as well as to persistence between the first and second year (Lorenzetti, 2006).

Disengagement

Unfortunately, while student engagement is positively associated with student success and persistence, many researchers have found a trend of disengagement in many aspects of campus life (Case, 2007; Spitzberg & Thorndike, 1992; Tinto, n.d.). Some
researchers found that this culture of disengagement was partly due to the fact that more and more students were viewing college as an economic necessity in order to make more money (Astin, 1998; Flacks & Thomas, 1998). Students often saw the grade as the ultimate outcome of the college experience rather than the personal, social, or developmental gains that come from engaging experiences (Flacks & Thomas, 1998). Spitzberg and Thorndike (1992) found,  

A number of factors contribute to this minimal contact and minimal connectedness. Most students, partly by necessity, partly by choice, spend the bulk of their time on activities other than going to class and studying…Academic work may actually be the lowest priority of both traditional-age and adult students. (p. 6)  

Kuh (1999) also found a trend in disengagement from 1990 through 1994, and in 2001 he reported that students were still less engaged than what would be expected. He proposed that this disengagement was in part because fewer undergraduate students experience college as full-time, residential students. Kuh (2003) later confirmed that students were less engaged because many have life situations that required them to devote a significant amount of time away from academics.  

Kuh (2003) also found, however, that most students entered college with greater expectations for engagement than what they actually participated in. In fact, about one-fifth of students were disengaged, put minimal effort into their school work, and spent only about half the recommended number of hours studying (Kuh, 2003). According to Lorenzetti (2006), the 2006 NSSE also found students to be less engaged than expected.
The survey found that students spent about half as much time preparing for class than what professors expected students to devote, and freshmen studied less than what they originally expected to study. In addition, students who worked part-time had less contact with faculty and fewer enriching educational experiences than non-working students (Lorenzetti, 2006).

Finally, Kuh (1999) found that engagement decreased at doctoral-granting institutions and only increased at small colleges in student-faculty interaction. Further research indicated that large institution size negatively impacted student engagement (Royal & Rossi, 1996). This may be in part because there is typically a lower sense of community on larger campuses and sense of community has been found to positively influence engagement as will be explored further.

**Sense of Community**

Sarason (1974) coined the term psychological sense of community as “the perception of similarity to others, an acknowledged interdependence with others, a willingness to maintain this interdependence by giving to or doing for others what one expects from them, the feeling that one is part of a larger dependable and stable structure” (p. 157). However, it is McMillan and Chavis’ (1986) work that drives most community research in higher education. They coined the term sense of community as “a feeling that members have a belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (p. 9). McMillan & Chavis’ definition of sense of community incorporates
four elements: membership, influence, integration and fulfillment of needs, and shared emotional connection.

It is important to discuss sense of community in the context of student engagement because sense of community has a mediating effect on engagement. It has been found that students who have a strong sense of community will likely be more engaged (Kuh et al., 1991; Royal & Rossi, 1996). This supports Haworth and Conrad’s (1997) belief that a community of learners was one indicator of an engaging academic program. Sense of community has also had a positive influence on student persistence and learning (Jacobs & Archie, 2008). Tucker (1999) even suggested that sense of community was more important to student persistence than academic or social integration. Sense of community has also been found to positively influence academic gains (Ke, 2006) and overall quality of life for students (Kuh et al., 1991).

Similar to students with higher levels of engagement, students with a higher sense of community tended to be students who were members of a sorority or fraternity, who lived on campus, who were females, and who were lower classmen (Lounsbury & DeNeui, 1995). Out-of-state students also tended to have a higher sense of community than in-state students (Lounsbury & DeNeui, 1995). Also, similar to studies on engagement, students from smaller colleges tended to have higher sense of community scores than students from larger colleges (Lounsbury & DeNeui, 1996). However, for large schools, Royal and Rossi (1996) found that membership in learning communities or subunits enhanced the sense of community for students.
It has been proposed that extracurricular participation may positively influence students’ sense of community; in fact, the development of team sports in education was thought to be an attempt to build a greater sense of community in schools (Coleman & Hoffer, 1987; Easthope, 1975). However, Royal and Rossi (1996) did not find evidence to support this supposition. Taub (1998) recommended leadership programs, service learning, learning communities, and rituals and traditions to increase sense of community on college campuses. In addition, Rovai (2002) found that a number of factors positively correlated with sense of community in online courses including: social presence nurtured by faculty, social equality of all members of the group, small group activities, group facilitation by the instructor, and small classes. However, Taub (1998) listed potential challenges to sense of community on college campuses including: diversity of students, increasing numbers of commuter, non-degree seeking, and part-time students, the use of technology and online learning, increasing institutional size, and an emphasis on faculty research. Spitzberg and Thorndike (1992) found that most students rarely had a sense of community on campus. They argued that because many students viewed a college campus as a place to get a degree, the lack of campus community did not bother them. In addition, a learning community will not develop with the usual lack of engagement, social fragmentation, and packaged and passive learning that occur on college campuses. It is therefore important for colleges to create engaging subcommunities on campus.

Tinto (1993) compared colleges to solar systems with the center of institutional life being the sun and the various individual subcommunities being the planets revolving around the center. He believed that at a bare minimum, students had to obtain
membership in a subcommunity in order to persist; however, persistence was also enhanced when that subcommunity was strongly tied to the center of institutional life. Tinto (1993) proposed a hypothesis,

The greater the variety of locally available subcultures or communities on campus, the greater the likelihood that a greater range and number of persons will be able, if they so desire, to become integrated and establish competent intellectual and social membership while in college. (p. 124)

According to Tinto (1997), colleges consisted of “overlapping and sometimes nested academic and social communities” (p. 617). Social communities include things such as residence halls, social organizations like fraternities and sororities, and cultural groups while academic communities may include academic cohorts, learning communities, and collaborative learning programs, all of which are designed to promote student engagement.

Eight Measures of Engagement

Many engaging opportunities exist on a college campus including interacting with students from diverse backgrounds, having common understandings and experiences with peers, spending time with peers, interacting with faculty, participating in active and collaborative learning such as group projects, integrating classroom content with real life experiences, attending events and activities outside of class, and being challenged academically (Chickering & Gamson, 1987; Haworth & Conrad, 1997, Kuh, 2001).
These eight measures of engagement are compiled from findings of three different studies. The eight measures will be introduced in the following paragraph.

First, diversity-related activities refer to the amount of diversity students are exposed to while in college. In this study, high levels of diversity-related activities occur when students interact with students from diverse backgrounds and contribute diverse perspectives to class discussions (Haworth & Conrad, 1997; NSSE Survey, 2010). Second, students in the same academic program can have shared understanding and experiences when they have comparable ideas about the academic program’s goals and direction and those understandings are consistent with the actual program direction (Haworth & Conrad, 1997). Engaged students should also be able to identify with one another and have shared learning experiences. Third, interaction with peers refers to the relationships that students have with each other both in and out-of-class. Positive student-to-student interaction occurs when students interact and cooperate by collaborating on projects, discussing with each other, and being involved in clubs and other social events (Haworth & Conrad, 1997). Fourth, interaction with faculty members refers to the relationships that students have with faculty members both in and out-of-class. Positive student-faculty interaction occurs when there is a “two-way, interactive approach to teaching and learning” (Haworth & Conrad, 1997, p. 188). Students and faculty discuss ideas and work on projects both in and out-of-class, and students are mentored by faculty advisors. Fifth, active and collaborative learning occurs when students actively engage in class discussions, come prepared to class, share experiences and views with others, participate in various learning activities and group projects, and collaborate with peers
Sixth, integrated learning can be accomplished when students put together ideas and concepts from various sources or courses to complete assignments or during class discussions (NSSE Survey, 2010). It can also be accomplished when students relate classroom experiences and skills to real world issues and problems or when they “participate in hands-on instructional activities…where they make connections between theory and practice” (Haworth & Conrad, 1997, p. 189). Seventh, out-of-class experiences can refer to an assortment of co-curricular activities that occur outside the classroom. These may include seminars, clubs, social events, committees, student life activities, internships, volunteer work, service learning, program or campus sponsored events, or athletic events (Haworth & Conrad, 1997; NSSE Survey, 2010). Finally, academic challenge refers to the level of expectation that is placed on student learning and the challenge that students feel in courses (Haworth & Conrad, 1997; NSSE Survey, 2010). These eight measures of engagement will be explored in more detail in the following section.

**Diversity-Related Activities**

Many researchers have found that experiencing diversity in college can facilitate student engagement and learning (Cabrera, Nora, Terenzini, Pascarella, & Hagedorn, 1999; Carmichael, 2004; Cheng, 2004; Ewell & Wellman, 2007; Humphreys, 2002; Kaufman & Creamer, 1991; Kuh, 1991, 2003; Kuh et al., 2005, 2010; Nora & Cabrera, 1996). Diverse experiences can include talking with students or faculty from different racial, ethnic, social, or economic backgrounds, or who have different religious beliefs,
values, or political opinions (Kuh et al., 2005, 2010). Students who have perceptions of racial prejudice or discrimination on campus have been found to have lower levels of social integration (Cabrera et al., 1999; Nora & Cabrera, 1996). According to Kuh (1991), healthy campus communities promoted interaction among and between diverse groups of students and incorporated and valued diversity.

Exposure to diversity has positively influenced student satisfaction, learning, appreciation of differences, and integration. Kuh (2003) found, “The more exposure to diversity, the more likely it is that students are involved in active and collaborative learning and the more satisfied they are with their college experience” (p. 31). Astin (1993, 1996) also found that emphasizing diversity in courses had positive effects on overall satisfaction with college and student life. Kaufman and Creamer (1991) discovered that students who participated in serious discussions with other students from diverse backgrounds had higher perceived intellectual growth. Terenzini et al. (1999) also concluded that “discussing racial/ethnic issues appears to contribute to students’ overall academic development and to gains in general knowledge, critical thinking, and analytical and problem-solving skills” (p. 617). In addition, Humphreys (2002) reported that having diverse experiences in college led to increased appreciation of diversity in society, reduced prejudicial attitudes, and more openness to difference. He pointed to the importance of education about diversity issues and argued that interdisciplinary diversity education programs were the most effective. Astin (1996) noted that students had a better understanding of diversity and a stronger personal commitment to promoting that understanding if matters of diversity were emphasized on campus. On the other hand,
Rhee (2008) found that increased levels of diversity and a larger emphasis on diversity in colleges were significantly related to higher rates of students stopping out. However, the same results were not found for students who dropped out or transferred. With the exception of Rhee’s study on students who stopped out, diversity-related activities were wholly positive.

Carmichael (2004) suggested that programs allow for diversity. He stated,

Learning to tolerate and work with people who hold a variety of perspectives and who often have less-than-desirable idiosyncrasies is very valuable training for the future and it is something most students don’t have the chance to experience in traditional lecture style classrooms. (p. 25)

Cheng (2004) found that to facilitate a sense of community on college campuses, colleges had to foster positive relationships among diverse groups of students by offering diverse programs and activities. In addition, Kuh and colleagues (2010) recommended that institutions “ensure that diverse perspectives are represented in the curriculum” (p. 308).

Shared Program Understanding and Experiences

While diversity is important among students, some commonalities are also critical. Having shared understanding and experiences can foster feelings of belonging, which “help students connect with their peers and the institution, relationships that, in turn, are associated with persistence and satisfaction” (Kuh et al., 2010, p. 119).

McMillan and Chavis (1987) proposed that members of a community who had frequent interactions, positive experiences, and shared events would have a stronger sense of
community. Kuh (1991) agreed that a healthy campus community ensured shared experiences for students, faculty, and administrators. In addition, Harris (2006) found that students with a common purpose had stronger group interdependence as well as individual achievement.

One common way for students to have shared experiences is to attend the same classes, and some researchers have found that there are benefits to students completing a common curriculum (Carmichael, 2004; Kuh 1999; Spitzberg & Thorndike, 1992; Tinto, 1998). A successful program ensures that students have a shared academic experience because they are taking courses together, reading the same books, and completing the same assignments (Carmichael, 2004). According to Kuh (1999), students who studied with peers who had a similar academic experience were more likely to learn at deeper levels and apply what they were learning to different venues. Spitzberg and Thorndike (1992) recommended that colleges create a shared academic experience by constructing a core set of courses that all students must take and requiring a course that focuses on the idea of community. Similarly, Tinto (1998) suggested that institutions “adopt a community model of academic organization that would promote involvement through the use of shared, connected learning experiences among its members, students and faculty alike” (p. 170).

**Interaction with Peers**

Having shared program understanding and experiences among students can help to promote student discussions and involvement with one another. Many researchers
found that peer interactions played an important role in many developmental outcomes and persistence in college (Astin, 1993; Berger & Milem, 1999; Harris, 2006; Milem & Berger, 1997; Pascarella & Terenzini, 1991, 2001; Tinto, 1975, 1993, 1997). Very early on, Newcomb (1966) reported that peer influence was the second most important factor in student change right after entering student characteristics. As a result of this discussion, Newcomb and Wilson (1966) proposed further studies on peer group influence. Later, Spady (1971) found friendship relationships to be related to social integration, grade performance, intellectual development, and, to a lesser extent, to persistence.

Since this early research, peer groups have had a positive impact on student learning and development (Astin, 1993; Pascarella & Terenzini, 2001). Astin (1993) developed a measure of student-to-student interaction, which included both academic and social interaction. He found the peer group to be “the single most important environmental influence on student development” (p. xiv). He encouraged colleges and universities to use creative peer group initiatives to strengthen student learning and development. Pascarella and Terenzini (2001), in their meta-analysis, also concluded that student teaching and tutoring programs positively impacted student learning. They found, Students’ interactions with their peers also have a strong influence on many aspects of change during college. Included are such areas as intellectual development and orientation; political, social, and religious values; academic and social self-concept; intellectual orientation; interpersonal skills; moral
development; general maturity and personal development; and educational aspirations and educational attainment. (pp. 620-621)

In addition to learning and development outcomes, peer interaction has positively influenced social integration. Tinto (1975) and Milem and Berger (1997) found peer-group associations to be the most directly related to social integration. Harris (2006), in a study on adult students, found that peer interaction was the most significant factor contributing to a sense of community. Tinto (1997) also found “that participation in…a small supportive community of peers…helps bond students to the broader social communities of the college while also engaging them more fully in the academic life of the institution” (p. 613).

Terenzini et al. (1999) concluded that peer interactions that were related to educational or academic activities almost always had beneficial outcomes for students. However, some peer interactions have had a negative influence; for example, the number of hours spent on volunteer activities, partying, and socializing. It has also been proposed that “heavy involvement with peers may detrimentally affect students’ ability or inclination to interact with faculty” (Berger, 1997, p. 450). Despite the importance of student interaction, Kuh and Vesper (1997) found that the level of peer interactions remained unchanged for students from 1990 to 1994 at both baccalaureate and doctoral-granting institutions. Regardless of the low reports on peer interactions, it is clear that peers play a critical role in facilitating a variety of personal, developmental, and intellectual outcomes for undergraduates (Milem & Berger, 1997).
Interaction with Faculty Members

In addition to peer interactions, student-faculty interactions have also had significantly positive influences on student development. In fact, frequent student interactions with faculty were found to be among the most prominent influences on student persistence and success (Astin, 1977; Brier & Steele, 2008; Carmichael, 2004; Chickering, 1987; Ewell & Wellman, 2007; Kuh et al., 2005, 2010; Milem & Berger, 1997; Pascarella & Terenzini, 1980, 1991, 2001, 2005; Tinto, 1975, 1993). Student-faculty interactions can include discussions in or outside of class on grades, assignments, career plans, readings, or classes, and collaborative work on activities or research (Kuh et al., 2005, 2010).

Faculty interaction has been found to be a positive influence on student learning and intellectual development. Spady (1971) found faculty contacts to have a greater impact on intellectual development than peer contacts. According to Milem and Berger (1997), involvement with faculty also had a positive influence on cognitive and affective outcomes. This was supported by Terenzini et al. (1999) who found that “most researchers have reported positive associations between the nature and frequency of students’ out-of-class contacts with faculty members and gains on one or another measure of academic or cognitive development” (p. 616). Lundberg and Schreiner (2004) also found that faculty relationships were stronger predictors of student learning than background characteristics. In addition, Case (2007) found that relationships with professors helped to foster engagement in the academic discipline and career. According to Pascarella and Terenzini (2001), despite the clear benefits of student-faculty
interactions on student learning, “it is not necessarily clear that student-faculty interaction leads to higher educational aspirations, and subsequently, higher educational attainment” (p. 395). In other words, the causal direction between faculty interaction and academic performance is not clear. It has not been determined whether informal faculty interaction enhances students’ academic performance or whether perceptions of gains in academic performance leads students to seek additional interaction with faculty.

The influence of faculty interaction on student persistence also has mixed reviews. Pascarella and Terenzini (1980) found that faculty interactions were a greater predictor of student persistence than peer interactions. Students who perceived their instructors to be organized, well prepared, clear, and have strong instructional skills were more likely to become socially integrated, have strong institutional commitment, and reenroll (Braxton, Bray, & Berger, 2000). However, in Harris’ (2006) study on adult students, only 4.6% of respondents perceived professors as a significant factor in assisting in degree attainment, suggesting that faculty-student interaction had a very low perceived influence in persistence. This may be a result of the type of student that was studied since adult students have been found to be less engaged overall than traditional age students.

Faculty interaction has also been found to influence student satisfaction. Endo and Harpel (1982) found that student-faculty interaction had a positive impact on the intellectual and social development of students as well as on students’ satisfaction in college. Astin (1984) even found that frequent faculty interaction was more strongly associated with satisfaction with educational experiences than any other type of
engagement or any student or institutional characteristic. In particular, informal student-faculty interaction had a greater impact on student outcomes and student satisfaction (Endo & Harpel, 1982; Pascarella & Terenzini, 1980; Terenzini & Pascarella, 1977).

Pascarella and Terenzini’s (2001) meta-analysis concluded:

Net of student background characteristics, extent of informal contact with faculty is positively linked with a wide range of outcomes. These include perceptions of intellectual growth during college, increases in intellectual orientation, liberalization of social and political values, growth in autonomy and independence, increases in interpersonal skills, gains in general maturity and personal development, educational aspirations and attainment, orientation toward scholarly careers, and women’s interest in and choice of sex-atypical (male-dominated) careers. (p. 620)

In addition, Kuh and colleagues (2005, 2010) found that the quality of faculty interactions was more important than the frequency. However, high quality, educationally meaningful interactions didn’t occur automatically; these interactions had to be nurtured and supported by institutions.

Unfortunately, student-faculty interactions are not as frequent as the literature suggests they should be (Kuh, 2001). According to Pascarella and Terenzini (2001), most student-faculty interactions are limited to formal discussions in the lab, lecture, or other classroom setting. In addition, Spitzberg and Thorndike (1992) found that the majority of students did not have relationships with faculty, and students in research universities had the least amount of faculty contact whereas students in liberal arts colleges had the most
contact. They also found that very few students sought assistance from faculty outside of class and few faculty members offered it. In order to encourage student-faculty interactions, colleges should offer opportunities for students and faculty to engage in discussions both in and out of the classroom. Kuh and Vesper (1997) found that at baccalaureate institutions, faculty-student interactions increased from 1990 to 1994 but decreased at doctoral-granting institutions during the same time period. Despite these disappointing results, according to Pascarella and Terenzini (2001), “There is considerable evidence that the impact on students of faculty norms, values, and attitudes, as well as faculty members’ impact as role models, is enhanced when student-faculty interactions extend beyond the formal classroom setting” (p. 393).

**Active and Collaborative Learning**

In addition to frequent interaction with students, researchers have encouraged faculty to implement active and collaborative student learning pedagogies to allow students to be more engaged in the learning experience (Carmichael, 2004; Ewell & Wellman, 2007; Pascarella & Terenzini, 2005; Tinto, 1997). Active and collaborative learning can include peer learning, such as group work, peer tutoring, and peer evaluation; asking questions in class or contributing to class discussions; presenting in class; learning in communities; service learning; and other diverse learning styles (Chickering, 1987; Kuh et al., 2005, 2010). Researchers have shown that enrolling in courses with active learning including class discussions, higher-order thinking skills, and knowledge level assessments has led to positive direct effects on social integration and
institutional commitment and indirect effects on persistence (Braxton, Milem, & Sullivan, 2000). Active learning pedagogies also enhance student learning and success (Anderson & Adams, 1992; Braxton & McClendon, 2001; Chickering & Gamson, 1987; Ewell & Wellman, 2007; Pascarella & Terenzini, 1991; Tinto, n.d.). According to Chickering and Gamson (1987) participating in collaborative learning increases involvement in learning, hones thinking, and deepens understanding. In addition, the use of collaborative learning fosters the development of peer groups, which as previously noted, positively influences student learning and social interaction (Astin, 1996; Braxton & McClendon, 2001; Tinto, 1997). Tinto (1997) found,

> The more students are involved, academically and socially, in shared learning experiences that link them as learners with their peers, the more likely they are to become more involved in their own learning and invest the time and energy needed to learn. (p. 615)

Tinto and Pusser (2006) also recommended cooperative and/or collaborative learning to enhance student engagement.

One of the most popular forms of collaborative learning, the learning community, has been described as being a community that “integrate[s] academic subject matter and social interactions while providing the physical space or facility for an intellectually stimulating environment to emerge” (Brower & Dettinger, 1998). Brower and Dettinger (1998) cautioned that a learning community must have boundaries that define membership and must be large enough to be inclusive and accomplish goals but not too big that member’s feel lost.
Learning communities have resulted in a large number of positive influences on student learning, social integration, satisfaction, and persistence (Gabelnick, MacGregor, Matthews, & Smith, 1990; Shapiro & Levine, 1999). According to Shapiro and Levine (1999), participation in learning communities positively impacted retention, academic achievement, and social development. They found,

On most campuses learning communities students earn higher grades and are retained at higher rates than nonparticipants. They demonstrate greater progress in terms of intellectual development, indicate higher levels of involvement with peers and the campus, and express greater overall satisfaction with the college experience. (p. 192)

According to Gabelnick et al. (1990),

Students who participate in learning communities are not exceptional in their views about education. They are, by and large, typical college students, but when they are put in a learning community, their behavior begins to change. They share drafts of papers and revise more freely. They form study groups and pay close attention to sub-groups in the community. They stay engaged. (p. 59)

Gabelnick and colleagues (1990) found that students participating in learning communities nationwide had 10-20% higher retention rates than institutional averages. They postulated that learning communities may have had higher retention rates because students saw their college experience as more than merely a collection of individual courses. A grouping of courses draws a stronger level of commitment because of the strong intellectual and social ties that bind the courses together.
Despite the call for active learning, Kuh and Vesper (1997) found that active learning at baccalaureate institutions did not increase significantly and actually declined at doctoral-granting universities between 1990 and 1994. However, according to Kuh (2001), a substantial proportion of students were experiencing active and collaborative learning.

**Integrated Learning**

Researchers have also argued for more integrated learning pedagogies (Carmichael, 2004; Chickering, 1987; Ewell & Wellman, 2007; Pascarella & Terenzini, 2001; Tinto, 1998). The Project on Liberal Learning (1990) identified two forms of integrated learning.

The first refers to the capacity for constructing relationships among various modes of knowledge and curricular experiences, the capacity for applying learning from one context to another. The second refers to the capacity for relating academic learning to the wider world, to public issues and personal experience. In either case, connected learning means generalizing learning: learning that extends beyond the necessary boundaries of any major and takes seriously its potential translation beyond the limits of a course or program. (p. 14)

Carmichael (2004) found that an integrated learning approach benefited students and encouraged academic programs to create environments that promoted or even required students to make connections between different classes and disciplines. Pascarella and Terenzini (2001) noted that purposive integrative academic experiences stimulated
student change in a wide range of areas. Integrative academic experiences may include a practicum, internship, or service learning opportunity. Twale and colleagues (2002) found that students in a collaborative multidisciplinary program were able to integrate classroom knowledge with their practicum and internship experiences. According to Sheckley and Keeton (1995), service learning was more integrative than traditional classroom lectures “because the meaning making process is dynamic, recursive, and never static” therefore “learners engage concepts and experiences with a greater depth of processing” (pp. 11-12).

Tinto (1998) recommended that institutions promote integrated, interdisciplinary work with shared, connected learning experiences among members. Tinto and Pusser (2006) also recommended that successful learning communities use a central theme or problem to link courses together so that students are able to connect content from one course to content from another. Finally, Chickering (1987) noted that students must relate what they were learning in class to past experiences and be able to use it in their daily lives.

Out-of-Class Experiences

While in-class experiences such as active and collaborative learning and integrated learning have positively influenced engagement, researchers have found that out-of-class experiences are also positively associated with student engagement and persistence (Astin, 1975; Cheng, 2004; Kuh et al., 1991; Tinto, 1975). According to Kuh and colleagues (1991), “About 80 percent of traditional-age undergraduate students
participate in one or more of seven kinds of out-of-class activities: cultural, social, political, communication, religious, academic, athletic” (p. 8). They described an ideal out-of-class experience as being one that incorporated active participation in activities and events that complemented the curriculum and the institution’s educational goals. These experiences may include faculty interactions outside of class such as collaboration on research or classroom projects. Out-of-class experiences can also include learning and development opportunities that occur in student residence halls, clubs and organizations, work opportunities, recreational sports, internships, and volunteer service.

According to Kuh and colleagues (1991), participation in out-of-class activities had positive effects on both institutional commitment and social integration. Out-of-class experiences have also had positive effects on satisfaction with college experiences and job success after graduation. These co-curricular activities also promote the development of leadership skills and interpersonal relationships as well as adult success including income level. Astin (1984) found “that students who join social fraternities or sororities or participate in extracurricular activities of almost any type are less likely to drop out” (p. 523). According to Cheng (2004), organized social opportunities and programming on college campuses offered opportunities for social engagement. However, Kaufman and Creamer (1991) found that extracurricular activities had no significant impact on personal-social gains or on intellectual gains of freshmen. Pascarella and Terenzini (2001) found little additional significant evidence to suggest that out-of-class experiences had any significant impact on student development or change. They noted, however, that
most studies made no clear distinction between peer involvement and out-of-class involvement, which may make it difficult to report.

Kuh (1999) found that learning opportunities outside of the classroom were substantially reduced for the majority of undergraduate students today. In fact, Spitzberg and Thorndike (1992) estimated that less than 10% of undergraduate students participated in extracurricular activities with even less participants in co-curricular educationally related activities. They concluded that students devoted very little time and energy to academically related activities outside of class and recommended that colleges allot more resources to those academically oriented out-of-class programs. Terenzini et al. (1999) also recommended that colleges link speakers, orientations, internships, work-study opportunities, and living-learning programs with students’ classroom experiences in order to promote learning and cognitive development.

Academic Challenge

Researchers have encouraged institutions to set high expectations for student learning in order to enhance student success (Astin, 1996; Braxton, Brier, & Steele, 2008; Ewell & Wellman, 2007; Kuh et al., 2005, 2010; Tinto, 2006). According to Kuh and colleagues (2005, 2010), the level of academic challenge is measured by the amount of time a student prepares for class, the amount of reading and writing, the use of higher-order thinking skills, students working harder than they thought they could to meet standards, and an institutional emphasis on studying and academic work. Successful undergraduate programs have been associated with high student expectations and
challenging academics (Carmichael, 2004). In fact, colleges with the highest levels of engagement “promote high levels of academic challenge by setting and holding students to high expectations and providing appropriate levels of support” (Kuh et al., 2010, p. 178). According to Chickering (1987), it is important to set high expectations for all students, and when you expect more, you will get more. Spitzberg and Thorndike (1992) recommended that colleges set higher expectations of academic achievement, time commitment, and student effort. Tinto (n.d.) agreed that students were affected by faculty and staff expectations and by their perceptions of those expectations. Therefore, student success is influenced by high expectations.

Wrapping up the Eight Measures

Arguments have been made that specific forms of student engagement including interacting with students from diverse backgrounds, having common understandings and experiences with peers, spending time with peers, interacting with faculty, participating in active and collaborative learning such as group projects, integrating classroom content with real life experiences, attending events and activities outside of class, and being challenged academically lead to greater student engagement and ultimately student success, satisfaction, and persistence. However, there is no clear evidence as to which of these practices work better or which combination of experiences will be the most effective. According to Pascarella and Terenzini (2001), “The greatest impact may stem from the student’s total level of campus engagement, particularly when academic, interpersonal, and extracurricular involvements are mutually supporting and relevant to a
particular educational outcome” (p. 626). It appears that it may not necessarily be the type of engaging experiences that students participate in but the quality and frequency of those experiences that matter the most. According to Pascarella and Terenzini (2001),

Whatever form engagement might take, however, students should be helped *early* in their academic careers to find academic and social niches where they can feel that they are a part of the institution’s life, where friendships can be developed, and where role models (whether student or faculty) can be observed and emulated. (p. 654)

**Satisfaction**

According to Ewell and Wellman (2007), satisfaction is one measure of student success. Student satisfaction is very closely related to engagement, and as such, NSSE measures student satisfaction using a group titled “opinions about your school” (Kuh, 2003a, p. 8). This group includes three factors, student satisfaction with college and quality of personal relations, campus climate-social, and campus climate-academic. These factors together measure satisfaction with the overall experience, with interactions with others, and with the school’s ability to offer programs, policies, and practices that help students attain personal and educational goals. Engagement is closely correlated to satisfaction in higher education. As evidenced in many of the aforementioned studies, as engagement increases, satisfaction, in turn, increases.
Criticisms of Engagement Research

Although there is strong support for the use of engagement and integration to increase student persistence and success, there are also critics of this research. As previously noted, Nora (1987), Pascarella and Terenzini (2001), Berger and Braxton (1998), and Borglum and Kubala (2000) all produced findings that challenged Astin (1984) and Tinto’s (1975) research on student involvement. Tinto (1986) acknowledged the limitations of his theory including his failure to incorporate the influence of external communities and organizational characteristics of colleges and universities on student persistence. In addition, the lack of empirical evidence to support the influence of academic integration on goal commitment and persistence has led researchers to question the importance of certain types of integration (Braxton et al., 1997; Berger & Braxton, 1998). As a result, Braxton (2000) addressed alternative constructs of student persistence using economic, organizational, psychological, and sociological frameworks.

Although there are critics of integration as the only or most important factor influencing student persistence, there are few who dispute the positive influences that engaging activities have on students. And while many different types of engaging experiences have been found to be beneficial, it is those experiences that are related to academics that tend to have the most influence on student learning and success. Therefore, it has been proposed that classrooms and academic programs may be the most logical place to examine student engagement; however, this is also one of the most neglected areas of research (Lounsbury & DeNeui, 1996; Pascarella & Terenzini, 2001; Spitzberg & Thorndike, 1992; Tinto, 1997). In addition to academic programs being a
neglected area of research in engagement, nontraditional students have also been a largely ignored population (Kember et al., 2001; Mitzel, 1982; Pascarella & Terenzini, 1991, 2001; Terenzini et al., 1999; Tinto, 1975).

**Academic Program Engagement**

As mentioned previously, Tinto (1993) referred to colleges as having overlapping and sometimes intertwined social and academic subcommunities. Classrooms and academic departments can be viewed as academic subcultures or subcommunities containing clusters of faculty and students (Pascarella & Terenzini, 2001). Engagement in these academic subcultures and the impact upon student learning, success, satisfaction, and persistence has been an area of little research (Tinto, 1993). Tinto (1975) recommended that further studies be conducted on academic subcultures of students and faculty and their relationship to persistence. Tinto (1998) argued that all of the research on student persistence led to many retention programs and student affairs programming, however there has not been comparable programming efforts on the academic side of institutions.

According to Holley (2009), much of the change that occurs developmentally in students while in college can be attributed to the college classroom. Holley (2009) stated that while college attendance has increased student development in areas such as “critical thinking and analytical reasoning, the acquisition of content knowledge and the making of meaning that accompany these endeavors reside in specific disciplinary frameworks” (p. 43). Similarly, according to Tinto (1993), in most institutions student engagement
flourished in and around the classroom. He said, “Classrooms…can be understood as smaller educational communities that serve as both gateways to and intersections for the broader academic and social communities of the college” (p. 132). Few studies of engagement in the college classroom have been conducted, but those that have indicated that in-class experiences may influence social integration and ultimately persistence (Braxton et al., 2000; Tinto, 1997; Tinto & Russo, 1994). Kuh (1999) also found that curriculum had an important impact on student learning and personal development.

In their research on campus community, Spitzberg and Thorndike (1992) suggested:

The classroom is the most logical, most visible, most ubiquitous, and most neglected place for community on campus. It is a lost opportunity of the first order. Few classes, now, are subcommunities. The commitment to recreating the classroom as the model and microcosm of connecting and collaborating on campus is one of the highest priorities for institutions committed to improving community. (p. 116)

They found that identifying common interests, needs, or abilities among students helped create a sense of community in the classroom that could extend beyond the walls of the class. To support this, Tinto (1997) found that membership in a classroom community provided a critical link to membership in external communities throughout campus. Tinto (1997) also found that nontraditional students who had many obligations outside of college may have only been able to connect with faculty and other students in the classroom. For these students, academic and social integration must begin in the
classroom. Kember et al. (2001) found that students could more easily affiliate with classes than with a department or university. Additionally, smaller classes have been more conducive to creating a sense of community than larger lecture classes (Spitzberg & Thorndike, 1992).

Tinto and Pusser (2006) noted that an increasing number of institutions were focusing on creating engaging practices within the classroom and in those areas related to the classroom. Tinto (1993) argued that institutions must be involved in the engagement of their students within the classroom. He said, “Classrooms are central to the process of retention and the activities that occur therein critical to the process through which students come to participate in the intellectual life of the institution” (p. 210). He also noted that retention and education programs relied on the construction of educational communities not only at the classroom level, but also at the academic program level where students could become actively involved in institutional life.

There have been even fewer studies conducted on student engagement at the academic program level than in the classroom. According to the Project on Liberal Learning (1990), the academic program or major should require opportunities for engagement and disengagement and also should provide students the opportunity to join and leave. In other words, disciplines, or academic majors, form boundaries, which create points of inclusion and exclusion that help to create identities (Becher & Trowler, 2001). When students are able to identify with an academic program, there is greater likelihood for sense of community and engagement (Haworth & Conrad, 1997). Engaging students within an academic department can have positive effects including: reducing feelings of
anxiety, depression, and loneliness; increasing feelings of belonging; and improving motivation, personal development, and retention rates (Bailey et al., 1998; Lounsbury & DeNeui, 1996). In addition, students who are engaged and feel a connection to their department, exhibit a decline in class cutting and in classroom disruptiveness, and feel more remorse when they are not prepared for class (Royal & Rossi, 1996). Further, a strong sense of community in a department provides support for alumni to recommend their academic program to other students (Lounsbury & DeNeui, 1996), and in general, a strong sense of community within an academic department has been found to increase satisfaction in the overall educational experience (Sanders et al., 2006).

Sanders and colleagues (2006) identified ways to engage students within a department including: engaging student leaders into taking on leadership roles, providing a common physical space, hosting regularly scheduled activities, creating rituals that mark achievement, and hosting social events. Common pitfalls to community building include: lack of faculty involvement, irrelevant activities, lack of publicity about events, and cliques of students. Other challenges may occur with nontraditional students or residential students. Departments may have a challenge promoting a sense of community with nontraditional students due to their varying schedules. Departments may have to try offering events repeatedly throughout the day and evening in order to accommodate nontraditional students (Sanders et al., 2006). Departments face different challenges on residential campuses. Sanders and colleagues (2006) suggested that departments may have to compete with other communities on residential campuses such as fraternities and sororities and intramural athletics. They recommended that departments implement
programs that are relevant to students and that do not overlap with opportunities already provided by other groups.

Researchers have demonstrated that it is easier for students to become affiliated with small subcommunities on campus rather than the institution as a whole (Berger, 1997; Kember et al., 2001). Berger (1997) found that it was important for students to develop a strong sense of community with a small group on campus before developing a strong institutional commitment. However, if a student had extremely focused interaction with one particular group, it may have actually isolated that individual from other groups on campus or from the larger institutional community (Berger, 1997). In terms of developing community within an academic department, the size of the department plays an important role. Kember et al. (2001) found that it was easier for students to relate with individuals or small groups rather than an entire academic department. Pascarella and Terenzini (1991) also found that larger department size could negatively influence student involvement. In addition, Feldman and Newcomb (1969) suggested that academic departments may have had more of an impact on student engagement in larger institutions.

In addition to the size of the department influencing student engagement, Feldman and Newcomb (1969) concluded that different major fields also impacted students in different ways. They found that after controlling for initial entering student characteristics, different academic majors within the same institution typically affected students differently. In addition, Pace (1984) found a difference in quality of effort scales between science majors and humanities and arts majors indicating that students in
different fields may have had different experiences. Researchers also found empirical evidence to support the idea that students’ degree of certainty in choosing an academic major was positively related to persistence in college (Brigman, Kuh, & Stager, 1982; Demitroff, 1974; Demos, 1968; Newton & Gaither, 1980; Sexton, 1965; Timmons, 1977). However, Bailey et al. (1998) found no difference between student academic major and persistence in college. Pascarella and Terenzini (1991) found that peers within an academic program or major could be more influential than peers outside of the academic department in developing student values and in changing attitudes. A few other researchers (Astin, 1993; Pace, 1984; Pascarella & Terenzini, 1991; Spitzberg & Thorndike, 1992) have studied academic major as a factor in their research.

Academic major has also been studied in regard to sense of community. According to Sanders and colleagues (2006), students who had a strong sense of community within their academic department had increased achievement and high regard for the department. Researchers found that students in different majors reported different levels of sense of community (Feldman & Newcomb, 1969; Lounsbury & DeNeui, 1995; Spitzberg & Thorndike, 1992). Spitzberg and Thorndike (1992) found that “the students who expressed the strongest sense of community in class included business majors, nursing majors, engineering and chemistry majors, students in remedial programs, and students in honors programs” (p. 116). Lounsbury and DeNeui (1995) found that students with higher sense of community were enrolled in communication, education, and nursing fields and lower community was found in engineering and life sciences. These findings were consistent with those of Feldman and Newcomb (1969). Lounsbury and DeNeui
(1995) also found that students with the lowest sense of community were those who were undecided on a major. This may be explained because, as Feldman and Newcomb (1969) concluded, a major department is a community, much like a home, where much of the student’s engagement takes place. Students who have not declared a major do not have the benefit of belonging to a departmental community. Jacobs and Archie (2008) also found that changing majors may have had a negative influence on sense of community. Finally, Lounsberry and DeNeui (1996) recommended that future research be done on sense of community among students in different majors.

In her study on engineering students, Case (2007) found that participants were primarily disengaged in their academic program and reported feelings of drudgery, discipline, denial, and lacking in passion or enjoyment. She found, however, that students welcomed opportunities to engage in courses with a diverse group of students outside of their discipline. In addition, strong relationships with the professors helped to engage students in the major and career.

As Pascarella and Terenzini (2001) found, departments that had a strong sense of community, could influence personal and educational changes in students. Therefore, they recommended that academic departments make systematic and conscious efforts to develop environments that attract and engage students in the academic and social aspects of campus. Despite the type of engagement opportunities within departments, Students should be helped early in their academic careers to find academic and social niches where they can feel that they are a part of the institution’s life, where
friendships can be developed, and where role models (whether student or faculty) can be observed and emulated. (p. 654)

According to the Project on Liberal Learning (1990), the sense of community that defines any academic program should come from a shared sense of purpose and engaging activities.

Nontraditional Student Engagement

Most early studies on involvement or engagement were conducted with traditional populations prompting researchers to call for further studies on nontraditional students (Bean & Metzner, 1985; Kember et al., 2001; Mitzel, 1982; Pascarella & Terenzini, 1991; Terenzini et al., 1999; Tinto, 1975, 1998). An increasing percentage of today’s students are commuters, part-time students, or adult learners (Bean & Metzner, 1985; Klein, 1999). According to a paper prepared for the U.S. Department of Labor (2007), 44% of U.S. postsecondary students are adult learners over the age of 24, excluding the number of part-time and distance learning students under the age of 24. In 1985, Bean and Metzner identified three factors that helped to identify nontraditional students: they typically commuted to campus; they were typically older than the age of 25; and they attended college part-time. Students who can identify with one or more of these characteristics could be considered to be nontraditional. Since 1985, the emergence of online learning has added a new category of nontraditional students; those students who take courses online or are otherwise considered distance learners.
Part-time, commuter, transfer, adult, and distance learning students have all been found to be less engaged with the college community than their full-time residential counterparts (Carr, 2000; Kerka, 1996; Kuh, 2003; Mann, 2001; Orlando, 2000; Pittman, 1997; Taub, 1998; Twale et al., 2002). Literature has shown that commuter and adult students have less social integration than their residential and traditional age counterparts (Chickering, 1974; Flanagan, 1976; Kuh & Ardaioio, 1979; Lenning & Hanson, 1977; Solmon & Gordon, 1981; Wallace, 1979; Welty, 1976; Wolfgang & Dowling, 1981). Bean and Metzner (1985) noted, “Nontraditional students are distinguished by the lessened intensity and duration of their interaction with the primary agents of socialization (faculty, peers) at the institutions they attend” (p. 488). The 2006 NSSE found that traditional students were more engaged in activities outside the classroom and in enriching academic activities such as community service, study abroad, research with faculty, or co-curricular activities (Lorenzetti, 2006). Transfer students are also generally less engaged in educational activities than non-transfers in four of the five NSSE benchmarks (Kuh, 2003). Nontraditional students also have been found to have higher levels of attrition (Bean & Metzner, 1985; Berger, 1997; U.S. Department of Labor, 2007).

Transfer, adult, and part-time students all tend to be less engaged than full-time, traditional aged students, mostly due to conflicting non-academic commitments such as work and family. Kuh (2003) suggested that colleges “direct some effort and resources to learning what institutions can do to involve their transfer students at reasonable levels in effective educational practice” (p. 30). Harris (2006) found that one practice that helped
develop a sense of community among adult learners was enrollment in a closed cohort, which was found to be a positive factor in goal attainment and possibly retention. He also reported that positive peer interactions and group cohesiveness helped develop a strong sense of community, which can lead to retention in adult learners. Kember et al. (2001) studied sense of belonging in part-time students and found that contrary to the literature, students reported a higher level of sense of belonging than what would be expected. However, Twale and colleagues (2002) found that part-time students usually did not have the time or opportunity to regularly interact with faculty or peers. In fact, 60% of the part-time respondents in their study reported little or no contact with classmates outside of class. Part-time students also did not have a strong connection to the campus or department, and it was more difficult for faculty to develop engaging and meaningful activities (Pittman, 1997; Twale, Reed, & Kochan, 2001).

Community college students encounter their own challenges with engagement. Pascarella and Terenzini (1991) concluded that students enrolled in two-year community colleges were more likely to drop out than students at four-year institutions. Napoli and Wortman (1998) extended Tinto’s model of retention to community college students and confirmed the generalizability of the model to two-year schools. Their results supported the findings that social integration, academic integration, goal commitment, and institutional commitment all had positive and direct effects on persistence. However, they confirmed that external demands such as family and work had a significant and negative impact on persistence of community college students. Nora (1987) found, in her study of Chicano community college students, that institutional and goal commitment affected
student retention much greater than did academic or social integration. Conversely, Pascarella and Chapman (1983) found that students at two-year commuter schools had higher levels of goal commitment than institutional commitment, and academic integration played a stronger role in persistence than social integration. Similarly, Tinto (1997) proposed that academic involvement should be more important for students at a two-year school than at a four-year institution because the two-year schools had less residential and social involvement opportunities. In addition, Bean and Metzner (1985) argued that for nontraditional students, academic involvement was paramount while traditional students were impacted by both academic and social integration variables. On the other hand, Borglum and Kuba (2000) found no correlation between social and academic integration and attrition at a community college. In fact, “more than half, 54%, of study respondents indicated that they did not care to engage in campus activities”, and “very few students took the time to sit and discuss items with their instructors” (p. 575). Borglum and Kubala (2000) even recommended that community colleges “not spend time, money, or effort trying to find ways to encourage students to stay on campus” (p. 575).

Commuter students also face challenges in becoming engaged on campus. According to the U.S. Department of Education, National Center for Education Statistics (2002), more than 80% of U.S. undergraduate college students live off campus. Pascarella and Chapman (1983) found that students at commuter institutions had differing levels of institutional and goal commitment and social and academic integration than students at primarily residential institutions. For students at four-year primarily
residential institutions, institutional commitment was more influential than goal commitment and social integration played a larger role than academic integration. Students at four-year commuter schools also had higher levels of institutional commitment, but differed in that academic integration had a larger impact than social integration. Sanders and colleagues (2006) noted the difficulty that commuter campuses faced in competing with the other demands in their students’ lives. Taub (1998) argued that because commuter and part-time students were only on campus for a short period of time, they were limited in their participation in co-curricular activities and groups. This in turn could detract from the development of a sense of community for these students. However, while many commuter students have multiple time commitments, researchers have suggested that many nontraditional students still desire a connection to their learning environment (Jacoby, 1997; Orlando, 2000).

Tinto and Goodsell-Love (1993) examined student success in non-residential, collaborative learning programs and found that “it is possible to promote student involvement and achievement in settings where such involvement is not easily attained” (p. 4). This was confirmed by Orlando (2000) who found that commuter students who participated in a cohort program were more likely to agree that they had a good place to study on campus, had a place to call their own, were able to meet with other students to work on class projects, and had faculty who provided a positive contribution.

With the recent increase in online course offerings, online programs, and even online institutions, the literature on engagement of online learners has quickly blossomed. Parsad and Lewis (2008) reported that 61% of all institutions offer online courses. With
this increase in online learning come some challenges as well. Carr (2000) noted that distance education courses may have course completion rates 10-20% lower than in traditional face-to-face courses, but cautioned that not all institutions measure course completion the same. Some researchers believe that the rise in technology and online learning creates a barrier to promoting community and engaging students (Rovai, 2002; Sanders et al., 2006; Taub, 1998). According to Taub (1998), students are increasingly using online technologies to replace face-to-face communication, allowing themselves to disengage from the campus community both physically and psychologically. It has also been suggested that the physical separation of distance learners from each other and from campus may contribute to higher attrition because of feelings of disconnect, passivity, distraction, isolation, and lack of personal attention (Kerka, 1996; Rovai, 2002). Astin (1996) also cautioned that computer technology may be reducing the amount of student-faculty contact. However, some argue that learning communities can develop even in an online learning environment (Cook, 1995; Kerka, 1996). In fact, the 2006 NSSE survey found that distance education students were actually more engaged in the classroom than their traditional counterparts (Lorenzetti, 2006). For example, 80% of distance education students reported asking questions or contributing to class discussions and 61% reported working on multiple drafts prior to submitting a paper. Rabe-Hemp, Woollen, and Humiston (2009) found that students in online courses “reported significantly higher levels of in class participation and more student-to-professor contact than traditional students” (p. 212). However, they found that online students reported much lower levels of peer interaction and lower levels of out-of-class discussions than students in traditional
classes. Overall they reported that online students had less positive experiences than traditional students. Carr (2000) noted that some of the best professors of online courses were those who made personal contact with their students.

Due to the limited literature on nontraditional student engagement and engagement in academic programs, it is fitting to study student engagement within a nontraditional academic program. One example of this would be an interdisciplinary undergraduate program.

**Interdisciplinary Studies**

Interdisciplinary ways of thinking have become popular as colleges and universities strive to solve societal problems that span across wide chasms of disciplinary issues. For example, many academicians studying environmental issues may be considered interdisciplinarians if they are examining a combination of economic, social, political, climactic, or biological problems. However, the concept of interdisciplinary programs can be very perplexing and difficult to grasp for many college administrators, faculty, staff, and students. This is in large part because of the ambiguity of the term ‘interdisciplinary’, the lack of uniformity in the literature, and the lack of knowledge about interdisciplinarity on college campuses. The type, size, and uses of interdisciplinary programs vary from institution to institution, and may include general education programs, freshman introductory courses, senior seminars, interdisciplinary core curricula, interdepartmental majors, interdisciplinary learning communities, and even
interdisciplinary colleges (Flexner & Hauser, 1979). This makes assessing, comparing, and generalizing research on interdisciplinary programs very challenging indeed.

Interdisciplinary Study Defined

According to Klein (1990), a frequently cited researcher on the topic of interdisciplinarity, “Terminology has played a major role in shaping the way people think about interdisciplinarity” (p. 56). Unfortunately, there is not a common definition for the term (Newell & Green, 1982). Moran (2002) postulated that there may be just as many types of interdisciplinary programs as there are disciplines, and Crane and Small (1992) found that there were 8,530 definable disciplines in 1987. To complicate matters, Lattuca (2001) found in one qualitative study that disciplines were actually socially constructed; in turn, interdisciplinary definitions are constructed based on individual experiences. In order to understand the term ‘interdisciplinary’, the term ‘discipline’ must first be examined.

Discipline

According to Apostel and colleagues (1972), “Academic disciplines are the basis for the organization of knowledge for teaching purposes” (p. 9). In modern times the term ‘discipline’ has two principal usages. The first definition refers to the discipline as we use it in academics to identify a specific body of knowledge; the second definition refers to keeping order or control such as disciplining a child (Moran, 2002). The first of these definitions is the one pertinent to this study. Heckhausen (1972) defined disciplinarity as
“the specialized scientific exploration of a given homogeneous subject matter producing new knowledge and making obsolete old knowledge” (p. 83). Finally, Apostel et al. (1972) defined a discipline as “a specific body of teachable knowledge with its own background of education, training, procedures, methods and content areas” (p. 25).

**Interdisciplinary**

The term ‘interdisciplinary’ is not as straightforward as the defining the term ‘discipline’. Incorrect assumptions about interdisciplinary study can cause problems when trying to define the term. One incorrect assumption made by many people is that interdisciplinary study produces people who are generalists and know nothing about everything or who do not have enough depth of understanding in any one area (Kockelmans, 1979). On the other hand, it also cannot be assumed that interdisciplinary study is the solution to all problems that plague our society and our universities (Kockelmans, 1979). A balance must be made between the two extremes to define interdisciplinarity.

Another problem in defining interdisciplinarity is the fact that there are so many other related terms incorrectly being used interchangeably or in place of interdisciplinarity. Klein (1990) suggested that there were important distinctions to be made between the terms cross-disciplinary, multidisciplinary, transdisciplinary, and interdisciplinary. According to Davis (1995), “The dictionary defines ‘interdisciplinary’ as ‘combining or involving two or more disciplines or fields of study’” (p. 3). However,
this broad definition does not tell us how these disciplines are related. In one of the first definitions, Apostel and colleagues (1972) defined interdisciplinary as:

An adjective describing the interaction among two or more different disciplines. This interaction may range from simple communication of ideas to the mutual integration of organising concepts, methodology, procedures, epistemology, terminology, data, and organization of research and education in a fairly large field. An interdisciplinary group consists of persons trained in different fields of knowledge (disciplines) with different concepts, methods, and data and terms organized into a common effort on a common problem with continuous intercommunication among the participants from the different disciplines. (pp. 25-26)

While definitions for interdisciplinarity abound, Moran (2002) suggested that interdisciplinary should not have one single definition because what made it unique was its flexibility and vagueness. In fact, he noted that if we were to agree on a single definition for the term ‘interdisciplinary’, we would be disciplining it; which is exactly what interdisciplinary study tries to counteract. On the other hand it has also been said that what is interdisciplinary today will become a discipline tomorrow, insinuating that interdisciplinary programs are meant to eventually become disciplines (Apostel et al., 1972). The battle about disciplining interdisciplinary programs continues to rage. While interdisciplinary programs are being absorbed into the disciplinary structure of colleges and universities (Brint et al., 2009), simultaneously, new interdisciplinary programs are being born.
Regardless of the definition used, interdisciplinary study is becoming a hot topic in higher education. For this study, interdisciplinary studies programs will be defined as generic undergraduate degree-granting programs that require interaction among two or more different disciplines using concepts, methods, data and terms from all disciplines involved to produce a new way of thinking. The interdisciplinary studies program under review in this study is also an individualized major that students design by combining courses from disciplinary offerings (Newell, 1998).

History of Interdisciplinary Study

Interdisciplinary programs evolved out of a constant battle between general or liberal education and the study of specializations. Figure 3 represents a historic timeline of the development of interdisciplinary study from Ancient Greece to the present.

The term interdisciplinary did not emerge until the 1900s, but the basic ideas can be traced back to Greek philosophy and the emergence of disciplines of thought, such as philosophy (Klein, 1990; Moran, 2002). According to Moran (2002), the term ‘interdisciplinary’ was first used in the early 1900s as people began to worry about the decline of general or liberal education in favor of specialized programs.
Plato and Aristotle identified certain subjects and arranged a hierarchy of disciplines in Ancient Greece. Aristotle believed that ordering disciplines was necessary, but regrettable. Universities began to be organized administratively into schools and faculties among disciplinary lines. Proliferation of specializations, and a hardening of boundaries between disciplines. Students were dissatisfied with the increasingly large, impersonal, and formally structured institutions. Study conducted on integrated learning and individual student needs. Emergence of an academic profession, specialization of learning by ‘subjects’, and the introduction of new courses, methods of teaching and forms of examination. Interdisciplinary core courses and textbooks became commonplace in undergraduate, interdisciplinary curriculum. Increased competition for funds and students. More diverse student body. Funding sources from private orgs. Growth and expansion in higher education resulted in a more diverse student body. Seminar was held in Nice, France to discuss interdisciplinarity. A report was published. Increased funding opportunities for interdisciplinary sciences like nanoscience, biophysics, medical sciences, and increased technology makes interdisciplinary programs even more desirable. Development of women’s studies, environmental studies, cultural studies programs for diverse students. Earliest debates about interdisciplinary study at the University of Chicago. Growth of specializations was worrisome. Plato and Aristotle identified certain subjects and arranged a hierarchy of disciplines. University students studied a core curriculum of liberal study as opposed to specialized study. Growth of specializations was worrisome. 

Figure 3. History of Interdisciplinary Studies
Some of the first debates about interdisciplinary study occurred in the 1930s at the University of Chicago (Hausman, 1979); however, truly innovative interdisciplinary programs and curricula did not begin to appear until the cultural transformations of the 1960s beginning with women’s studies, environmental studies, and urban studies programs (Casey, 1990; Edwards, 2000; Klein, 1999). The popularity of interdisciplinary studies programs exploded in the 1970s and 80s as resources became tight, more non-traditional and diverse students entered college, and competition for students and funds increased (Mortimer & Tierney, 1979; Peterson, 1999; Seabury, 2002).

Interdisciplinary study was heavily concentrated in humanities degree programs and in general education programs in the seventies and eighties (Newell, 1986), but by the mid-nineties, interdisciplinary study had infused the college curriculum. Klein (1995) gave examples of the many ways that interdisciplinary programs were appearing in colleges and universities. She said,

In general education, they encompass development studies, humanities, the sciences, and social sciences. They include older integrative approaches to the humanities and liberal arts as well as contemporary models of international studies, American multicultural and gender studies, historical consciousness, and ethical understanding. The science examples echo this variety, incorporating the history of science, the nature of scientific inquiry, and contemporary problems of science and society. (p. viii)

More recently, interdisciplinary undergraduate programs include innovative, individualized programs developed by students, in collaboration with faculty, that
incorporate courses from existing disciplinary programs (Casey, 1994; Holley, 2009; Newell, 1998). It this type of general undergraduate program that the current study will be examining. According to Armstrong (1998), this type of interdisciplinary program uses second level integration where an institution provides opportunities “for students within the same interdisciplinary area to meet and share insights gained from their various disciplinary courses” (p. 172). The fourth and highest level of integration occurs when there is an attempt to develop an entirely new coherent entity by fully integrating material from various disciplines.

Currently interdisciplinary studies programs in higher education are more popular than ever. Brint et al. (2009) found that the growth and distribution of interdisciplinary undergraduate programs increased substantially in the past 25 years, outpacing the growth rate of student enrollments. They found a 250% growth in interdisciplinary studies programs between 1975 and 2002 with institutional enrollment growing only 17.8% in the same timeframe. Edwards (1996) also found that interdisciplinary programs were evolving and prospering with major growth in intra-institutional programs and private institutions. In the 2006-07 academic year, 33,792 students graduated with interdisciplinary studies degrees, which was an 89% increase from 1991-92 (U.S. Department of Education, 2008).

Critiques of Interdisciplinary Studies Programs

Thomas Benson made five arguments against interdisciplinary studies in his 1982 article. His first argument was that interdisciplinary studies programs had a lack of a
coherent sense of purpose. Benson’s (1982) second argument was that interdisciplinary learning was pedagogically doubtful because students lacked the necessarily mature base in disciplinary study. Thirdly, he argued that a substantial amount of interdisciplinary work at the undergraduate level impedes students’ disciplinary competence. The fourth argument was that interdisciplinary courses were less rigorous and shallower than disciplinary courses. Finally, Benson argued that interdisciplinary studies courses were more expensive to maintain than their disciplinary counterparts.

William Newell refuted Benson’s arguments against interdisciplinary studies in his 1983 article. Newell’s (1983) response was a theoretical argument, and he said that if interdisciplinary studies programs were to use his conceptual idea then interdisciplinarity would, in principle, be able to answer its critics. Newell (1983) noted that interdisciplinary studies programs must set high standards, train faculty in interdisciplinary methodology and study, share information about best practices in interdisciplinary studies courses, and agree on high standards of interdisciplinary teaching.

Despite the recent growth and popularity of interdisciplinary studies programs on college and university campuses (Brint et al., 2009; Edwards, 1996), Augsberg and Henry (2009) cited recent examples of longstanding undergraduate general interdisciplinary programs being eliminated and their faculty reallocated. In fact, of the 235 programs listed in a 1985 interdisciplinary directory, over 100 of them were no longer listed in a 1996 directory due to program discontinuation, restructuring, or lack of response (Edwards, 1996). In a 2004 National Academy of Sciences survey on facilitating
interdisciplinary research, 71% of faculty and 90% of provosts and vice chancellors reported that there were major local impediments to interdisciplinary programs (Klein, 2010).

These closures and impediments are due to a combination of reasons but many are a result of common challenges that general undergraduate interdisciplinary studies programs face including:

1. Administrative competition and challenges to power or resources (Brint et al., 2009; Casey, 1994; Hausman, 1979, Klein & Newell, 1996; Lattuca, 2001);
2. Reluctance and lack of flexibility among disciplinarians (Apostel et al., 1972; Hausman, 1979);
3. Resistance to non-traditional structures due to rigid disciplinary lines (Apostel et al., 1972; Klein, 2010; Klein & Newell, 1996; Lattuca, 2001; Swodoba, 1979);
4. Difficulty in setting up coherent, planned programs while avoiding simple juxtaposition of disciplines and difficulty teaching courses (Apostel et al., 1972; Haynes, 2002);
5. Lack of information or training on interdisciplinarity throughout the university (Klein & Newell, 1996; Richards, 1996);
6. A teaching method and program which often appear disorganized, confused, incoherent and arbitrary to students, and which does not lead directly to any definite professional career (Apostel et al., 1972; Moran, 2002; Nuhfer, 1999);
7. Absence of individual or collective leadership with genuine power over faculty and institutional means (Apostel et al., 1972; Casey, 1994);

8. Operational difficulties including scheduling and budgeting (Apostel et al., 1972; Casey, 1994; Lattuca, 2001);

9. Lack of sincere motivations when creating interdisciplinary programs leading to inadequately defined goals (Apostel et al., 1972; Hausman, 1979; Klein & Newell, 1996; Nuhfer, 1999);

10. A perceived lack of intellectual depth or rigor (Anderson, Briggs, & Scarpati, 2002; Lattuca, 2001); and


Klein and Newell (1996) concluded that the problems that interdisciplinary programs face were mainly pragmatic or organizational, not theoretical.

With all of these challenges, interdisciplinary studies programs face difficulties persisting in academia, but some do, and when they are effective, they yield positive benefits for universities, faculty, and students.

Benefits of Establishing Interdisciplinary Studies Programs

The benefits of interdisciplinary studies programs to colleges and universities include:

1. A challenge to traditional, disciplinary thought (Moran, 2002);
2. The production of innovative, new theories (Moran, 2002);
3. An increase in creative modes of thinking (Klein, 1999; Moran, 2002);
4. The ability to offer more interesting courses (Newell, 1990; Newell, 1998);
5. The flexibility to take action on new and complex issues (Klein, 1999, 2010);
6. The development of new fields (Klein, 1999, 2010);
7. The facilitation of new partnerships (Klein, 1999, 2010);
8. The ability to attract faculty in innovative fields (Klein, 1999, 2010);
9. The legitimizing of “interdisciplinary teaching and research interests of current faculty” (Klein, 1999, p. 24);
10. The establishment of a unique campus identity (Klein, 1999, 2010);
11. The ability to use facilities collaboratively (Klein, 2010);
12. A way to be more competitive for external funding (Klein, 2010); and
13. A way to reallocate faculty resources to higher areas of demand (Newell, 1990, 1998).

Faculty also benefit from interdisciplinary programs. They have reported that interdisciplinarity allows:

1. The recognition of new research and teaching interests (Klein, 1999, 2010; Lattuca, 2001);
2. The opportunity to “counterbalance the isolation of specialization” (Klein, 2010, p. 2);
3. For professional development (Klein, 1999; Lattuca, 2001; Newell, 1990);
4. The promotion of creativity and innovation in research and the curriculum (Klein, 1999, 2010; Lattuca, 2001);

5. Enhancements in communication and collaboration (Klein, 1999, 2010; Newell & Klein, 1996);

6. For the ability to respond to real-world problems (Klein, 2010);

7. The promotion of “a greater sense of community among students and faculty alike” (Klein, 1999, p. 24); and

8. For justification of “projects, teamwork, and less visible forms of integrative work” (Klein, 1999, p. 24).

Researchers have also speculated or demonstrated that students benefit from an interdisciplinary curriculum by gaining:

1. Heightened ethical sensitivity (Klein, 1999; Newell, 1990; Newell & Green, 1982);

2. Engagement in practical, societal problems and issues (Interdisciplinarity Task Force, 2005; Klein, 1999, 2010; Schindler, 2002);

3. The ability to synthesize or integrate knowledge (Carmichael, 2004; Kavaloski, 1972; Klein, 1999, 2010; Newell, 1990; Newell & Green, 1982);

4. More sensitivity to bias and humility (Klein, 1999; Newell, 1990; Newell & Green, 1982);

5. Enlarged perspectives or horizons as a result of studying a wide variety of disciplines (Interdisciplinarity Task Force, 2005; Klein, 1999, 2010; MacKenzie & Bjornson, 2005; Newell, 1990);
6. Critical and unconventional thinking skills (Klein, 1999, 2010; Newell, 1990; Newell & Green, 1982);
7. “A more coherent educational experience” (Carmichael, 2004; Klein, 1999, p. 24);
8. Creative and innovative thoughts (Kavaloski, 1972; Klein, 1999; Newell, 1990; Newell & Green, 1982);
9. The freedom to seek information (Kavaloski, 1972; Klein, 1999);
10. The opportunity for collaboration and teamwork (Carmichael, 2004; Klein, 2010; MacKenzie & Bjornson, 2005; Schindler, 2002);
11. The ability to make connections between academic majors and different disciplines (Klein, 1999, 2010);
12. The development of problem solving skills (Klein, 1999; Newell & Green, 1982; Schindler, 2002);
13. More tolerance to ambiguity (Klein, 1999; Newell, 1990, p. 70; Newell & Green, 1982); and
14. The “ability to balance subjective and objective thinking” (Klein, 1999, p. 19).

Students in Interdisciplinary Studies Programs

Despite the recent growth trends of interdisciplinary programs in higher education, student focused research in this area of curricular programming and student development is still lacking. Some researchers have contributed to basic introductory literature defining interdisciplinarity and interdisciplinary programs (Apostel et al., 1972;
Casey, 1994; Davis, 1995; Edwards, 1996; Flexner & Hauser, 1979; Heckhausen, 1972; Klein, 1990, 1995; Kockelmans, 1979; Moran, 2002; Newell, 1986). Others have contributed to the historical understanding of interdisciplinary programs (Edwards, 2000; Hausman, 1979; Klein, 1990, 1999; Moran, 2002) and have discussed the benefits and challenges of implementing interdisciplinary programs on college campuses (Apostel et al., 1972; Brint et al., 2009; Edwards, 2000; Hausman, 1979; Klein, 1999; Moran, 2002). Still other researchers have analyzed the effects and challenges of teaching interdisciplinary courses (Bailis, 2002; Davis, 1995; Haynes, 2002; Klein, 1995; Seabury, 2002). However, only a few select studies have actually focused on students in interdisciplinary programs (Lattuca et al., 2004; Vess, 2001).

Many general interdisciplinary undergraduate programs have traditionally catered to the nontraditional student population (Klein, 2010; Welch, 2003); those students who are commuters, part-time students, or adult learners (Klein, 1999). It has also been suggested that nontraditional students benefit most from interdisciplinary studies programs (Newell, 1990; Schindler, 2002) and that interdisciplinary courses offer the best pedagogical tools for adult learners (Ntiri et al., 2004; Schindler, 2002; Toynton, 2005). However, there has been no clear identification of who interdisciplinary studies students are or what their backgrounds and demographics are. Trow (1998) argues that interdisciplinary studies may not be for everyone. He goes on to say that interdisciplinary curriculum may be best for students who have an unusual love for learning, who are self-motivated, and who are curious beyond the average about the world they live in, and who welcome
chances to see that world, its history, social structure, politics, economy, art, literature, and its social and environmental problems, in a perspective that transcends the disciplines. (p. 194)

Some researchers have suggested that interdisciplinary learning offers advantages that traditional disciplinary pedagogies do not (Holley, 2009; Lattuca et al., 2004). According to Holley (2009), interdisciplinary learning may allow students the opportunity to make connections between discrete disciplines and apply what they learn to real life situations. Advocates also believe that interdisciplinary courses may be more engaging than disciplinary courses because students are able to take courses that meet their interests and integrate knowledge (Lattuca et al., 2004). Lattuca et al. (2004) proposed that interdisciplinarity may promote learning in a variety of ways. First, interdisciplinarity may promote learning by encouraging students’ to relate prior knowledge and experience to the classroom. It may also facilitate effective thinking, allow students to develop multiple perspectives, motivate students to learn, and construct meaning in educational experiences, all of which enforce student-centered active and collaborative learning pedagogies. Ewell and Wellman (2007) also suggested that colleges offer more interdisciplinary work from a problem-based standpoint to increase student success. However, Lattuca et al. (2004) have noted the lack of empirical evidence to support such claims. In addition, Field and Stowe (2002) hypothesized that interdisciplinarity may provide “a superior way to achieve desired cognitive outcomes in the areas of critical thinking as well as a variety of affective and developmental
outcomes” (p. 261); however, the evidence to support these claims is “primarily anecdotal or inferential rather than quantitative or experimental” (p. 261).

Despite one finding that interdisciplinary learning communities contributed positively to retention and degree completion (Klein, 1999), there is no substantial evidence to suggest that interdisciplinary students have significantly different intellectual or academic development than students in disciplinary programs (Bailis, 2002; Barnett & Brown, 1981; Grossman, Wineburg, & Beers, 2000; Newell, 1992; Newell & Green, 1982). Grossman, Wineburg, and Beers (2000) stated, “Despite the popularity of interdisciplinary curricula across the nation, there is no body of evidence that attests to greater learning in high-quality interdisciplinary versus high-quality disciplinary classrooms” (p. 9). For example, Barnett and Brown (1981) did not find a difference in academic standing between students who took an interdisciplinary course and students who did not. In addition, Newell and Green (1982) found that students taking interdisciplinary introductory courses did not have significantly different grades in upper division social science courses than those students who had disciplinary introductory courses. Newell (1992) found in another study that interdisciplinary studies student grade point averages in disciplinary courses were not significantly related to the grade point averages in interdisciplinary courses. He found, however, that “the proportion of interdisciplinary studies majors who go on to work towards a PhD is higher than the national average” (p. 218). A decade later Bailis (2002) also found that grade point averages (GPAs) for students in an interdisciplinary studies program were not significantly different from the GPAs of students in disciplinary programs. However, in
one study, students enrolled in an interdisciplinary course reported that they had achieved a broader understanding of the subject matter, had a higher rating on knowledge of current issues, and had a more enjoyable experience than students in the non-interdisciplinary courses (Barnett & Brown, 1981).

While one of the primary goals of most interdisciplinary studies programs is to integrate knowledge from disparate fields, there have been very few studies to assess whether or not students have learned integration skills or techniques. In one study, Newell (2006) found that over one third of all students in an interdisciplinary studies program completed nearly all of the integrative steps using the Wolfe-Haynes interdisciplinary integration profile assessment instrument. He reported that student integration profile scores were significantly correlated with project grades; however, there was no correlation between student GPA and integration profile scores or project grades. Interdisciplinary student integration profile scores also were not compared to non-interdisciplinary students.

Interdisciplinary course enrollment has had positive effects on standardized test scores. Newell (1992) found that students in an interdisciplinary studies program showed higher performance on a set of ACT/COMP assessments than students in disciplinary programs. Students in interdisciplinary studies programs have also performed better than average on the Law School Admission Test (LSAT) and Graduate Record Exam (GRE) (Newell, 1992). To support these findings, Astin (1993) also reported that interdisciplinary course enrollment positively affects LSAT scores and three different teacher education tests.
Interdisciplinary program or course enrollment has also been found to contribute the most to skills such as cognitive thinking, critical thinking, problem solving, independent judgment, confidence, and other personal development skills. Researchers have argued that students in interdisciplinary programs or who have taken interdisciplinary courses are better prepared for work and citizenship because they have developed higher-order cognitive skills (Hursh, Hass, & Moore, 1983; Newell, 1990; Newell & Green, 1982). In addition, a significant amount of researchers postulated that critical-thinking and problem-solving skills were strengthened by interdisciplinary courses (Astin, 1993; Borg & Borg, 2001; Everett & Zinser, 1998; Hursh et al., 1983; Ivanitskaya, Clark, Montgomery, & Primeau, 2002; Newell, 1992, Tsui, 1999). Astin (1993) found that students enrolled in an interdisciplinary course reported growth in three areas: critical thinking skills, knowledge, and preparation for graduate or professional school. Interdisciplinary course enrollment also had positive effects on almost all diversity outcomes (Astin, 1993). A longitudinal study in 1986-87 found that alumni of an interdisciplinary studies program had higher ratings than the national norm on problem solving skills (76% versus 44%), writing skills (85% compared to 40%), speaking skills (51% versus 35%), and independent learning skills (78% in relation to a national norm of 54%) (Newell, 1992). Barnett and Brown (1981) reported that enrolling in an interdisciplinary course improved students’ independent judgment and decreased their dogmatism scores. Newell (1990) reported on program outcomes of students in an interdisciplinary studies program at Wayne State University. He found that students reported being able to appreciate differing perspectives, were confident in evaluating
expert testimony, and were confident in their writing on diverse subject matter. Newell (1990) also found, in a comparison between interdisciplinary studies students and students in traditional majors, that interdisciplinary studies students had a larger tolerance for uncertainty. Carmichael (2004) also found that students in an integrated studies program were able to articulate what they were learning and why they were learning it better than students in normal general education courses.

Tsui’s (1999, 2001, 2002) work with a national sample of college students’ self-reported gains in critical thinking found that enrollment in interdisciplinary courses had a positive influence on problem-solving abilities. However, Tsui argued that the positive relationship between problem-solving and interdisciplinary enrollment was partly a result of the type of instructional techniques commonly used in interdisciplinary curricula. Disagreement does exist over whether the value-added contributions of interdisciplinary curricula are a result of the interdisciplinary subject matter or more a result of the manner in which the courses are taught (Holley, 2009; Newell, 1994). According to Klein (1999, 2001), Holley (2009), and Newell (1990), interdisciplinary programs often lend themselves nicely to alternative forms of student-centered pedagogies including integrative learning approaches such as collaborative and active learning, learning communities, and experiential and service learning. Therefore, there is some credibility to the argument that the positive outcomes may be a result of “the structure of the interdisciplinary learning experience, not necessarily the content knowledge delivered as part of that experience” (Holley, 2009, p. 52).
Two studies by Newell also examined interdisciplinary studies students’ satisfaction. In a 1983 satisfaction survey, Newell (1992) found that graduates of an interdisciplinary studies program were overwhelmingly satisfied with their career preparation (83%) and academic program (91%). A later longitudinal study in 1986-87 found that alumni of an interdisciplinary studies program had higher ratings than the national norm on program satisfaction (84% compared to 36%) (Newell, 1992).

Interdisciplinary studies students were also found to be more engaged than their disciplinary counterparts in two separate studies. Newell (1992) administered a college student experience questionnaire at Miami University and found that students in an interdisciplinary studies program were more engaged than students in the general population at Miami University and more engaged than students in selective liberal arts colleges. Interdisciplinary studies students reported working with staff on research more often, thinking about the practical application of classroom ideas more often, engaging in more academic discussions outside of class, and having a change of opinion more often after discussions. Another study on interdisciplinary studies student engagement found that students in an interdisciplinary program at one university were more engaged in academic advising than students in disciplinary programs (Pajewski, 2006). However, there is no evidence of studies that have focused on interdisciplinary studies students’ experiences or perceptions of overall program engagement.

One common feature of interdisciplinary programs is that students typically take courses from multiple disciplines. While this allows for a breadth of knowledge, students
within the same program may have very different experiences. The next section will review interdisciplinary studies curriculum and courses.

Interdisciplinary Studies Curriculum

According to Holley (2009), the best interdisciplinary programs have “curriculum shaped through a variety of interdisciplinary learning experiences” (p. 91) including integrative educational experiences outside the classroom, seminars, interest groups, student cohorts, coordinated programs, team-taught courses, living learning communities, and social and community activities (Holley, 2009; Klein, 2010; Klein & Newell, 1996). Klein (2010) found that sustainable interdisciplinary programs had a curriculum that included a common intellectual agenda, shared experiences and a sense of community among faculty and students, a focus on integrative and collaborative learning, and sufficient common space and resources. This section will discuss interdisciplinary courses in general, the use of core courses in higher education and in interdisciplinary studies programs specifically, and the use of capstone courses or portfolios in interdisciplinary programs.

Interdisciplinary Courses

A distinction must be made about interdisciplinary programs versus interdisciplinary courses. Interdisciplinary courses may be found in various disciplinary departments; they may be a part of general education or any other type of academic program. Students may participate in an interdisciplinary course in their undergraduate
career without enrolling in an interdisciplinary program. This study focused on interdisciplinary studies programs that also incorporated interdisciplinary courses.

Lattuca (2001) created a typology of interdisciplinary scholarship based on interviews with 38 faculty informants. She concluded that interdisciplinary courses might fall into one of four different categories: informed disciplinary courses, synthetic interdisciplinary courses, transdisciplinary courses, or conceptual interdisciplinary courses. Lattuca noted that the first category was actually more disciplinary than interdisciplinary in nature, thus the title. However, because the informants mentioned this type of course as interdisciplinary, it was included in her typology. In informed disciplinary courses, the focus is on a single discipline; however, faculty may use “examples from other disciplines to help students make connections between disciplines” (p. 82), but the focus of the course does not change. In synthetic interdisciplinary courses, attempts are made to use two or more disciplines to answer questions or issues found at the intersections of disciplines or to bridge the gaps between disciplines. Transdisciplinary courses actually apply theories, concepts, or methods from different disciplines to develop a larger integrated framework from which to view disciplines. Finally, conceptual interdisciplinary courses occur when there are issues and questions to be addressed that do not have a compelling disciplinary basis.

In addition to Lattuca’s (2001) four interdisciplinary course categories, Bystrom (2002) offered a typology of interdisciplinary learning communities where individual courses were grouped together in some way. The typology starts with linked courses where a group of students sign up for the same few courses in different disciplines. To
make the linked courses truly interdisciplinary, the motive must be to “deepen a student’s understanding of the differences and similarities among the assumptions, methods, and characteristics inquiries of the disciplines and their bearing on one another” (p. 70). The second type is customized linked courses. In this type of learning community, faculty and administrators add small integrative discussions, seminars, or presentations to the course curriculum. In fully integrated courses, faculty may decide to coordinate the syllabi in all of the courses around a common theme or question. Finally, coordinated studies programs are the highest level of interdisciplinary learning communities. In these programs, students devote a full-time course load to fully integrated courses taught by the same professors using team teaching pedagogies.

Any of these types of interdisciplinary courses or learning communities may be used within an interdisciplinary program, within a disciplinary department, or as stand-alone courses. There are a variety of curricular course offerings in most academic programs, which may include some type of interdisciplinary courses. Many, if not most, academic programs also have some type of core curriculum, which they require all students in the program to complete.

**Core Curriculum**

According to Pascarella and Terenzini (1991), “A substantial amount of evidence indicates that there are instructional and programmatic interventions that not only increase a student’s active engagement in learning and academic work but also enhance knowledge acquisition and some dimensions of both cognitive and psychosocial change”
One instructional or programmatic intervention is the development of a core curriculum.

Core curriculum has been researched very little in undergraduate colleges and universities; however, the concept has been used in basic medical education since the 1960s (Bandaranayake, 2000). The term core curriculum can mean different things to different people. According to Harden and Davis (1995), there are four different definitions of core curricula. They stated that core curricula may be defined as “essential aspects of each subject or discipline . . . essential competencies for practice . . . a study of only the key disciplines. . . [or] areas of study relevant to many disciplines” (para 14-17) such as general education. The concept of core courses for the purposes of this study used the first definition since core courses proposed for many interdisciplinary undergraduate programs are courses that identify the essential aspects of interdisciplinary education. Much of the research on undergraduate core curricula has been based on the fourth definition with many studies focused on general education programs (Harden & Davis, 1995).

As mentioned previously, the use of a core curriculum has been heavily discussed in the realm of medical education. During a 1993 medical education conference, a discussion about developing a core curriculum ensued, and as a result, participants concluded that a core curriculum was essential and could be defined (Anderson, 1994). One goal of core curriculum is “to identify the essential competencies that a student should have acquired at the time of graduation” (p. 161). From one survey administered by the Association for the Study of Medical Education, the strengths of developing a core

106
curriculum were found to be: improved educational content, increased interest by curricular planners, decreased factual overload, and integration (Anderson, 1994). Harden and Davis (1995) listed basic underlying philosophies behind core curriculum, namely: a) an increase in accountability, b) an emphasis on the workplace competencies, c) comprehensiveness, d) consistency, e) the belief that knowledge builds upon itself, and f) supplementation of the core with options or specialties. Bandaranayake (2000) specified many of the advantages of a basic core curriculum: a) it helps to lessen information overload; b) it deters against the increasing tendency to specialization; c) it helps to identify and promote essential knowledge, skills and attitudes; d) it facilitates equal training for a common purpose; and e) it meets the public’s demands for competence of graduates and cost-effective training.

Throughout the medical education literature on core curricula it has been made clear that a core curriculum should only be a small part of the education and that a significant portion of the curriculum should be electives or optional courses (Bandaranayake, 2000; Harden & Davis, 1995). This helps to avoid the risk of stereotypy and limiting innovation and will allow for an element of choice for students and professors (Bandaranayake, 2000). Finally, core curricula should not become static or permanent, but should be reviewed and revised periodically to meet needs and reflect educational trends (Bandaranayake, 2000).

Hirsch (1993) examined the use of core curricula in elementary schools and found “that any school that puts into practice a similarly challenging and specific program will provide a more effective and fair education than one that lacks such commonality of
content in each grade” (p. 24). He argued for a core curriculum on the basis that it streamlined the time-consuming task of teaching and learning, it allowed for common shared knowledge, it provided broad general knowledge to encourage high academic skills, and it led to higher school morale and a stronger sense of community.

Shepard (2003) argued for the use of core curricula in undergraduate English programs and against the practice of a self-designed major with a group of un-related elective courses added together to reach a set number of credit hours. He cautioned that the intellectual freedom and flexibility of self-designed programs may be seen by outsiders as suggesting a lack of coherence. It may have also suggested greed by faculty who only wanted to teach preferred courses or what grant applications required. In addition, such flexible programs may not have been appropriate for undergraduate students because they modeled ambiguity and independent learning. According to Shepard (2003), these are skills that undergraduates accomplished only after working through a strong core.

Weissman and Boning (2003) recommended five features of effective core courses for general undergraduate education programs. Their five features included: “creating community through collaborative learning, fostering student ownership of learning, connecting academic ideas with other disciplines and with the real world, evaluating student learning through active experiences, and sharing the experience of the discipline” (p. 151). These features are very similar to the measures of engagement discussed previously such as active and collaborative learning, integrative learning, and shared program understanding and experiences.
Kember et al. (2001) also recommended that programs have a normal sequence of courses in order for students to proceed as a cohort and develop into a unified class group. Kuh (2001) found that colleges and universities can include value added features to a curriculum such as requiring core courses to encourage engagement and student learning. Spitzberg and Thorndike (1992) also recommended that students take a core set of courses to help develop a shared academic experience that will increase the feeling of community among students. Required core courses may also be used as part of a learning community where the same group of students takes two or more classes together (Zhao & Kuh, 2004). Many researchers have found positive associations between learning communities and engagement, learning outcomes, and overall satisfaction with college (Zhao & Kuh, 2004).

The Project on Liberal Learning (1990) advocated for the use of core curriculum in an academic major. They believed a major should have a coordinated “beginning, a middle, and an end—each contributing in a different but specific way to the overall aim of the major” (p. 9). Haphazard course organization can foster erroneous thinking that the individual course, instead of the overall program, is the basic educational unit. If the curricular organization is unclear, faculty and students may see a particular course as the primary unit of learning rather than one piece of a larger program. According to the Project on Liberal Learning (1990), “Faculty members responsible for a program must take collective responsibility for shaping a core set of courses that establish an intellectual agenda for their majors” (p. 9). Core courses within a major should introduce pertinent questions, frames of reference, theories, and disputed issues in a discipline.
Unfortunately, many individualized interdisciplinary majors have very few courses in common. The Project on Liberal Learning (1990) questioned highly individualized programs that contain a large variety of course choices. They noted, Cafeteria-style course offerings guarantee little common basis for discourse among majors. If the major is to be a learning community, both curricular goals and intellectual engagement are served better when faculty members ensure that students take in common either some reasoned fraction of a program’s offerings or one of several carefully constructed alternative concentrations within a larger program. (p. 10)

It is for this reason that many researchers and leaders in interdisciplinary studies have advocated for the use of core courses in interdisciplinary programs. Since core courses have been found to have positive effects on student engagement and sense of community (Kember et al., 2001; Kuh, 2001; Spitzberg & Thorndike, 1992; Zhao & Kuh, 2004), it is important to research the effects of interdisciplinary core courses on student engagement.

Core Curriculum in Interdisciplinary Studies

Many researchers in recent years have touted the benefits of developing and requiring core interdisciplinary courses for undergraduate programs (Bailis, 2002; Holley, 2009; Klein, 1999, 2010; Newell, 1990; Newell, 1998; Nuhfer, 1999; Repko, 2006; Welch, 2003). Some researchers argue that interdisciplinary courses will offer faculty and administrators a means to assess student work and development (Casey, 1994; Field & Stowe, 2002; Holley, 2009; Rhoten et al., n.d.). Others believe that
requiring interdisciplinary core courses will provide a venue for students to learn to integrate and synthesize information from the different disciplines (Newell, 2006). Still, others tout community building and the potential for engagement that can result from mandatory interdisciplinary curricula (Klein, 1999; Welch, 2003).

Welch’s (2003) empirical study recommended developing interdisciplinary curriculum as a way to focus students’ studies to help them from getting lost in the borderless breadth of interdisciplinarity. He also suggested developing an interdisciplinary core curriculum in order to achieve a greater sense of identity within interdisciplinary studies. Casey (1994) also argued that successful interdisciplinary programs must have an overall curriculum that is coherent and harmonious. In addition, Nuhfer (1999) argued for an interdisciplinary common curriculum to encourage student motivation. He said,

Students need to come together regularly with fellow students with compatible interests. An interdisciplinary program must rely on courses from several areas, but students in an interdisciplinary major frequently find themselves in a minority within their classes. There needs to be a few classes dominated by students of the program itself in order to reinforce the uniqueness of the program and to set it apart from any of the contributing disciplines. (p. 81)

An interdisciplinary curricular sequence may include an introductory interdisciplinary course, an interdisciplinary methods course, or a final senior project or capstone course (Klein, 2010; Newell, 1998; Nuhfer, 1999; Welch, 2003). Newell (1990) found that introductory interdisciplinary courses should be introduced in the first
semester of the freshman year to encourage student adoption of the active, critical interdisciplinary learning style. A strong interdisciplinary curriculum should teach interdisciplinary concepts, theory, and methodologies (Klein, 2010) and should prepare students to integrate material learned in different disciplinary courses (Newell, 1990). Repko (2006) and Welch (2003) argued for the widespread development and use of interdisciplinary textbooks in interdisciplinary undergraduate education. Newell (1990) also recommended that successful interdisciplinary studies curricula should be thoughtfully prepared and team-taught by a group of faculty.

Anderson et al. (2002) examined the use of a common interdisciplinary core course for all incoming freshmen at the College of New Jersey. The requirement of a common interdisciplinary course had an 85% satisfaction rate among students, and resulted in an increase in first to second year retention rates from 90 to 96% in a six year period. However, the authors acknowledge that during the same time period, from 1996 to 2002, the selectivity of the incoming freshman class also increased. In addition to contributing to higher retention rates, the mandate of a common core course was also positively related to outcomes such as “understanding and/or appreciation of diversity, civic engagement and responsibility, emotional growth, and skill development” (p. 15). Klein (2010) also attributed the positive transformation of one interdisciplinary studies program in part to the implementation of a new three-course core curriculum. Further, using an interdisciplinary integration profile, Newell (2006) found that over a third of students who took common interdisciplinary studies curricula completed almost all of the required integrative steps.
On the other hand, Barnett and Brown (1981) found that while an interdisciplinary course “increased the variety of knowledge gained, the wide range also increased the students’ feelings of uncertainty” (p. 21). Newell (1990) also cautioned that “interdisciplinary courses tend to appear fragmented and incoherent to students as the term progresses because they shift from one disciplinary perspective to another” (p. 73). Some researchers believe that establishing a core curriculum and developing textbooks may discipline interdisciplinary programming, which is antithetical to many programs (Bailis, 2002; Moran, 2002; Repko, 2006). Welch (2003) also found that some faculty were concerned with the development of a curricular sequence because it “might be difficult to execute, might overwhelm students, or might fail to account for students who come into interdisciplinary studies programs at the upper divisional level” (p. 184).

Hursh et al. (1983) developed an interdisciplinary model of general education and touted the benefits of interdisciplinary education, but also emphasized that successful implementation required engagement and active participation of students. The engagement factor is critical in the success of core courses, but there is a lack of empirical evidence to substantiate the argument that core interdisciplinary courses facilitate engagement of students (Lattuca et al., 2004). Lattuca et al. (2004) encouraged a survey of the landscape of interdisciplinary teaching and learning, to include variables such as student demographics, instructional resources, and teaching pedagogies. They specifically called for research on how interdisciplinary courses and instruction might engage students and increase motivation. As demonstrated, common curricula may benefit students. However, Newell (1990) warned that this alone could not create a
learning community. Interdisciplinary studies programs must create an environment that promotes and nurtures this engagement. He also encouraged institutions and interdisciplinary studies programs to utilize traditional methods of engagement in conjunction with interdisciplinary studies core courses.

**Capstone or Portfolio Project**

One suggested element of the interdisciplinary core curriculum is a final senior portfolio (Augsburg, 2003; Ewell & Wellman, 2007; Holley, 2009; Klein, 1999, Newell, 1990). According to the Project on Liberal Learning (1990), students should be able to integrate knowledge from a variety of learning experiences during the end of an academic program by completing a capstone course, intellectual autobiography, or portfolio. Culminating experiences can “allow broad reflective and critical views of the field of concentration or bring together students from adjacent fields to explore their similarities and differences” (p. 11) and also illustrate students’ development and accomplishments in the major.

Portfolios can be defined as “documented collections of student work organized around clearly stated achievement expectations for all students and assessed in terms of common and visible standards” (Ewell & Wellman, 2007). Students must collect samples of work done in classes, select those samples that they feel best demonstrate specific learning outcomes, and reflect on their work (Zubizarreta, 2004). According to Augsburg (2003), a final portfolio can instill in students accountability and individual responsibility for one’s education. Holley (2009) also noted that final portfolios can help “potential
employers to understand the student’s degree program” (p. 97). In a study by Augsburg (2003), interdisciplinary students viewed portfolios in three different ways: a) for self-legitimization; b) to demonstrate interdisciplinary skills and ways of thinking; and c) to document the uniqueness of the experience gained. In addition, Augsburg (2004) noted that interdisciplinary students viewed the portfolio as personal marketing tools that could help them gain employment or admission into graduate school. She found evidence to suggest that the student portfolio in interdisciplinary studies was an effective tool for improving student learning and development, but noted that further research needed to be conducted to determine the exact benefits of the portfolio.

Ewell and Wellman (2007) noted that portfolios were proposed as an alternative form of assessment during the National Postsecondary Education Cooperative’s (NPEC) National Symposium on Postsecondary Student Success. Field and Stowe (2002) also noted the value of the portfolio as an interdisciplinary assessment tool due to its longitudinal nature and ability to yield direct and indirect evidence of learning. Despite the positive findings of using portfolios in interdisciplinary education, the use of student portfolios for assessment purposes is not widespread (Rhoten et al., n.d.; Stowe, 2002). Rhoten and colleagues (n.d.), in their Teagle Foundation White Paper, discovered that there was a disconnect between the recommended use of student portfolios in interdisciplinary literature and reported use of portfolios to assess student learning. They found that less than half of the schools in the study utilized student portfolios. Although many interdisciplinary programs use some type of capstone or portfolio course, there has been no research to determine the effectiveness of these courses in engaging students.
Engagement in Interdisciplinary Studies Programs

Some researchers suggest that interdisciplinary programs lend themselves well to engaged learning communities (Astin, 1985; Newswander & Borrego, 2009; Newell, 1992, 1998; Nuhfer, 1999; Pajewski, 2006). However, others argue that interdisciplinary programs may seem fragmented, borderless, and incoherent, and may cause feelings of confusion, uncertainty, and isolation for students leading to lower levels of engagement (Augsberg & Henry, 2009; Barnett & Brown, 1981; Johnston & McCormack, 1997; Mann, 2001; Newell, 1990, 1999; Nuhfer, 1999; Twale et al., 2002; Welch, 2003). Nuhfer (1999) acknowledged the need for interdisciplinary studies students to connect with each other outside of class in order to provide a ‘home’ for students and a way to demonstrate a program identity to the campus community.

Fostering Engagement

Klein (1999) actually goes so far as to use the terms ‘cluster’ and ‘community’ as metaphors for interdisciplinary study. This supports the belief that some researchers share that interdisciplinary study fosters a sense of community, which leads to engagement. According to NSSE, interdisciplinary programming played an important role in some of the most engaged colleges and universities in the U.S. (Kuh et al., 2005, 2010). Studies have also shown that increased engagement in interdisciplinary collaborative learning programs has led to greater persistence and increased academic performance (Tinto, 1997; Tinto & Goodsell-Love, 1993; Tinto & Russo, 1994). While many interdisciplinary programs host nontraditional students, researchers (Rovai, 2002; Newswander &
Borrego, 2009; Twale et al, 2002) have demonstrated that it is “possible to promote student involvement and achievement in settings where such involvement is not easily attained” (Tinto & Goodsell-Love, 1993). Klein (1999) also noted that “creating a sense of community among these [nontraditional] students, formerly thought impossible, is not only possible; it is all the more important in such settings” (p. 21).

Researchers have also demonstrated that students involved in interdisciplinary research teams can be socially engaged by interacting with peers and establishing a connection with others, which in turn can support student learning and development (Ryser, Halseth, & Thien, 2009). Engagement, including mentoring, social networks, and opportunities for interaction, has also reduced the sense of isolation in interdisciplinary research students and facilitated active participation in the learning process (Johnston & McCormack 1997; Twale et al. 2002).

Klein and Newell (1998) mentioned that interdisciplinary programs can use collaborative learning techniques, such as small group projects and learning communities, to achieve a sense of community. Newell (1998) stated that “interdisciplinary courses, with their holistic perspective on complex topics, lend themselves well to the development of living-learning communities”, and “a program of required interdisciplinary core courses has the potential of contributing to the development of a coherent intellectual community” (p. 62). Bystrom (2002) found interdisciplinary learning communities to be engaging when there was curricular coherence facilitated by purposeful links among disciplinary courses and collaboration among instructors. She argued that interdisciplinary learning communities were beneficial to students because
they offered coherent programs that integrated classroom knowledge with the real world. According to Gabelnick (2002), members of an interdisciplinary learning community “are able to establish deeper relationships with one another and approach learning from multiple perspectives” (p. 283). She also argued that interdisciplinary innovations fostered collaborative engagement, teamwork, and connected relatedness.

Astin (1985) recommended requiring interdisciplinary courses that integrated subject matter from multiple disciplines to study contemporary issues and problems in order to engage and motivate students. One study on interdisciplinary studies student engagement (Pajewski, 2006) found that students in an interdisciplinary program at one university were more engaged in academic advising than students in disciplinary programs. Astin (1996) also found that taking interdisciplinary courses in college was positively related to student involvement in volunteer activities. Newell’s (1992) administration of a college student experience questionnaire at Miami University found that students in an interdisciplinary studies program were more engaged than students in the general population at Miami University and students in selective liberal arts colleges. Interdisciplinary studies students reported working with staff on research more often, thinking about the practical application of classroom ideas more often, engaging in more academic discussions outside of class, and having a change of opinion more often after discussions. However, there is no evidence of studies that have focused on interdisciplinary studies students’ experiences or perceptions of overall program engagement.
**Hindering Engagement**

While there have been some positive findings regarding student engagement in interdisciplinary courses, research teams, and learning communities, there appear to be some conflicting findings in the literature. Some research results lead one to assume that the structure of interdisciplinary programs create barriers to engagement. For example, student engagement may not be easily attained in general interdisciplinary programs where diverse students develop individualized programs. Hewitt and Lanser (1998) reported difficulty in establishing a sense of community among students in multidisciplinary programs who had responsibilities to multiple departments and units within and outside the university. According to Nuhfer (1999), “A discipline has an established ‘home’ on the campus in a department where students can go for advising, for contact with professors with common interests, and for contact with other students in the same major” (p. 79). Unfortunately, most interdisciplinary programs lack this ‘home’ because they do not have a clear identity, common space, or curricular territory.

Interdisciplinary studies programs tend to lack boundaries, and according to McMillan and Chavis (1987), in order for a sense of community to develop there must be established boundaries. In other words, “there are people who belong and people who do not” (p. 9). According to Mann (2001), “The student who stands on the edge of a discipline is an outsider who is faced with the decision of whether to join or not and at what cost” (p. 11). Therefore since almost all interdisciplinary students are standing on the edge of disciplines, they may feel more alienated than engaged in many aspects of campus life.
Newell (1998) discussed general undergraduate interdisciplinary programs in terms of “individualized or self-designed majors that students put together from disciplinary offerings” (p. 63). These types of programs encourage students to take courses from multiple disciplines. As a result, interdisciplinary studies programs have been described as being vague, isolating, confusing, and borderless for students (Apostel et al., 1972; Augsberg & Henry, 2009; Moran, 2002; Newell, 1998). Twale and colleagues (2002) suggested that merely taking courses together would not create a learning community if students did not have a common identity. They suggested that a variety of different job types available to students in the same program might hinder group cohesion since students’ professional interests and career possibilities were so diverse. They also found that students taking courses on one campus developed a collaborative community quicker than students taking courses at different times on different campuses. Twale and colleagues acknowledged that interdisciplinary programs “create challenges to collaboration and professionalization, but with communication and concerted effort bridges can be built to further community” (p. 127).

Some say that a relationship between interdisciplinary studies programs and an engaging learning environment is a natural marriage; others say it is much more difficult. With studies touting the benefits of interdisciplinary collaborative learning communities and research teams, students in interdisciplinary undergraduate degree programs may also benefit from purposeful tactics to enhance social and academic engagement. However, there is a lack of evidence to substantiate this assumption. This study examined the use of one engagement tactic, requiring core interdisciplinary studies courses, and its impact on
student engagement. This study was guided by Haworth and Conrad’s (1997) engagement theory of academic program quality, which will be explored in detail in the following section.

Theoretical Framework: Engagement Theory of Academic Program Quality

The idea of engagement in higher education stems from the many studies on involvement and integration summarized previously. It is clear from the research reviewed earlier in this chapter that programs that encourage involvement and integration foster greater student learning, development, and satisfaction. It is from this wealth of knowledge that Haworth and Conrad (1997) developed the engagement theory of academic program quality which “emphasizes student learning and development as the primary purpose of” higher education (p. xiv). Divergent from previous studies that focused narrowly on students, such as student involvement (Astin, 1977, 1984; Tinto, 1997), student quality of effort (Pace, 1980, 1984), and student integration (Pascarella & Terenzini, 1980; Terenzini & Pascarella, 1977), the engagement theory of academic program quality focused on the contributions that all participants, including faculty, students, and administrators, make in fostering mutually supportive teaching and learning environments. As mentioned earlier, this investigation examined student experiences in an undergraduate interdisciplinary studies program via the engagement theory of academic program quality.
Elements of Engagement Theory of Academic Program Quality

Haworth and Conrad (1997) developed the engagement theory of academic program quality after conducting interviews with 781 people from 47 different master’s programs in order to answer the question, “What program attributes contribute to enriching learning experiences that positively affect student growth and development?” (p. 16). The result was a highly involved, very detailed theory centered on a common theme: “student, faculty, and administrative engagement in teaching and learning” (p. xii). To cultivate high levels of engagement, all parties must “invest significant time and effort in mutually supportive teaching and learning” (p. xii).

Haworth and Conrad’s engagement theory contains five clusters each consisting of additional program attributes. When faculty, students, and administrators invest time and energy into these clusters, the end result will be engaging learning experiences that will positively affect students’ development and growth in a number of areas. The five clusters in the engagement theory include: (a) diverse and engaged participants, (b) participatory cultures, (c) interactive teaching and learning, (d) connected program requirements, and (e) adequate resources (p. xiii). Each cluster contains additional attributes that further define the theory. Table 1 depicts each cluster and associated attributes.
Table 1

*Engagement Theory Clusters*

<table>
<thead>
<tr>
<th>Clusters</th>
<th>Program Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverse and engaged participants</td>
<td>Diverse and engaged faculty</td>
</tr>
<tr>
<td></td>
<td>Diverse and engaged students</td>
</tr>
<tr>
<td></td>
<td>Engaged leaders</td>
</tr>
<tr>
<td>Participatory cultures</td>
<td>Shared program direction</td>
</tr>
<tr>
<td></td>
<td>Community of learners</td>
</tr>
<tr>
<td></td>
<td>Risk-taking environment</td>
</tr>
<tr>
<td>Interactive teaching and learning</td>
<td>Critical dialogue</td>
</tr>
<tr>
<td></td>
<td>Integrative Learning</td>
</tr>
<tr>
<td></td>
<td>Mentoring</td>
</tr>
<tr>
<td></td>
<td>Cooperative peer learning</td>
</tr>
<tr>
<td></td>
<td>Out-of-class activities</td>
</tr>
<tr>
<td>Connected program requirements</td>
<td>Planned breadth and depth course work</td>
</tr>
<tr>
<td></td>
<td>Professional residency</td>
</tr>
<tr>
<td></td>
<td>Tangible product</td>
</tr>
<tr>
<td>Adequate resources</td>
<td>Support for students</td>
</tr>
<tr>
<td></td>
<td>Support for faculty</td>
</tr>
<tr>
<td></td>
<td>Support for basic infrastructure.</td>
</tr>
</tbody>
</table>

Each of the 17 attributes that make up the engagement theory contain very exhaustive descriptions consisting of specific actions of faculty and administrators, consequences of learning experiences, and effects on students. While a thorough program evaluation would ideally research each attribute in detail, an examination of this type was not possible within the scope of this study. This investigation focused on those attributes that are student-centered as opposed to faculty, administrator, or classroom-centered. Namely, this study concentrated on attributes in the first three clusters: diverse and
engaged participants, participatory cultures, and interactive teaching and learning. The last two clusters, connected program requirements and adequate resources, relate more to curricular, organizational, and administrative functions which is outside the scope of this student-focused study. The first three clusters will be examined in greater detail.

Diverse and Engaged Participants

Haworth and Conrad (1997) defined the first cluster, diverse and engaged participants, in terms of faculty, students, and leaders. As stated earlier in this chapter, many researchers have found that experiencing diversity in college can facilitate student engagement and learning (Cabrera et al., 1999, Carmichael, 2004; Cheng, 2004; Ewell & Wellman, 2007; Humphreys, 2002; Kaufman & Creamer, 1991; Kuh, 1991, 2003; Kuh et al., 2005, 2010; Nora & Cabrera, 1996). Also demonstrated in previous research, student involvement with faculty and administrators contributes to learning, development, and persistence (Bailey et al., 1998; Berger, 1997; Milem & Berger, 1997; Newcomb, 1966). Haworth and Conrad (1997) supported these findings and discovered that faculty and staff “played a pivotal role in constructing and defining the quality of learning experiences that students had in their programs” (p. 41). They found that diverse and engaged faculty shared differing perspectives with students during classroom lectures, in discussions, and in out-of-class experiences, which enriched the quality of learning. Diverse and engaged faculty also dedicated significant time and energy to teaching and learning.
Diverse and engaged students were also vital to enhancing the quality of student learning because engaged students with different backgrounds shared their divergent beliefs and experiences with their peers. As many studies have shown, peer groups have an impact on student learning and development (Astin, 1993; Newcomb, 1966; Tinto, 1975). Haworth and Conrad (1997) also found that diverse and engaged students within a program “not only infused a variety of perspectives into their discussions with others in and outside of class, they also invested in teaching and learning activities that considerably enriched the quality of their own and others’ learning” (p. 51). In addition, they found that engaged students also “devoted considerable time and energy to their studies…in a variety of ways: by actively participating in class discussions, being involved in research projects or artistic productions, and engaging in cooperative peer learning activities both in- and out-of-class” (p. 52). These demonstrations of academic integration having positive impacts on students have also been supported in other studies (Astin, 1993; Pascarella & Terenzini, 1991; Tinto, 1975). Haworth and Conrad (1997) also found that many diverse and engaged students were heavily involved in out-of-class activities supporting other findings that out-of-class experiences were positively associated with student engagement and persistence (Astin, 1975; Cheng, 2004; Kuh et al., 1991, 2004; Tinto, 1975).

**Participatory Cultures**

Haworth and Conrad’s (1997) second cluster was participatory cultures, which included three attributes: shared program direction, a community of learners, and a risk-
taking environment. Through their research, they found that participatory cultures required collegial and supportive participants that invited widespread involvement.

The first attribute, shared program direction, was found to enhance student growth and development because “the shared direction provided a common thread that helped to knit together students’ learning experiences” (p. 61). The overall program direction was most successful and supported when it was developed in collaboration by all program stakeholders. Students benefited from shared program direction in two ways. First, they developed more specific professional identities, and second, they had more specific goals after graduation. As mentioned earlier, having shared understanding and experiences have also been found to foster feelings of belonging (Harris, 2006; Kuh, 1991; Kuh et al., 2005, 2010; McMillan & Chavis, 1987).

Haworth and Conrad (1997) also found that membership in a community of learners enhanced students’ learning experiences and had a positive influence on student growth and development. These findings supported the research of others who asserted that learning communities positively impacted students (Astin, 1985; Spitzberg & Thorndike, 1992; Tinto & Goodsell-Love, 1993). Haworth and Conrad (1997) described a community of learners as one in which the program encouraged a culture of collegial teaching and learning where participants interacted more like partners in the learning process. They found that in order for a learning community to develop, a leader or group of leaders had to take responsibility for developing it, and the collegial culture had to be sustained in both in- and out-of-class teaching and learning experiences. They also found that students benefited from a learning community by gaining strengthened
communication and teamwork skills and by developing a “greater appreciation of and respect for the value of collaborative approaches to inquiry, problem solving, and leadership” (p. 75).

Interactive Teaching and Learning

Interactive teaching and learning is the third cluster in Haworth and Conrad’s engagement theory and includes attributes such as critical dialogue, integrative learning, mentoring, cooperative peer learning, and out-of-class learning activities. Critical dialogue emerged when program participants challenged core assumptions, questioned existing knowledge, and exhibited critical understanding of knowledge and professionalism in their fields. They found when students participated in critical dialogue they “became more holistic, critical, and discriminating thinkers” and “more self-assured and creative problem-solvers” (p. 89). Critical dialogue was nurtured when students were challenged and researchers encourage institutions to set high expectations for student learning in order to enhance student success (Astin, 1996; Braxton et al., 2008; Ewell & Wellman, 2007; Kuh et al., 2005, 2010; Tinto, 2006).

Haworth and Conrad (1997) also found integrative learning to be a very important piece of interactive teaching and learning. During integrative learning experiences students were “challenged to link what they were learning to tangible situations and issues in the outside world, and to link theory with practice, self with subject, learning with living” (p. 91). Integrative learning may include using real-world problems and issues as examples in class or hands-on learning activities such as role-plays, field
research, and field trips. Participating in integrative learning experiences was found to help students holistically approach problems and issues in their disciplines and communicate knowledge, theories, and technical practices to others. Other researchers have also argued for more integrated learning pedagogies (Carmichael, 2004; Chickering, 1987; Ewell & Wellman, 2007; Pascarella & Terenzini, 2001; Tinto, 1998).

Mentoring was another important attribute to interactive teaching and learning. Students who participated in a mentoring program had strengthened professional confidence and competence and were able to advance their careers. Cooperative peer learning also positively influenced students. Students who “contributed to and supported one another’s learning through various in- and out-of-class group activities” developed improved “interpersonal and teamwork skills” and “confidence in their professional skills” (Haworth & Conrad, 1997, pp. 106-111). Mentoring and cooperative peer learning are types of active and collaborative learning which have been encouraged by researchers and enable students to be more engaged in the learning experience (Carmichael, 2004; Ewell & Wellman, 2007; Pascarella & Terenzini, 2005; Tinto, 1997).

Finally, out-of-class activities contributed to interactive teaching and learning. Haworth and Conrad (1997) “learned that when faculty, administrators, and students actively participated in out-of-class activities…the informal learning that took place greatly enriched students’ overall learning experiences” (pp. 112-113). Namely, students’ oral communication and interpersonal skills were strengthened, and they developed greater “awareness and appreciation for collaborative approaches to inquiry, problem-solving, and leadership” (p. 117). They found that lack of involvement contributed to
cultures with isolated or competitive student learning rather than cooperative peer
learning.

Critiques of the Theory

There has only been one review of Haworth and Conrad’s engagement theory of
academic program quality, and few studies that have referenced this theory. This in and
of itself may serve as a critique because either the theory itself is not seen as useful to
other researchers or is not well known. Either way, the fact that other researchers have
not studied the engagement theory of academic program quality means that the findings
have not been validated or tested in other settings or with other populations.

Brown (1999), in reviewing Haworth and Conrad’s (1997) work pointed out a few
critiques that should be mentioned. First, she indicated that Haworth and Conrad’s theory
identified seventeen attributes that are somewhat obvious, and the chapters describing
each of the five clusters were rather repetitious and predictable. However, she did praise
the usefulness and practicality of the authors’ descriptive matrix and template for
assessing program quality. Brown questioned whether or not Haworth and Conrad
provided enough evidence to comprise a comprehensive theory of engagement. She also
pointed out that the engagement theory is based on the assumption that student growth
and development is the heart of academic program quality, which some may not agree
with. Brown also critiqued the fact that the theory emphasized student-learning
experiences such as attitudinal and behavioral effects of quality programs rather than
direct student learning outcomes. Brown questioned whether this theory was applicable to
programs other than those at the master’s level since the authors did not discuss this in any detail. In addition, Haworth and Conrad did not discuss the applicability or ease of implementing their recommendations at the undergraduate level where programs tend to be larger and admissions requirements less stringent. Brown suggested that this theory “may be less practical for undergraduate education, although it is appealing and probably practicable, with the right ‘diverse and engaged’ faculty, ‘engaged’ leaders, and adequate resources” (p. 3). She mentioned, however, that any program could benefit from evaluating its practices using the theory’s attributes in part or in full.

Haworth and Conrad’s engagement theory is limited in the fact that it studied only master’s level programs using qualitative methodologies. This study further tested the engagement theory using a quantitative methodology on an undergraduate academic program.

Engagement Theory in Interdisciplinary Programs

Haworth and Conrad (1997) have outlined an engagement theory of academic program quality that highlights the importance of student engagement and its effects on learning and development. Their theory incorporates many of the aspects of student involvement theory and research while emphasizing the importance that faculty and administrator actions have on the learning experiences and on students. Haworth and Conrad (1997) advised that programs find out how the “learning environment – and, in particular, students’ engagement with one another and faculty – enhance or hinder
students’ learning” (p. 171). One study on interdisciplinary graduate programs did use the engagement theory of academic program quality to study student engagement.

**Engagement in an Interdisciplinary Studies Graduate Program**

Newswander and Borrego (2009) studied engagement in two graduate interdisciplinary programs by interviewing students using the engagement theory of academic program quality. They argued “that engagement theory can act as a useful framework for understanding and assessing important components of quality interdisciplinary education around the globe” (p. 552). The researchers described engagement in terms of “increased student participation in formal and informal learning, higher levels of personal attachment to or ownership of a program or research project, and increased levels of satisfaction” (p. 553). They “found that when interdisciplinary programs facilitate engagement by supporting diversity, participation, connections, and interactive teaching and learning, students report positive experiences” (p. 551). They also found that engagement was more achievable when an interdisciplinary program functioned as an administrative unit, granting degrees and faculty tenure.

Newswander and Borrego (2009) discovered that engagement could be challenged when students had multiple collaborations, social groups, and expectations that divided their attention. This finding was similar to what Hewitt and Lanser (1998) reported a decade earlier. Students could also feel divided between different departments and the interdisciplinary center, which could make engagement and community building more difficult.
A primary finding of Newswander and Borrego’s (2009) research was that not every student will want to be involved at the same level or in the same way. Therefore, they suggested that successful interdisciplinary studies programs enable different levels of engagement for students and faculty in ways that are meaningful to them. Their findings suggested that engagement was clearly attainable in interdisciplinary degree programs that were supported by sufficient resources. Newswander and Borrego (2009) supported the use of engagement theory in interdisciplinary studies programs stating:

Engagement theory provides a lens through which to analyze a program in an emerging interdisciplinary field in order to best understand what works and what doesn’t, and what priorities ought to be met. Clearly, an engaged faculty and student body are important factors in quality interdisciplinary graduate education. Furthermore, engagement can also be a reflective indicator of how well a program is meeting the unique needs of the interdisciplinary student. (p. 560)

To conclude, they recommended that interdisciplinary programs carefully identify and consider ways to facilitate the engagement and integration of graduate students. The same recommendation can also be made for studying engagement in undergraduate interdisciplinary programs.

Justification for Using Engagement Theory

The engagement theory of academic program quality is a useful frame for studying engagement in interdisciplinary undergraduate programs. Many of the theory’s attributes can be directly related to interdisciplinary programs in one way or another. In
terms of diversity-related activities, shared understanding and experiences, interaction with peers, interaction with faculty members, active and collaborative learning, integrated learning, out-of-class experiences, and academic challenge, the engagement theory is perfect for studying interdisciplinary programs.

In terms of diversity-related activities, Klein (1999) argued that diversity could be used as a metaphor for interdisciplinarity because “the relational pluralism of diversity also echoes the nature of interdisciplinary knowledge” (p. 22). In other words, interdisciplinary work “requires working with multiple perspectives” (p. 22). According to Newell (1990), the interdisciplinary program at Wayne State fostered a spirit of mutual respect between faculty and students of widely diverse backgrounds. Interdisciplinary programs are perfect for attracting students and faculty from divergent backgrounds because of the individualized nature of the programs.

Having shared understanding and experiences is also important for students in interdisciplinary programs. Shared experiences can be facilitated by a common physical space for students. One of Holley’s (2009) eight best practices for interdisciplinary programs was to have a specific organizational and physical space, which helped to offer institutional legitimacy and created a location for individuals to connect who might otherwise be spread across campus. Nuhfer (1999) also noted that interdisciplinary studies programs must establish a dedicated space for students where they can meet and display important information. Having shared understanding also means that everyone is aware of the program and understands its goals and purpose. According to Newell (1990), it is important to publicize the program and make sure that students and faculty

133
are aware of its existence. In addition, Klein and Newell (1998) noted the importance of visibility and legitimacy of interdisciplinary programs on college campuses. According to Welch (2003), “In order to become more recognizable and accessible to students, faculty, and community members alike, interdisciplinary studies programs should promote higher visibility both within the university and in the community” (p. 195). Klein (2010) also found that sustainable interdisciplinary programs should have a curriculum with a coherent agenda, include shared experiences and a sense of community among faculty and students, and also have specified common space and resources. Welch (2003) argued the necessity of a “clear vision and ongoing articulation of what the interdisciplinary initiative is all about…for all participants” (p. 198). Nuhfer (1999) also found that to ensure long-term vitality and success, interdisciplinary studies programs must rely on a shared vision. Finally, Barnett and Brown (1981) reported that allowing students to contribute to the course design, led to strong group loyalty.

Interaction with peers and faculty members is also critical to interdisciplinary studies students’ success. In interdisciplinary courses, students should be encouraged to share information with each other about their personal experiences and contribute to class based on their professional backgrounds (MacKenzie & Bjornson, 2005). The administrators surveyed by Welch (2003) recommended student-faculty interaction including: student and faculty team teaching from divergent disciplines, students involvement in faculty members’ interdisciplinary research projects, a student/faculty journal, and a seminar or mini conference. Nuhfer (1999) found that “motivation in
interdisciplinary programs is established by growing a learning community that involves students, faculty, administrators, and the societal peer group” (p. 89).

Holley’s (2009) best practices in interdisciplinary study included a student-centered learning pedagogy, curriculum shaped through a variety of active, collaborative, and integrative learning experiences, a focus on collaborative learning, and the use of co-curricular learning such as independent studies, internships, and experiential learning. These best practices speak directly to active and collaborative learning as emphasized in the engagement theory of academic program quality. Gnassia and Seabury (2002) and Klein (2010) also expressed the importance of active and collaborative learning in interdisciplinary education. They believed that by using service learning in interdisciplinary education, students would feel impactful in widespread public issues and problems and develop a public consciousness. MacKenzie and Bjornson (2005) provided an example of an interdisciplinary course using integrative learning, role-plays, and group discussions. Hursh et al. (1983) also encouraged active participation in their model on interdisciplinary general education. Welch (2003) found in his survey of interdisciplinary administrators,

Students need to participate at some level in the process of determining themes, or at least their individual focus areas, thus ensuring that the program ‘is interactive’, that is, it does not just call for a one-way flow of information into the minds of students; rather it insists that students act upon that information and construct ways of organizing it. (pp. 183-184)
Klein (2010) found that sustainable interdisciplinary programs should have a curriculum with integrative processes. Gnassia and Seabury (2002) also attested to the integrative learning of interdisciplinary courses. They stated, “Many key issues that students will face as family members, community members, and voters do not come into focus in general education” (p. 153). However, they believed that interdisciplinary courses could effectively address these issues. Lattuca et al. (2004) proposed that interdisciplinary learning might promote learning by engaging students’ prior knowledge and experiences of real world applications in order to construct meaning in the classroom.

Nuhfer (1999) acknowledged the need to for interdisciplinary studies students to connect with each other in out-of-class experiences in order to provide a ‘home’ for students and a way to demonstrate a program identity to the campus community. Interdisciplinary students must also be challenged academically. Lattuca et al. (2004) proposed that interdisciplinary learning might promote learning by challenging effective thinking, developing multiple perspectives, and motivating students to learn.

According to Klein and Newell (1996), interdisciplinary approaches are compatible with other learning reforms such as integrated learning, active and collaborative learning, and diversity-related initiatives. In addition, interdisciplinary programs are strengthened when students interact with peers and faculty, when they have shared understandings and experiences, when they experience out-of-class activities, and when they are challenged academically. According to Klein and Newell (1996), “When these shifts [toward interdisciplinarity] are incorporated into a forward-looking
institutional plan that faculty and students are involved in developing, the strategy may yield viable interdisciplinary departments and courses” (p. 167).

**Summary**

The review of literature provided a strong background on student engagement and offered an explanation of the specific factors regarding student engagement that are relevant to this study. What is known is that diversity-related activities, shared understanding and experiences, interaction with peers, interaction with faculty members, active and collaborative learning, integrated learning, out-of-class experiences, and academic challenge all contribute to student learning, retention, satisfaction, and success. Researchers have discovered differences in student engagement depending upon student major and have demonstrated that even nontraditional students can become engaged in an academic program. Due to the limited literature on nontraditional student engagement and engagement in academic programs, it is fitting to study student engagement within a nontraditional academic program such as interdisciplinary studies programs. The literature reviewed also summarized the limited literature on students in interdisciplinary programs and demonstrated a need for further research on student engagement in interdisciplinary programs. The engagement theory of program quality was used to frame the research on interdisciplinary studies student experiences of engagement. As argued, this theory was a logical one to study engagement in interdisciplinary studies due to the close ties between high quality engaging programs and ideal interdisciplinary practices.
CHAPTER 3
METHODOLOGY

Introduction

Answering the call for further research on interdisciplinary studies students (Klein & Newell, 1996) and engagement in an academic program (Astin, 1985; Lounsbury & DeNeui, 1996; Tinto, 1975), a non-experimental quantitative questionnaire was used in order to glean information from a population of interdisciplinary studies alumni. This survey was administered to gather self-reported information which allowed for confidentiality and a greater chance for honest answers. The questionnaire was used to investigate the relationship between interdisciplinary studies student characteristics, reported engagement, and program satisfaction.

The literature in Chapter 2 provided justification for eight factors used to measure engagement in this study. Primarily, these eight factors came from Chickering and Gamson’s (1987) seven principles of good practice, Haworth and Conrad’s (1997) engagement theory of academic program quality, and NSSE’s five benchmarks. The eight factors include (a) diversity-related activities, (b) shared understanding and experiences, (c) interaction with peers, (d) interaction with faculty members, (e) active and collaborative learning, (f) integrated learning, (g) out-of-class experiences, and (h) academic challenge. To aid in the collection of data, the NSSE survey instrument was adapted to address all eight factors of engagement. Through this questionnaire, alumni provided information regarding their participation in engaging educational opportunities while enrolled in the Interdisciplinary Studies Program. This chapter includes the
following: context of the study, population, instrumentation, pilot study, data collection and analyses, authorization, and originality.

**Context of the Study**

The University of Central Florida’s Interdisciplinary Studies Program was selected as the site for this study because it provided an example of a large interdisciplinary studies undergraduate program with over 1,200 students enrolled. The Interdisciplinary Studies Program at UCF evolved over a 30-year period. In 1972, the Bachelor of General Studies (BGS) degree was discontinued, and the University began offering Bachelor of Arts (BA) and Bachelor of Science (BS) degrees in General Studies. In 1981, the General Studies Program underwent a name change and became the Liberal Studies Program. Between 1981 and 2006, the Liberal Studies Program offered students BA and BS degrees. Although the program evolved a great deal across a quarter of a century, the foundation of the program was always to offer academic flexibility to students. The Liberal Studies Program “recognize[d] that . . . there [were] many combinations of courses which [could] be structured into meaningful programs to meet the needs of individual students” (University of Central Florida, 1989, p. 72). As such, a Liberal Studies degree allowed students, whose academic interests or career plans could not be met by another academic discipline, a chance to build a major that suited their needs.

During the 2005-2006 academic year, the Liberal Studies Program underwent its first program review. A task force consisting of members from a variety of academic
units at UCF performed a thorough examination of the program. The task force made
“recommendations drawn from materials developed through the Program Review
process, including recommendations from an outside consultant as well as self-study
material” (University of Central Florida, 2006, intro). The recommendations were meant
to strengthen the academic experience of students pursuing the major. These suggestions
included changing the program’s name to more aptly reflect its curriculum, developing
foundation courses to help students better understand the interdisciplinarity of the degree,
creating a common academic experience, and developing a stronger community among
the students pursuing the major. The University chose to implement a number of these
suggestions, and by 2007, a new Interdisciplinary Studies Program had replaced the
Liberal Studies Program.

Because the Liberal Studies Program provided the foundation for the
Interdisciplinary Studies Program, there were a number of similarities between the two.
Although the new program continued to focus on providing academic flexibility to help
students meet their individual needs, a new core curriculum of Cornerstone in
Interdisciplinary Studies (IDS 3933) and Capstone in Interdisciplinary Studies (IDS
4934) have provided a common academic experience to all students pursuing the
Interdisciplinary Studies degree (University of Central Florida, 2006). Prior to the
development of these courses, students very likely would have completed the entire
undergraduate program without ever having courses with another interdisciplinary studies
student. These courses also added interdisciplinary study, career development, and
graduate school preparation to the curriculum and provided a solid base upon which the interdisciplinary studies community could grow.

One of the goals of the Interdisciplinary Studies Program was to develop a sense of community among its students (University of Central Florida, 2006). The newly implemented core courses were meant to engage students by requiring service learning projects and mentoring. The task force believed that the cornerstone course would “provide an excellent beginning to identification as an Interdisciplinary Studies major who is immediately involved with other majors” (p. 3). The core courses had been taught for over four years and had not yet been evaluated on their effectiveness to engage students.

Population

The Interdisciplinary Studies Program at UCF was one program within the larger population of interdisciplinary studies programs in the United States, and therefore, could be considered a purposeful, convenience sample. The survey was administered as a census survey and all 2008-2011 graduates of UCF’s Interdisciplinary Studies Program were invited to participate. Alumni from 2008-2011 were chosen purposefully for this study because this sample included a mix of individuals who completed the core courses and those who were not required to complete the core courses. Alumni from the three most recent academic years were chosen as they would most likely have a better recollection of their undergraduate college experiences. Current students were not included in this study because they would not have had the opportunity to complete the
capstone course, and thus the impact of this course on engagement would not have been able to be analyzed. The list of alumni meeting the selection criteria was obtained from a database maintained by the Office of Interdisciplinary Studies and resulted in a sample of 1,576 graduates with approximately 65% having completed the core courses. The participants were all UCF alumni over the age of 18 who graduated with a bachelor’s degree in Interdisciplinary Studies in the General Studies Track between summer 2008 and spring 2011.

The Interdisciplinary Studies Program has operated on an open admission process. All students are eligible to participate in the BS or BA in Interdisciplinary Studies, but they must meet with an academic advisor prior to declaring the major. The Interdisciplinary Studies Program enrolls a diverse group of students. Over 40% of students enrolled in the Program in fall 2010 were part-time students, i.e. they registered for less than 12 credit hours that term. A total of 62% of students in fall 2010 were female, and nearly 70% were Caucasian. In addition, nearly all students, 90% of total enrollment in fall 2010, were classified as juniors or seniors. In fall 2009, 63% of students in the Program were transfer students, 59% were taking at least one online course, and 46% were taking at least one course at a regional location away from the main campus. To summarize, the majority of Interdisciplinary Studies students were junior or senior transfer students who took at least some courses online or at a regional campus location. A little less than half of these students were also considered part-time. These statistics clarify that the Interdisciplinary Studies Program at UCF typically enrolled a largely non-traditional population of students.
Instrumentation

The research was carried out in two phases. Phase I consisted of a pilot study conducted in January 2011 followed by the final Phase II study conducted from May 18 through June 6, 2011. Both studies utilized Internet-based Likert scale survey instruments that used questions adapted from the NSSE instrument as well as questions developed for the sole purpose of answering the research questions for this study. The survey instrument used in this study is referred to as the Interdisciplinary Studies Student Engagement Survey (ISSES) throughout the dissertation. ISSES was disseminated using an online survey website, www.SurveyMonkey.com (Survey Monkey).

Survey Instrument

The ISSES instrument for the final study (Appendix B) was informed by the ISSES pilot instrument found in Appendix C. The ISSES instrument was an online questionnaire developed based on Haworth and Conrad’s (1997) recommended assessment template, items from NSSE, and the literature review. ISSES contained questions regarding the eight factors of student engagement as defined in Chapter 2 as well as questions regarding overall satisfaction as measured in the NSSE survey. It also contained enrollment information regarding the core courses as well as demographic information.

Items from NSSE were analyzed individually to determine whether they would be appropriate for use in ISSES. It was determined that of 102 possible items in NSSE, 53 were appropriate for use in the pilot study (Appendix D). The National Survey of Student
Engagement organization was contacted, the Director approved an Item Usage Agreement, and permission was granted for 53 NSSE items to be used in this study (Appendix E). In addition, six questions were developed by the researcher for ISSES to address the factor of shared understanding and experiences within the Interdisciplinary Studies Program. Four demographic questions were also added to identify term of enrollment, approximate GPA, and completion of the core courses. The items for the questionnaire were submitted to the dissertation committee chair for content review. Suggested revisions were considered and implemented where appropriate.

Of the 53 adapted NSSE items, 14 were considered demographic questions with nominal data as displayed in Table 2. A total of 22 of the NSSE items addressed the frequency of student activity in various engagement factors. These 22 items are also displayed in Table 2 and were constructed using a 4-point Likert scale where 1 = never and 4 = very often. Displayed in Table 3 are (a) three questions from NSSE using a 7-point Likert scale with 1 being the lowest rating and 7 being the highest rating, (b) five NSSE items relating to frequency of out-of-class experiences based on a 3-point Likert scale where 1 = never completed and 3 = completed on multiple occasions, (c) one additional item regarding hours spent on extracurricular activities using an 8-point scale where 1 = 0 hours per week and 8 = more than 30 hours, and (d) eight NSSE items based on a 4-point Likert scale with 1 being the least favorable response and 4 being the most favorable. Table 4 contains the six items developed by the researcher to address the factor of shared understanding and experiences. These items were based on a 4-point Likert scale where 1 = strongly disagree and 4 = strongly agree.
Table 2

*NSSE Demographic and Engagement Items*

<table>
<thead>
<tr>
<th>NSSE Item #</th>
<th>NSSE Variable</th>
<th>ISSES Pilot Item #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>enriment</td>
<td>4</td>
</tr>
<tr>
<td>--</td>
<td>disted</td>
<td>5</td>
</tr>
<tr>
<td>26</td>
<td>livenow</td>
<td>6</td>
</tr>
<tr>
<td>20</td>
<td>enter</td>
<td>7</td>
</tr>
<tr>
<td>23</td>
<td>fratsoro</td>
<td>8</td>
</tr>
<tr>
<td>24a</td>
<td>athlete</td>
<td>9</td>
</tr>
<tr>
<td>9b</td>
<td>workon01</td>
<td>17</td>
</tr>
<tr>
<td>9c</td>
<td>workof01</td>
<td>18</td>
</tr>
<tr>
<td>15</td>
<td>birthyr</td>
<td>25</td>
</tr>
<tr>
<td>16</td>
<td>sex</td>
<td>26</td>
</tr>
<tr>
<td>17</td>
<td>internat</td>
<td>27</td>
</tr>
<tr>
<td>18</td>
<td>race05</td>
<td>28</td>
</tr>
<tr>
<td>27a</td>
<td>fathredu</td>
<td>29</td>
</tr>
<tr>
<td>27b</td>
<td>mothredu</td>
<td>30</td>
</tr>
<tr>
<td>Engagement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1a</td>
<td>clquest</td>
<td>11-a</td>
</tr>
<tr>
<td>1b</td>
<td>clpresen</td>
<td>11-b</td>
</tr>
<tr>
<td>1c</td>
<td>rewropap</td>
<td>11-c</td>
</tr>
<tr>
<td>1d</td>
<td>integrat</td>
<td>11-d</td>
</tr>
<tr>
<td>1e</td>
<td>divclass</td>
<td>11-e</td>
</tr>
<tr>
<td>1f</td>
<td>clunprep</td>
<td>11-f</td>
</tr>
<tr>
<td>1g</td>
<td>classgrp</td>
<td>11-g</td>
</tr>
<tr>
<td>1h</td>
<td>occgrp</td>
<td>11-h</td>
</tr>
<tr>
<td>1i</td>
<td>intideas</td>
<td>12-a</td>
</tr>
<tr>
<td>1j</td>
<td>tutor</td>
<td>12-b</td>
</tr>
<tr>
<td>1k</td>
<td>commproj</td>
<td>12-c</td>
</tr>
<tr>
<td>1l</td>
<td>itacadem</td>
<td>12-d</td>
</tr>
<tr>
<td>1m</td>
<td>email</td>
<td>12-e</td>
</tr>
<tr>
<td>1n</td>
<td>facgrade</td>
<td>12-f</td>
</tr>
<tr>
<td>1o</td>
<td>facplans</td>
<td>12-g</td>
</tr>
<tr>
<td>1p</td>
<td>facideas</td>
<td>12-h</td>
</tr>
<tr>
<td>1q</td>
<td>facfeed</td>
<td>13-a</td>
</tr>
<tr>
<td>1r</td>
<td>workhard</td>
<td>13-b</td>
</tr>
<tr>
<td>1s</td>
<td>facother</td>
<td>13-c</td>
</tr>
<tr>
<td>1t</td>
<td>oocideas</td>
<td>13-d</td>
</tr>
<tr>
<td>1u</td>
<td>divrstud</td>
<td>13-e</td>
</tr>
<tr>
<td>1v</td>
<td>diffstu2</td>
<td>13-f</td>
</tr>
</tbody>
</table>

*Note. NSSE=National Survey of Student Engagement; ISSES=Interdisciplinary Studies Student Engagement Survey.*
Table 3

**NSSE Items, Variables, and ISSES Pilot Items**

<table>
<thead>
<tr>
<th>NSSE Item #</th>
<th>NSSE Variable</th>
<th>ISSES Pilot Item #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seven-point scale items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>exams</td>
<td>15</td>
</tr>
<tr>
<td>8a</td>
<td>envstu</td>
<td>20</td>
</tr>
<tr>
<td>8b</td>
<td>envfac</td>
<td>21</td>
</tr>
<tr>
<td>Three-point scale items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7a</td>
<td>intern04</td>
<td>16-a</td>
</tr>
<tr>
<td>7b</td>
<td>volntr04</td>
<td>16-b</td>
</tr>
<tr>
<td>7c</td>
<td>lrncom04</td>
<td>16-c</td>
</tr>
<tr>
<td>7d</td>
<td>resrch04</td>
<td>16-d</td>
</tr>
<tr>
<td>7f</td>
<td>stdabr04</td>
<td>16-e</td>
</tr>
<tr>
<td>Eight-point scale item</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9d</td>
<td>cocurr01</td>
<td>19</td>
</tr>
<tr>
<td>Four-point scale items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>entirexp</td>
<td>23</td>
</tr>
<tr>
<td>14</td>
<td>samecoll</td>
<td>24</td>
</tr>
<tr>
<td>10a</td>
<td>envschol</td>
<td>22-a</td>
</tr>
<tr>
<td>10b</td>
<td>envsuprt</td>
<td>22-b</td>
</tr>
<tr>
<td>10c</td>
<td>envdivrs</td>
<td>22-c</td>
</tr>
<tr>
<td>10d</td>
<td>envnacad</td>
<td>22-d</td>
</tr>
<tr>
<td>10e</td>
<td>envsocal</td>
<td>22-e</td>
</tr>
<tr>
<td>10f</td>
<td>envevent</td>
<td>22-f</td>
</tr>
</tbody>
</table>

*Note. NSSE=National Survey of Student Engagement; ISSES=Interdisciplinary Studies Student Engagement Survey.*

Table 4

**Original ISSES Items**

<table>
<thead>
<tr>
<th>New Variable</th>
<th>ISSES Pilot Item #</th>
</tr>
</thead>
<tbody>
<tr>
<td>isclexp</td>
<td>14-a</td>
</tr>
<tr>
<td>isrelate</td>
<td>14-b</td>
</tr>
<tr>
<td>istrad</td>
<td>14-c</td>
</tr>
<tr>
<td>isbelong</td>
<td>14-d</td>
</tr>
<tr>
<td>isinter</td>
<td>14-e</td>
</tr>
<tr>
<td>isclass</td>
<td>14-f</td>
</tr>
</tbody>
</table>

*Note. ISSES=Interdisciplinary Studies Student Engagement Survey.*
All answer categories were pre-coded using a survey codebook (see Appendix F for the pilot survey codebook and Appendix G for the final survey codebook), rather than open-ended, to reduce response errors. Instructions were kept simple, and question formatting followed NSSE instrument guidelines. All questions were forced response, and neutral or not applicable responses were not an option. The web survey was designed so that questions were organized in such a way as to prevent scrolling on the computer screen. There were no right or wrong answers, and all responses were based on students’ experiences and perceptions. Question 11f, “Went to class without completing readings or assignments”, was reverse-scored prior to analysis.

Salant and Dillman (1994) suggested pre-testing a survey before primary data collection in order to determine the ease of directions, length of the survey, and appropriateness of survey items. Therefore, a pilot survey was administered to a conveniently sampled group of current students in the Interdisciplinary Studies Program who were not eligible to participate in the final study. In total, the pilot instrument consisted of 63 closed response questions and took approximately 15 minutes to complete. The survey was administered via a secure web tool accessible only to the researcher and Director of the Interdisciplinary Studies Program. Based on the pilot study results, which are addressed in detail later in this chapter, six NSSE items were removed from the final ISSES instrument. Those items were stdabr04, cocurr1, envfac, facfeed, envstu, and itacadem. Therefore, the final ISSES instrument consisted of 57 closed response questions.
Reliability and Validity

Reliability is the consistency by which an instrument measures something (Kerlinger, 1986). Instruments using ordinal or interval data for questions that are related often use a Cronbach’s Alpha (Cronbach, 1951) to estimate internal reliability of a set of scores. Cronbach’s Alpha is only used to test the reliability of a single test administration. An item analysis is also conducted with a Cronbach’s Alpha to determine how all items in an instrument relate to one another and to the total instrument. Items not contributing to the overall reliability can be removed to increase the reliability of the instrument. The following Cronbach’s Alpha standards were used; a score greater than .80 was considered to be very good and a score between .65 and .80 demonstrated modest reliability (Sivo, 2009).

NSSE has been the most commonly used instrument for measuring college student engagement and has been in use nationwide since 2000. The validity of NSSE has been scrutinized, and the items have been found to be “clearly worded, well-defined, and had high face and content validity” (Kuh, 2003a, p. 5). In addition, the reliability coefficients for the various items ranged from .84 to .90. When grouped into the five NSSE benchmarks, the Cronbach’s Alphas for these groups ranged from .655 to .796 (NSSE, 2010c). The item reliability scores suggested very good levels of reliability, whereas the grouped reliability scores were fairly reliable.

The NSSE instrument was determined to be a valid and reliable instrument from which to base ISSES; however, because ISSES was an adapted instrument, Cronbach's Alpha tests were conducted on the pilot data to test the instrument reliability as well as
reliability within factors. A full analysis of these results can be found in the section in this chapter titled Pilot Study: Data Analysis. To summarize, the pilot study had a Cronbach’s Alpha score of .90 for all 45 Likert-type scale items which suggests that ISSES had very good reliability. As part of the Cronbach’s Alpha tests, item analysis was performed on the pilot data to see if any questions could be removed to increase reliability. Six items were removed, and when the remaining 39 Likert-type scale items were grouped into the eight engagement factors, the Cronbach’s Alphas for these groups ranged from .591 to .913. The final study had a Cronbach’s Alpha score of .915 for all 39 Likert-type scale items, and the grouped factor scores ranged from .611 to .925. The final results closely mirrored the Cronbach’s Alpha results in the pilot study and indicated that the ISSES instrument had very good levels of reliability.

Content validity is “the degree to which a test measures an intended content area” (Gay & Airasian, 2003, p. 136). Therefore, the instrument used in this study needed to measure college students’ engagement factors as identified in Chapter 2. Because the ISSES instrument used in this study was adapted from NSSE, which had already been thoroughly tested in a university environment, there was no concern over the relevance to the setting. To further confirm that ISSES measured the appropriate content for this study, the survey instrument’s face value and content validity was reviewed by the dissertation committee prior to dissemination.

NSSE has already established five benchmarks of student engagement; however, in order to confirm that ISSES tested the eight factors of engagement identified for this study, factor analysis of the pilot study data was conducted to validate the survey
instrument. Factor analysis is used to reduce a large set of variables to a smaller set of factors capable of explaining a large amount of the total variability in the scores (Sivo, 2009). The identity of each factor is determined after reviewing which items correlate the highest with that factor. A successful result is one in which the identified factors can explain a large percentage of overall variability. The goal of factor analysis in the pilot study was to identify the specific items that correlated with each of the eight engagement factors and satisfaction variable. A full review of the factor analysis results can be found in the section in this chapter titled Pilot Study: Data Analysis. To summarize, nine factors were identified, each containing one or more items. The validity evidence from the pilot data supported the conclusion that the eight engagement factors extracted produced a valid assessment of a student’s engagement in the Interdisciplinary Studies Program.

Pilot Study

The ISSES instrument used in the pilot study is contained in Appendix C. This instrument was included in the NSSE Item Usage Agreement (Appendix E). This pilot study did not require approval by UCF’s IRB (Appendix I) because it was not used to produce generalizable data and was not considered to be human subjects’ research.

Pilot Study: Participants

A pilot survey was administered using a convenience sampling method to a pilot group of current students from the Interdisciplinary Studies Program who were not eligible participants in the final study. The pilot study participants included all
Interdisciplinary Studies students enrolled in spring 2011 as of January 4, 2011 who were officially declared in the major and had over 82 hours earned after fall 2010. This eliminated freshmen, sophomores, and most juniors who may not have yet enrolled in the cornerstone course or participated in engagement activities. All seniors who had applied for spring 2011 graduation were eliminated from the pilot study because they were surveyed as alumni in the final study. All students who officially declared Interdisciplinary Studies as a major for the first time in spring 2011 were also eliminated from the pilot study because they had not yet taken any courses in the program. This left a total of 598 students who met all of the criteria and were invited to participate in the pilot study. The students’ emails were obtained from the Director of the Interdisciplinary Studies Program, and the emails were entered into Survey Monkey. Five of the participants had previously opted out of the electronic survey system and were unable to be surveyed, leaving 593 students who received the pilot survey.

There were some limitations to the pilot study participant sample. First, students who may otherwise have met the criteria may not have registered for spring 2011 by January 4, and therefore would not have been retrieved in the query. Second, students who intended to graduate in spring 2011 but did not file the graduation application by January 4 received the pilot survey and also received the final survey in June.

Pilot Study: Data Collection

The remaining 593 students eligible to participate in the pilot study were emailed using Dillman, Smyth, and Christian’s (2009) three-contact email strategy. These emails
were sent through Survey Monkey. The first email was sent Tuesday, January 11, 2011. The second email was sent Tuesday, January 18, 2011, and the third and final email was sent Sunday, January 23, 2011 (Appendix J). A total of 21 emails were undeliverable in the first contact. For those 21 participants, alternative email addresses were collected, and a new email was sent out.

There were a few limitations noted during data collection. As a result of using Survey Monkey, a number of students noted that these emails were going directly into the junk mail folder. To try to remedy this problem, the final email contact was sent through Survey Monkey and directly from the researcher’s personal email account. In addition, many students did not use their campus or primary email listed in the UCF system. Finally, because these emails were sent during the first and second week of the spring semester, many students may have been too busy to participate. To try to encourage participation during this time, students were offered an incentive to be entered into a prize drawing after completing the survey. The questionnaire was anonymous but participants were given the opportunity to provide contact information after the survey in order to be placed in the drawing. Of the 593 eligible participants, 204 started the survey and 178 participants completed the entire survey for a response rate of 34% and a completion rate of 30%.

Pilot Study: Data Analysis

The pilot study assumed that all items on the survey fell into one of ten groups or factors: (a) diversity-related activities, (b) shared understanding and experiences, (c)
interaction with peers, (d) interaction with faculty members, (e) active and collaborative learning, (f) integrated learning, (g) out-of-class experiences, (h) academic challenge, (i) satisfaction, or (j) biographical. The biographical or demographic items were identified because they were nominal data responses. The other ordinal or interval response questions were analyzed using factor analysis to determine which items were categorized into the nine remaining groups.

Factor Analysis

IBM Statistical Package for the Social Sciences version 19 (SPSS) was used to examine the 45 ordinal or interval items. Before proceeding with the interpretation, it was noted that there were no non-positive definite results and no communalities exceeding 1.0 indicating that the results of the factor analysis could be reliably interpreted. Using the maximum likelihood estimation procedure, factors were extracted from the variable data. Twelve factors were reported to have an eigenvalue of 1.0 or higher, which would indicate that there may be 12 possible factors. However, because this study was focused on only nine factors, the results were interpreted using the nine factors with the highest eigenvalues. A promax rotation was conducted because it assumes that nonzero correlations among the factors are possible. Using the correlation standards of Sivo (2009), a majority (7 out of 9) of the correlation coefficients were determined to be greater than .30. Thus, the promax rotation was appropriate.

Interpreting the results from the factor analysis structure matrix (Appendix K), the 45 items were categorized into nine factors. When analyzing these nine factors, it was
apparent that the six items displayed in Table 5 for the student-faculty factor found in NSSE were not loading together in ISSES. Due to the strong evidence in the literature and the high correlation in NSSE, however, it was decided that these items would be grouped together for this study as the “interaction with faculty members” factor.

Table 5

*NSSE Student Faculty Items*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Item Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>facgrade</td>
<td>Discussed grades or assignments with an instructor</td>
</tr>
<tr>
<td>facplans</td>
<td>Talked about career plans with a faculty member or advisor</td>
</tr>
<tr>
<td>facfeed</td>
<td>Received prompt written or oral feedback from faculty on your academic performance</td>
</tr>
<tr>
<td>facother</td>
<td>Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)</td>
</tr>
<tr>
<td>facideas</td>
<td>Discussed ideas from your readings or classes with faculty members outside of class</td>
</tr>
<tr>
<td>email</td>
<td>Used e-mail to communicate with an instructor</td>
</tr>
</tbody>
</table>

*Note.* NSSE=National Survey of Student Engagement.

With the addition of the “interaction with faculty members” factor, there was one additional factor which included items: entirexp “How would you evaluate your entire educational experience in the Interdisciplinary Studies Program at the University of Central Florida?”, samecoll “If you could start over again, would you choose to major in Interdisciplinary Studies?”, envfac “Select the circle that best represents the quality of
your relationships with faculty in the Interdisciplinary Studies Program at the University of Central Florida”, and stdabr04 “Study Abroad”. Of these four items, entirexp, samecoll, and envfac loaded together in NSSE under “Opinions about Your School--Quality of Relations”. It is logical for these items to be included with the satisfaction factor since they all loaded together in NSSE. Looking at the descriptive statistics for stdabr04, the question regarding study abroad, it was heavily positively skewed toward the “do not plan to do” response. This was not surprising given the nontraditional population. Because this item did not have a normal distribution, it was removed from further analyses.

One item, envschol, asked “To what extent did the Interdisciplinary Studies Program at the University of Central Florida emphasize spending significant amounts of time studying and on academic work?” This question loaded by itself. This item was used for the academic challenge factor; however, it was not the question that the researcher would have selected to represent this factor. This question asked respondents to rate, on a Likert-type scale, ranging from very little to very much, the amount of emphasis the Interdisciplinary Studies Program placed on studying and academic work. This did not ask students whether they felt challenged by the academic work. The questions on the ISSES instrument that would have been more representative of the academic challenge factor in the literature were the exams item, “Select the circle that best represents the extent to which you were challenged to do your best work while you were a student in the Interdisciplinary Studies Program at the University of Central Florida” and the work hard item, “In your experience as a student in the Interdisciplinary Studies Program at the
University of Central Florida, about how often did you work harder than you thought you could to meet an instructor's standards or expectations?” However, both of these questions loaded under the active and collaborative learning factor. Therefore, the results of this study related to the academic challenge factor should be interpreted with caution.

In summary, the nine factors were grouped as they are displayed in Table 6.
Table 6

Factor Loadings

<table>
<thead>
<tr>
<th>Factor Loadings and Variables</th>
<th>Active and Collaborative Learning</th>
<th>Interaction with Peers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>clquest</td>
<td>clpresen</td>
</tr>
<tr>
<td></td>
<td>rewropap</td>
<td>classgrp</td>
</tr>
<tr>
<td></td>
<td>clunprep</td>
<td>occgrp</td>
</tr>
<tr>
<td></td>
<td>workhard</td>
<td>cocurr01</td>
</tr>
<tr>
<td>Integrated Learning</td>
<td>integrat</td>
<td>divrstud</td>
</tr>
<tr>
<td></td>
<td>intideas</td>
<td>diffstu2</td>
</tr>
<tr>
<td></td>
<td>oocideas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>itacadem</td>
<td></td>
</tr>
<tr>
<td></td>
<td>divclass</td>
<td></td>
</tr>
<tr>
<td>Out-of-class experiences</td>
<td>commproj</td>
<td>email</td>
</tr>
<tr>
<td></td>
<td>intern04</td>
<td>facgrade</td>
</tr>
<tr>
<td></td>
<td>volntr04</td>
<td>facplans</td>
</tr>
<tr>
<td></td>
<td>lrncom04</td>
<td>facideas</td>
</tr>
<tr>
<td></td>
<td>resrch04</td>
<td>facfeed</td>
</tr>
<tr>
<td></td>
<td>tutor</td>
<td>faother</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>envsuprt</td>
<td>isclexp</td>
</tr>
<tr>
<td></td>
<td>envdivrs</td>
<td>isrelate</td>
</tr>
<tr>
<td></td>
<td>envnacad</td>
<td>istrad</td>
</tr>
<tr>
<td></td>
<td>envsocaled</td>
<td>isbelong</td>
</tr>
<tr>
<td></td>
<td>envevent</td>
<td>isinter</td>
</tr>
<tr>
<td></td>
<td>entirexp</td>
<td>isclass</td>
</tr>
<tr>
<td></td>
<td>samecoll</td>
<td>envstu</td>
</tr>
<tr>
<td>Academic Challenge</td>
<td>envschol</td>
<td></td>
</tr>
</tbody>
</table>

157
Reliability

The reliability coefficient of the 45 total items, excluding biographical items, was very good at .90. When divided into the eight engagement factors and satisfaction factor, the reliability declined slightly for the grouped factors as reported in Table 7.

Table 7

<table>
<thead>
<tr>
<th>Factor</th>
<th>Cronbach’s Alpha</th>
<th>Cronbach’s Alpha after item analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>diversity-related activities</td>
<td>.913</td>
<td>.913</td>
</tr>
<tr>
<td>shared understanding and experiences</td>
<td>.807</td>
<td>.838</td>
</tr>
<tr>
<td>interaction with peers</td>
<td>.622</td>
<td>.712</td>
</tr>
<tr>
<td>interaction with faculty members</td>
<td>.714</td>
<td>.725</td>
</tr>
<tr>
<td>active and collaborative learning</td>
<td>.591</td>
<td>.591</td>
</tr>
<tr>
<td>integrated learning</td>
<td>.728</td>
<td>.760</td>
</tr>
<tr>
<td>out-of-class experiences</td>
<td>.749</td>
<td>.749</td>
</tr>
<tr>
<td>academic challenge</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>satisfaction</td>
<td>.834</td>
<td>.851</td>
</tr>
</tbody>
</table>

The ISSES results were similar to the NSSE results with the instrument reliability score suggesting a very good level of reliability. The grouped reliability scores were fairly or very reliable in most factors. Two factors had low reliability (less than .65), and one factor did not have a reliability score since there was only one item in that factor. For the two factors where reliability was considered low, item analysis was conducted to determine if a higher reliability could be calculated. For the “interaction with peers” factor, removing the cocurr1 item, “About how many hours do you spend in a typical 7-day week participating in co-curricular activities (organizations, campus publications,
student government, fraternity or sorority, intercollegiate or intramural sports, etc.) while a student in the Interdisciplinary Studies Program at the University of Central Florida?” raised the reliability from .622 to .712.

In addition, item analysis revealed that other items could be removed to increase reliability within groups. For the “satisfaction” factor, removing the envfac item, “Select the circle that best represents the quality of your relationships with faculty in the Interdisciplinary Studies Program at the University of Central Florida,” raised the reliability from .834 to .851. In addition, removing the facfeed item, “Receive prompt written or oral feedback from faculty on your academic performance,” increased the reliability for the “interaction with faculty members” factor from .714 to .725. For the “shared understanding and experiences” factor, removing the envstu item, “Select the circle that best represents the quality of your relationships with other students in the Interdisciplinary Studies Program at the University of Central Florida,” raised the Cronbach’s Alpha from .807 to .838. Finally, for the “integrated learning” factor, removing the itacadem item, “Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment,” increased the score from .728 to .760.

Based on these suggestions, items stdabr04, cocurr1, envfac, facfeed, envstu, and itacadem were removed from the final survey instrument. The overall Cronbach’s Alpha with the six removed items remained .90. The remaining 39 items loading for each of the nine factors that were included in the final study can be found in Table 8.
Table 8

*Factor Loadings in Final ISSES*

<table>
<thead>
<tr>
<th>Factor Loadings and Variables</th>
<th>Active and Collaborative Learning</th>
<th>Interaction with Peers</th>
<th>Integrated Learning</th>
<th>Diversity related activities</th>
<th>Out-of-class experiences</th>
<th>Interaction with Faculty Members</th>
<th>Satisfaction</th>
<th>Shared Understanding and Experiences</th>
<th>Academic Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>clquest</td>
<td>clpresen</td>
<td>integrat</td>
<td>divrstud</td>
<td>commproj</td>
<td>email</td>
<td>envsuprt</td>
<td>isclexp</td>
<td>envschol</td>
</tr>
<tr>
<td></td>
<td>rewropap</td>
<td>classgrp</td>
<td>intideas</td>
<td>diffstu2</td>
<td>intern04</td>
<td>facgrade</td>
<td>envdivrs</td>
<td>isrelate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>clunprep</td>
<td>oocideases</td>
<td>oocideas</td>
<td></td>
<td>volntr04</td>
<td>facplans</td>
<td>envnacad</td>
<td>istrad</td>
<td></td>
</tr>
<tr>
<td></td>
<td>workhard</td>
<td></td>
<td>divclass</td>
<td></td>
<td>lrncom04</td>
<td>facideas</td>
<td>envsocia</td>
<td>isbelong</td>
<td></td>
</tr>
<tr>
<td></td>
<td>exams</td>
<td></td>
<td></td>
<td></td>
<td>resrch04</td>
<td>facother</td>
<td>envnacad</td>
<td>isinter</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>tutor</td>
<td></td>
<td>envsocia</td>
<td>isclass</td>
<td></td>
</tr>
</tbody>
</table>

160
Data Collection

The final survey was sent via electronic mail (email), using the campus or personal email address on file with the University, to all Interdisciplinary Studies alumni who graduated between summer 2008 and spring 2011. Although coverage gaps have been a concern in Internet surveys for the general population (Dillman et al., 2009), all UCF students have been required to have an email account, and it was assumed that alumni continued to maintain an email account and had access to a computer. Therefore, reaching UCF alumni via email was not a major concern. There was also no concern regarding email sampling or random generation since the entire population of interdisciplinary alumni from a specific timeframe was surveyed. The researcher used Dillman et al.’s (2009) tailored design method in an attempt to reduce survey error, follow a set of survey procedures, and encourage response. Dillman et al.’s (2009) three-contact email strategy was used to disseminate this survey instrument via Survey Monkey.

Of the 1,576 alumni meeting the selection criteria, 16 emails were returned as undeliverable and 24 participants had previously opted out of any survey distributed by Survey Monkey. This left 1,536 possible participants with valid email addresses eligible to participate in the study. They were emailed using Dillman et al.’s (2009) three-contact email strategy. During the pilot study, it was reported by some students that the emails from Survey Monkey were being sent to a junk mail folder. Despite this limitation, all emails for the final study were sent through Survey Monkey rather than through a personal email account so that the emails could be personalized and tracked. The first
email was sent Wednesday, May 18, 2011. The second email was sent Wednesday, May 25, 2011, and the third and final email was sent Wednesday, June 1, 2011 (Appendix H).

According to Bartlett, Kotrlik, and Higgins (2001), “Estimating response rates is not an exact science” (p. 47). One of the methods recommended by Barlett et al. (2001) was to “determine the anticipated response rate” was to “use pilot study results” (p. 46). Therefore, after analyzing the response rate of 30% from the pilot study, a target response rate for the final questionnaire was 25%. The target response rate for the primary study was set slightly lower than the response rate of the pilot study because campus email addresses may no longer be active and alumni typically are not actively involved on campus. In addition, students in the pilot study were offered an incentive to be entered into a prize drawing after completing the survey; however, due to UCF’s Institutional Review Board (IRB) restrictions, an incentive was not used for the final study. Of the 1,536 eligible participants, 391 started the survey and 368 participants completed the entire survey for a response rate of 25.5% and a completion rate of 24%.

Based on recommendations from the pilot study, six items were removed from the primary survey resulting in the final survey instrument contained in Appendix B. In addition, the active and collaborative learning factor and the academic challenge factor must be interpreted with caution since the reliability scores were below .65 for the former and not applicable for the latter. Data from the completed surveys were collected using Survey Monkey and analyzed using SPSS. Both descriptive and inferential statistics were used to answer the research questions. How each item and factor relates to the research
questions is found in Appendix L. The following section presents the variables and statistical analyses used in the analysis of the data for each of the research questions.

**Data Analyses**

**Variables**

A number of dependent, independent, and control variables were used to test the three research questions. These variables will be addressed in detail in the following sections.

**Dependent Variables**

Through factor analysis performed on pilot study data, eight dependent variables were identified. Support for using these variables to measure student engagement was established in the review of the literature. All eight were used to test all three research questions. The eight dependent variables were (a) diversity-related activities, (b) shared understanding and experiences, (c) interaction with peers, (d) interaction with faculty members, (e) active and collaborative learning, (f) integrated learning, (g) out-of-class experiences, and (h) academic challenge. In addition, a satisfaction factor was identified through factor analysis. The satisfaction variable was used to address Research Question 3.
Independent Variables

A number of demographic variables and college academic characteristics were used in this study as independent variables. One of the external mediating factors of student engagement is whether students have nontraditional characteristics. Most early studies on involvement or engagement were conducted with traditional populations prompting researchers to call for further studies on nontraditional students (Bean & Metzner, 1985; Kember et al., 2001; Mitzel, 1982; Pascarella & Terenzini, 1991; Terenzini et al., 1999; Tinto, 1975, 1998). Nontraditional students can be defined as part-time, commuter, transfer, adult, and distance learning students (Bean & Metzner, 1985; Klein, 1999). All types of nontraditional students have been found to be less engaged with the college community. This is important to note since a majority of students in the Interdisciplinary Studies Program under consideration were classified as nontraditional students.

For this study, independent variables used to identify nontraditional students included full- or part-time enrollment, online or face-to-face enrollment, transfer student status, age, and residence. These independent variables were used to test Research Question 1.

Many researchers in recent years have touted the benefits of developing and requiring core interdisciplinary courses for undergraduate programs (Bailis, 2002; Holley, 2009; Klein, 1999, 2010; Newell, 1990, 1998; Nuhfer, 1999; Repko, 2006; Welch, 2003). In this study, the use of core courses within the Interdisciplinary Studies
Program at UCF was examined. To answer Research Question 2, completion of the core courses was used as the independent variable.

Statistical Analysis for Research Question 1

How do interdisciplinary studies students report academic program engagement as measured by eight engaging activities
   a. diversity-related activities
   b. shared understanding and experiences
   c. interaction with peers
   d. interaction with faculty members
   e. active and collaborative learning
   f. integrated learning
   g. out-of-class experiences
   h. academic challenge
and how does reported engagement differ based on selected enrollment and demographic characteristics?
   a. age
   b. place of residence
   c. course modality
   d. transfer status
   e. enrollment type

Descriptive statistics were used to identify the various ways in which participants reported engagement. In addition, a one-way analysis of variance (ANOVA) or independent t-test was conducted for each independent variable to test the significance of the differences between the mean scores for each engagement factor. The independent variables for this question were demographic variables and college academic characteristics including age, full- or part-time enrollment, online or face-to-face enrollment, living arrangement, and transfer student status. The dependent variables were reported engagement behaviors in the eight engagement factors.
Statistical Analysis for Research Question 2

What is the difference in academic program engagement between students who participate in interdisciplinary studies core courses and those who do not?

The independent variable for this question was completion of both cornerstone and capstone courses, and the dependent variables were reported engagement behaviors in the eight engagement factors. An independent t-test was conducted to compare the differences of the means of the two groups of alumni.

Statistical Analysis for Research Question 3

What is the relationship between academic program engagement in an interdisciplinary studies program and perceptions of satisfaction?

A Pearson’s Product Moment Correlation was performed to determine if any of the eight engagement factors correlated with the satisfaction variable.

Authorization to Conduct the Study

The proposal for this study, including the human research protocol, informed consent, and survey instrument, was submitted to the University of Central Florida’s Institutional Review Board (IRB). It received an exempt status because neither its purpose nor methods created relevant risk. The IRB approval letter for exempt human research can be found in Appendix M.
Originality Score

This study conformed to UCF’s College of Graduate Studies’ originality and plagiarism policies. The acceptable score defined by the graduate advisor for this research was less than or equal to 10%. The researcher submitted an initial document to the online plagiarism tool and received an initial originality score of 32%. After removing direct quotations and references, the score was reduced to 20%. An item-by-item review resulted in an additional reduction in the total score by 11% because of material that was attributed to documents previously submitted by the researcher. Therefore, the final originality score for this dissertation was 9% and was approved as original work by the researcher’s graduate advisor.

Summary

The aim of this study was to survey all alumni who graduated from the Interdisciplinary Studies Program at the University of Central Florida from summer 2008 through spring 2011 to determine the quality and types of engagement as well as satisfaction with the program. Based on the analysis of the data, the researcher answered the research questions in Chapter 4 of this manuscript.

By discovering how interdisciplinary studies students experience academic program engagement, considering the impact of interdisciplinary core courses, the researcher made recommendations in Chapter 5 for the design and maintenance of successful interdisciplinary studies programs. The researcher also evaluated the use of core courses within the Interdisciplinary Studies Program at UCF.
CHAPTER 4
ANALYSIS OF DATA

Introduction

This chapter provides the results of the statistical analyses conducted on the three research questions. All data were analyzed using SPSS Version 19.0 for Windows. The level of significance of $\alpha = .05$ was used for all inferential statistics.

Population

A total of 391 alumni (25.5%) responded to the final survey. As reported in Table 9, the highest number of responses came from alumni who graduated in spring 2011 (17.6%), spring 2009 (16.6%), fall 2008 (12.5%), and summer 2008 (11.8%) respectively. It is not surprising that the largest response rate came from alumni who graduated in spring 2011. Because those participants graduated just two weeks prior to receiving the first survey email, they were still likely responsive to campus email. Alumni who graduated in the 2008-2009 school year were not required to create a campus email account, so the survey was sent to their personal email addresses which they were likely still checking. The lowest response rate came from alumni who graduated between summer 2009 and fall 2010. The lower response from this group of alumni may have resulted because the survey was sent to their campus email addresses, which they may not have continued to check after graduation.
Table 9

*Response Rate by Graduation Term*

<table>
<thead>
<tr>
<th>Graduation Term</th>
<th>Response Count</th>
<th>Response Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer 2008</td>
<td>46</td>
<td>11.8</td>
</tr>
<tr>
<td>Fall 2008</td>
<td>49</td>
<td>12.5</td>
</tr>
<tr>
<td>Spring 2009</td>
<td>65</td>
<td>16.6</td>
</tr>
<tr>
<td>Summer 2009</td>
<td>33</td>
<td>8.4</td>
</tr>
<tr>
<td>Fall 2009</td>
<td>38</td>
<td>9.7</td>
</tr>
<tr>
<td>Spring 2010</td>
<td>38</td>
<td>9.7</td>
</tr>
<tr>
<td>Summer 2010</td>
<td>19</td>
<td>4.9</td>
</tr>
<tr>
<td>Fall 2010</td>
<td>34</td>
<td>8.7</td>
</tr>
<tr>
<td>Spring 2011</td>
<td>69</td>
<td>17.6</td>
</tr>
<tr>
<td>Total</td>
<td>391</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In theory, Interdisciplinary Studies students who completed the cornerstone course would have also been required to complete the capstone course. However, 235 respondents reported that they completed cornerstone, and only 233 reported completion of capstone. This discrepancy may have been due to response error, or students may have completed the cornerstone course but not been required to complete capstone prior to graduation. In reporting the results of the present study, ISSES Question 3 (Did you complete IDS4934 Capstone Experience in Interdisciplinary Studies?) was used to identify students who completed both cornerstone and capstone courses. Since cornerstone was a prerequisite to capstone it was assumed that students who completed capstone also completed cornerstone. Using this guideline, 59.6% of respondents completed both of the core courses.

As reported in Table 10, 249 (67.5%) were female and 120 (33%) were male with the majority (65.6%) being white. This was consistent with the fall 2010 enrollment data.
of UCF Interdisciplinary Studies students describing 62% of students as female and nearly 70% as Caucasian. A total of 43 respondents (11%) indicated that they had been a member of fraternity or sorority, 21 (5.4%) were student athletes, and only 8 (2%) were international students. Over 67% of alumni reported a final GPA of 3.0 or higher.

Table 10

*Demographic Characteristics: Gender and Race*

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>120</td>
<td>32.5</td>
</tr>
<tr>
<td>Female</td>
<td>249</td>
<td>67.5</td>
</tr>
<tr>
<td>Total</td>
<td>369</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian or Native American</td>
<td>2</td>
<td>.5</td>
</tr>
<tr>
<td>Asian, Asian American, Pacific Island</td>
<td>8</td>
<td>2.2</td>
</tr>
<tr>
<td>Black or African American</td>
<td>37</td>
<td>10.0</td>
</tr>
<tr>
<td>White (Non-Hispanic)</td>
<td>242</td>
<td>65.6</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>41</td>
<td>11.2</td>
</tr>
<tr>
<td>Multiracial</td>
<td>19</td>
<td>5.1</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>.5</td>
</tr>
<tr>
<td>Prefer not to respond</td>
<td>18</td>
<td>4.9</td>
</tr>
<tr>
<td>Total</td>
<td>369</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Note.* Not all participants responded to items, and percentages may not total 100%.

In response to other demographic questions, approximately one third of alumni surveyed reported that neither their mothers nor fathers had completed any type of degree. These alumni would be considered first generation college students.
Approximately 19% of alumni (75) reported being enrolled part-time, lower than the 40% part-time enrollment in the Interdisciplinary Studies Program in fall 2010. This inconsistency may be due to response error because definitions for full- and part-time enrollment were lacking in the survey instrument. Over 66% of respondents (259) reported being transfer students closely mirroring the 63% transfer student enrollment in fall 2009. Approximately 30% of respondents (119) indicated that they took the majority of their classes online, and 370 (94.7%) responded that they lived off-campus for the majority of their college enrollment. Approximately 50% (184) indicated they were 25 years of age or older at the time of graduation. Finally, 318 (86%) worked at least part-time while in college with half working at least 30 hours a week. The demographic data supported the nontraditional status of the Interdisciplinary Studies student population.

Research Question 1

How do interdisciplinary studies students report academic program engagement as measured by eight engaging activities
a. diversity-related activities
b. shared understanding and experiences
c. interaction with peers
d. interaction with faculty members
e. active and collaborative learning
f. integrated learning
g. out-of-class experiences
h. academic challenge
and how does reported engagement differ based on selected enrollment and demographic characteristics?
a. age
b. place of residence
c. course modality
d. transfer status
e. enrollment type
Descriptive statistics were used to identify the various ways in which participants reported engagement. In addition, individual independent t-tests were conducted to examine the relationships between the college academic characteristics, full- or part-time enrollment, online or face-to-face enrollment, and transfer student status, and mean scores for each of the eight engagement factors. Individual ANOVA tests were also conducted to examine the relationships between the demographic variables, age and residence, and mean scores on each of the eight engagement factors.

Prior to conducting the planned analyses, the dependent variables, diversity-related activities, shared understanding and experiences, interaction with peers, interaction with faculty members, active and collaborative learning, integrated learning, out-of-class experiences, and academic challenge, were checked for normality. Normality is a critical statistical assumption that should be verified prior to conducting inferential statistics. Normality was examined using the skewness and kurtosis values, which should be within the range of -2 to 2 to imply a normal curve. All of the eight dependent factors had skewness and kurtosis values between -1 and 1 as shown in Table 11.
Table 11

Normality of Engagement Factors

<table>
<thead>
<tr>
<th>Engagement Factors</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>diversity-related activities</td>
<td>.056</td>
<td>-.985</td>
</tr>
<tr>
<td>shared understanding and experiences</td>
<td>-.185</td>
<td>.259</td>
</tr>
<tr>
<td>interaction with peers</td>
<td>.003</td>
<td>-.368</td>
</tr>
<tr>
<td>interaction with faculty members</td>
<td>.771</td>
<td>.517</td>
</tr>
<tr>
<td>active and collaborative learning</td>
<td>.061</td>
<td>-.409</td>
</tr>
<tr>
<td>integrated learning</td>
<td>.013</td>
<td>-.669</td>
</tr>
<tr>
<td>out-of-class experiences</td>
<td>.619</td>
<td>.034</td>
</tr>
<tr>
<td>academic challenge</td>
<td>-.279</td>
<td>-.466</td>
</tr>
</tbody>
</table>

Ranking of Engagement Factors

Academic program engagement was measured using mean scores of eight engagement factors that were extracted via a factor analysis of the pilot data. The results of the factor analysis can be seen in Appendix K. Data were analyzed to compare the means of the eight engagement factors. Figure 4 presents the data for reported engagement for all Interdisciplinary Studies alumni. Integrated learning had the highest mean score (2.93), and out-of-class experiences had the lowest mean score (1.91). Table 12 presents the mean scores and standard deviations for each of the engagement factors.
**Figure 4.** Average Engagement Scores of All Alumni

**Table 12**

*Average Engagement Scores of All Alumni*

<table>
<thead>
<tr>
<th>Engagement Factors</th>
<th>$n$</th>
<th>$M$</th>
<th>$sd$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity-related activities</td>
<td>374</td>
<td>2.60</td>
<td>.939</td>
</tr>
<tr>
<td>Shared understanding and experiences</td>
<td>372</td>
<td>2.74</td>
<td>.540</td>
</tr>
<tr>
<td>Interaction with peers</td>
<td>387</td>
<td>2.51</td>
<td>.696</td>
</tr>
<tr>
<td>Interaction with faculty members</td>
<td>374</td>
<td>2.28</td>
<td>.568</td>
</tr>
<tr>
<td>Active and collaborative learning</td>
<td>372</td>
<td>2.87</td>
<td>.512</td>
</tr>
<tr>
<td>Integrated learning</td>
<td>374</td>
<td>2.93</td>
<td>.592</td>
</tr>
<tr>
<td>Out-of-class experiences</td>
<td>371</td>
<td>1.91</td>
<td>.647</td>
</tr>
<tr>
<td>Academic challenge</td>
<td>369</td>
<td>2.82</td>
<td>.823</td>
</tr>
</tbody>
</table>
Independent samples t-tests and one-way ANOVAs were conducted to compare the mean scores of the eight engagement factors with various demographic variables and college academic characteristics. Since there were unequal size groups within the independent variables, Levene’s Test was used to test homogeneity of variance. Equal variances were assumed if the significance was more than .05. If the significance level was less than .05, equal variances were not assumed. Eta squared (η²) was used to calculate the effect size for the independent samples t-tests and one-way ANOVAs. Effect size represents the amount of variance in the dependent variable that can be explained by the independent variable (Cohen, 1988). Eta squared values range from 0 to 1 with .01 being a small effect, .06 being a moderate effect, and .14 being a large effect (Cohen, 1988).

Independent t-tests

An independent t-test was conducted to compare engagement scores of alumni who were enrolled full-time as students and those who were enrolled part-time (Table 13). Based on Levene’s Test, equal variances were assumed for all factors. There was a significant difference in engagement scores between full- and part-time students for diversity-related activities (t(372) = -2.45, p = .015), interaction with peers (t(385) = -3.54, p < .001), interaction with faculty members (t(372) = -2.57, p = .011), and out-of-class experiences (t(369) = -2.65, p = .008). For each factor, full-time students had higher mean scores than did part-time students.
Table 13

Results of t-test for Enrollment Type

<table>
<thead>
<tr>
<th>Engagement Factor</th>
<th>df</th>
<th>t</th>
<th>p</th>
<th>η²</th>
<th>Levene’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity-related activities</td>
<td>372</td>
<td>-2.45*</td>
<td>.015</td>
<td>.016</td>
<td>.252</td>
</tr>
<tr>
<td>Shared understanding and experiences</td>
<td>370</td>
<td>-1.22</td>
<td>.225</td>
<td>-</td>
<td>.572</td>
</tr>
<tr>
<td>Interaction with peers</td>
<td>385</td>
<td>-3.54**</td>
<td>.000</td>
<td>.032</td>
<td>.502</td>
</tr>
<tr>
<td>Interaction with faculty members</td>
<td>372</td>
<td>-2.57*</td>
<td>.011</td>
<td>.017</td>
<td>.130</td>
</tr>
<tr>
<td>Active and collaborative learning</td>
<td>370</td>
<td>1.03</td>
<td>.304</td>
<td>-</td>
<td>.514</td>
</tr>
<tr>
<td>Integrated learning</td>
<td>372</td>
<td>-.807</td>
<td>.420</td>
<td>-</td>
<td>.315</td>
</tr>
<tr>
<td>Out-of-class experiences</td>
<td>369</td>
<td>-2.65**</td>
<td>.008</td>
<td>.019</td>
<td>.655</td>
</tr>
<tr>
<td>Academic challenge</td>
<td>367</td>
<td>-.461</td>
<td>.645</td>
<td>-</td>
<td>.321</td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01.

An independent t-test was conducted to compare engagement scores of participants who were enrolled online and those who were enrolled in face-to-face courses (Table 14). Based on Levene’s Test, equal variances were not assumed for interaction with peers (p = .018) and academic challenge (p = .003). There was a significant difference in engagement scores between online and face-to-face students for diversity-related activities (t(372) = 2.88, p = .004), interaction with peers (t(196.4) = 4.02, p < .001), active and collaborative learning (t(370) = -3.41, p = .001), and academic challenge (t(240.6) = -3.19, p = .002). Respondents who took the majority of their classes online had higher mean scores in active and collaborative learning and academic challenge, but they had lower mean scores in diversity-related activities and interaction with peers than did students enrolled in face-to-face courses.
Table 14

Results of t-test for Course Modality

<table>
<thead>
<tr>
<th>Engagement Factor</th>
<th>df</th>
<th>t</th>
<th>p</th>
<th>η²</th>
<th>Levene’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity-related activities</td>
<td>372</td>
<td>2.88**</td>
<td>.004</td>
<td>.022</td>
<td>.802</td>
</tr>
<tr>
<td>Shared understanding and experiences</td>
<td>370</td>
<td>-1.33</td>
<td>.185</td>
<td>-</td>
<td>.293</td>
</tr>
<tr>
<td>Interaction with peers</td>
<td>196.4</td>
<td>4.02**</td>
<td>.000</td>
<td>.076</td>
<td>.018</td>
</tr>
<tr>
<td>Interaction with faculty members</td>
<td>372</td>
<td>1.72</td>
<td>.086</td>
<td>-</td>
<td>.895</td>
</tr>
<tr>
<td>Active and collaborative learning</td>
<td>370</td>
<td>-3.41**</td>
<td>.001</td>
<td>.031</td>
<td>.319</td>
</tr>
<tr>
<td>Integrated learning</td>
<td>372</td>
<td>-1.37</td>
<td>.172</td>
<td>-</td>
<td>.050</td>
</tr>
<tr>
<td>Out-of-class experiences</td>
<td>369</td>
<td>1.47</td>
<td>.142</td>
<td>-</td>
<td>.700</td>
</tr>
<tr>
<td>Academic challenge</td>
<td>240.6</td>
<td>-3.19**</td>
<td>.002</td>
<td>.040</td>
<td>.003</td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01.

An independent t-test was conducted to compare engagement scores of alumni who were transfer students and those who were non-transfer students (Table 15). Based on Levene’s Test, equal variances were not assumed for academic challenge (p = .013). There was a significant difference in engagement scores between transfer and non-transfer students for shared understanding and experiences (t(370) = -2.0, p = .046), active and collaborative learning (t(370) = -4.25, p < .001), and academic challenge (t(230.8) = -4.90, p < .001). For each of these factors, transfer students had higher mean scores than did non-transfer students.
Table 15

Results of t-test for Transfer Student Status

<table>
<thead>
<tr>
<th>Engagement Factor</th>
<th>df</th>
<th>t</th>
<th>p</th>
<th>η²</th>
<th>Levene’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity-related activities</td>
<td>372</td>
<td>.639</td>
<td>.523</td>
<td>-</td>
<td>.209</td>
</tr>
<tr>
<td>Shared understanding and experiences</td>
<td>370</td>
<td>-2.00*</td>
<td>.046</td>
<td>.011</td>
<td>.762</td>
</tr>
<tr>
<td>Interaction with peers</td>
<td>385</td>
<td>.402</td>
<td>.688</td>
<td>-</td>
<td>.268</td>
</tr>
<tr>
<td>Interaction with faculty members</td>
<td>372</td>
<td>.285</td>
<td>.776</td>
<td>-</td>
<td>.059</td>
</tr>
<tr>
<td>Active and collaborative learning</td>
<td>370</td>
<td>-4.25**</td>
<td>.000</td>
<td>.047</td>
<td>.963</td>
</tr>
<tr>
<td>Integrated learning</td>
<td>372</td>
<td>-1.89</td>
<td>.059</td>
<td>-</td>
<td>.053</td>
</tr>
<tr>
<td>Out-of-class experiences</td>
<td>369</td>
<td>1.52</td>
<td>.129</td>
<td>-</td>
<td>.492</td>
</tr>
<tr>
<td>Academic challenge</td>
<td>230.8</td>
<td>-4.90**</td>
<td>.000</td>
<td>.094</td>
<td>.013</td>
</tr>
</tbody>
</table>

Note. *p < .05. **p < .01.

One-way ANOVAs

A one-way ANOVA was conducted to compare the mean engagement scores of alumni who were between the ages of 20-24, 25-29, 30-34, 35-39, and over 40 years old at the time of graduation. The results of Levene’s Test indicated that equal variances could be assumed for all factors. These data are displayed in Table 16.

There were statistically significant differences in engagement scores among the five age groups for three engagement factors: interaction with peers (F(4, 364) = 3.43, p = .009), active and collaborative learning (F(4, 364) = 12.06, p < .001), and academic challenge (F(4, 364) = 4.44, p = .002). For the interaction with peers factor, only 3.6% of the variance in score could be attributed to the groups as identified by the η² value. A total of 11.7% of the variance in the active and collaborative learning score was accounted for by the groups. Finally, only 4.7% of the variance in the academic challenge score was accounted for by the groups.
Table 16

**Between-Subjects Effects for Age Groups**

<table>
<thead>
<tr>
<th>Engagement Factors</th>
<th>df</th>
<th>F</th>
<th>$\eta^2$</th>
<th>p</th>
<th>Levene’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity-related activities</td>
<td>4</td>
<td>2.10</td>
<td>.080</td>
<td>.946</td>
<td></td>
</tr>
<tr>
<td>Shared understanding and experiences</td>
<td>4</td>
<td>1.80</td>
<td>.128</td>
<td>.473</td>
<td></td>
</tr>
<tr>
<td>Interaction with peers</td>
<td>4</td>
<td>3.43**</td>
<td>.036</td>
<td>.009</td>
<td>.439</td>
</tr>
<tr>
<td>Interaction with faculty members</td>
<td>4</td>
<td>1.35</td>
<td>.250</td>
<td>.334</td>
<td></td>
</tr>
<tr>
<td>Active and collaborative learning</td>
<td>4</td>
<td>12.06**</td>
<td>.117</td>
<td>.000</td>
<td>.843</td>
</tr>
<tr>
<td>Integrated learning</td>
<td>4</td>
<td>1.32</td>
<td>.264</td>
<td>.410</td>
<td></td>
</tr>
<tr>
<td>Out-of-class experiences</td>
<td>4</td>
<td>.98</td>
<td>.418</td>
<td>.631</td>
<td></td>
</tr>
<tr>
<td>Academic challenge</td>
<td>4</td>
<td>4.44**</td>
<td>.047</td>
<td>.002</td>
<td>.176</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05. **p* < .01.

To determine which groups’ scores differed significantly from each other, a Scheffe post hoc test was run. This was necessary because there were unequal sized groups. The post hoc comparison showed that the mean score for interaction with peers for the 20-24 age group ($M = 2.62, sd = .662$) was significantly higher than the mean score for the 40 and older group ($M = 2.23, sd = .671$). The post hoc comparison also indicated a difference in score for the active and collaborative learning factor between age groups. Graduates age 40 and over ($M = 3.216, sd = .486$) had a significantly higher mean score than did the 20-24 age group ($M = 2.72, sd = .473$) and the 25-29 age group ($M = 2.88, sd = .473$). The 30-34 age group ($M = 3.03, sd = .475$) also had a significantly higher mean score in active and collaborative learning than did the 20-24 age group ($M = 2.72, sd = .473$). The Scheffe test did not identify a significant difference in mean score between any of the groups in the academic challenge factor. In reviewing the mean scores, the lowest scoring group for this factor was the 20-24 age group ($M = 2.66, sd =$ 179
.806). The two highest scoring groups were the 34-39 age group ($M = 3.07, sd = .740$) and the 40 and older age group ($M = 3.06, sd = .827$).

Finally, a one-way ANOVA was conducted to compare the mean engagement scores of participants who lived on campus, off campus but within walking distance, off campus but within driving distance, in fraternity or sorority housing, and who lived elsewhere (presumably not within driving distance of campus). As shown in Table 17, the Levene’s Test showed that equal variances could be assumed for all factors except for integrated learning. There was a significant difference in engagement scores among groups for interaction with peers ($F(4, 382) = 3.73, p = .005$) and active and collaborative learning ($F(4, 367) = 2.90, p = .022$). For the interaction with peers factor, only 3.8% of the variance in score was attributed to the groups as identified by the $\eta^2$ value. Only 3.1% of the variance in the active and collaborative learning score was accounted for by the groups.

Table 17

*Between-Subjects Effects for Residence*

<table>
<thead>
<tr>
<th>Engagement Factor</th>
<th>$df$</th>
<th>$F$</th>
<th>$\eta^2$</th>
<th>$p$</th>
<th>Levene’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity-related activities</td>
<td>4</td>
<td>2.26</td>
<td>-</td>
<td>.062</td>
<td>.364</td>
</tr>
<tr>
<td>Shared understanding and experiences</td>
<td>4</td>
<td>.74</td>
<td>-</td>
<td>.563</td>
<td>.191</td>
</tr>
<tr>
<td>Interaction with peers</td>
<td>4</td>
<td>3.73**</td>
<td>.038</td>
<td>.005</td>
<td>.412</td>
</tr>
<tr>
<td>Interaction with faculty members</td>
<td>4</td>
<td>1.47</td>
<td>-</td>
<td>.212</td>
<td>.694</td>
</tr>
<tr>
<td>Active and collaborative learning</td>
<td>4</td>
<td>2.90*</td>
<td>.031</td>
<td>.022</td>
<td>.355</td>
</tr>
<tr>
<td>Integrated learning</td>
<td>4</td>
<td>.64</td>
<td>-</td>
<td>.637</td>
<td>.027*</td>
</tr>
<tr>
<td>Out-of-class experiences</td>
<td>4</td>
<td>1.80</td>
<td>-</td>
<td>.128</td>
<td>.276</td>
</tr>
<tr>
<td>Academic challenge</td>
<td>4</td>
<td>1.56</td>
<td>-</td>
<td>.186</td>
<td>.430</td>
</tr>
</tbody>
</table>

*Note.* *p < .05. **p < .01.
To determine which groups’ scores differed significantly, a Scheffe post hoc test was run. The post hoc comparison showed that the mean score for interaction with peers was significantly lower for students who lived somewhere else (presumably not within driving distance of campus) \((M = 2.16, sd = .099)\) than for students who lived off campus both within walking distance \((M = 2.61, sd = .101)\) and within driving distance \((M = 2.55, sd = .166)\). Finally, the Scheffe test did not identify a significant difference in mean score between any of the groups for the active and collaborative learning factor. Looking at the mean scores, the lowest scoring groups for this factor were sorority and fraternity house residents \((M = 2.67, sd = .416)\) and on campus residents \((M = 2.76, sd = .433)\). The highest scoring group was the group that lived elsewhere off campus \((M = 3.09, sd = .548)\).

**Research Question 2**

What is the difference in academic program engagement between students who participate in interdisciplinary studies core courses and those who do not?

The independent variable used to answer this research question was the survey item which queried participants as to whether they completed IDS4934 Capstone Experience in Interdisciplinary Studies. The dependent variables were reported engagement behaviors in the eight engagement factors. An independent t-test was conducted for each engagement factor to compare the differences of the means of the two groups of alumni.
Since there were unequal size groups, Levene’s Test was used to test homogeneity of variance. Equal variances were assumed if the significance was more than .05. If the significance level was less than .05, equal variances were not assumed. Equal variances were assumed for all factors except for diversity-related activities (Table 15). In that case, the t-value was used with equal variances not assumed.

There was a significant difference in mean engagement scores between students who completed the core courses and students who did not for all engagement factors except for academic challenge. The results of the independent t-test analysis are displayed in Table 18. For the seven factors where a statistically significant difference was observed, students who completed the core courses had higher mean scores than students who did not complete the core courses.

Table 18

*Results of t-test for Completion of Core Courses*

<table>
<thead>
<tr>
<th>Engagement Factor</th>
<th>df</th>
<th>t</th>
<th>p</th>
<th>( \eta^2 )</th>
<th>Levene’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity-related activities</td>
<td>343.3</td>
<td>-2.25*</td>
<td>.025</td>
<td>.015</td>
<td>.016*</td>
</tr>
<tr>
<td>Shared understanding and experiences</td>
<td>370</td>
<td>-2.06*</td>
<td>.040</td>
<td>.011</td>
<td>.828</td>
</tr>
<tr>
<td>Interaction with peers</td>
<td>385</td>
<td>-3.48**</td>
<td>.001</td>
<td>.030</td>
<td>.651</td>
</tr>
<tr>
<td>Interaction with faculty members</td>
<td>372</td>
<td>-3.50**</td>
<td>.001</td>
<td>.032</td>
<td>.535</td>
</tr>
<tr>
<td>Active and collaborative learning</td>
<td>370</td>
<td>-2.12*</td>
<td>.035</td>
<td>.012</td>
<td>.480</td>
</tr>
<tr>
<td>Integrated learning</td>
<td>372</td>
<td>-3.13**</td>
<td>.002</td>
<td>.026</td>
<td>.851</td>
</tr>
<tr>
<td>Out-of-class experiences</td>
<td>369</td>
<td>-6.69**</td>
<td>.000</td>
<td>.108</td>
<td>.335</td>
</tr>
<tr>
<td>Academic challenge</td>
<td>367</td>
<td>-1.78</td>
<td>.076</td>
<td>-</td>
<td>.246</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>367</td>
<td>-2.34*</td>
<td>.020</td>
<td>.015</td>
<td>.813</td>
</tr>
</tbody>
</table>

*Note. *p < .05. **p < .01.*
In addition to core courses positively influencing engagement, it was found in a previous study that the requirement of a common interdisciplinary course had an 85% satisfaction rate among students and resulted in an increase in first to second year retention rates from 90 to 96% in a six year period (Anderson et al., 2002). To test the relationship between completion of core courses and satisfaction in this study, a t-test was performed. A statistically significant difference in satisfaction was observed between participants who completed cornerstone and capstone and those who did not (t(367) = -2.34, p = .020). Alumni who completed the core courses (M = 2.42) had higher levels of reported satisfaction than did alumni who had not completed core courses (M = 2.27).

Research Question 3

What is the relationship between academic program engagement in an interdisciplinary studies program and perceptions of satisfaction?

This research question was addressed by performing a Pearson’s Product Moment Correlation between each factor and perceived satisfaction. The Pearson’s Product Moment correlation assumes that data are normal. The eight engagement factors had already been tested for normality in Research Question 1 and were found to be within a normal range. Normality was also examined for the satisfaction factor using the skewness and kurtosis values which should be within the range of -2 to 2 to imply a normal curve. The satisfaction factor had skewness (.278) and kurtosis (-.365) values within the normal range. The range of possible correlation coefficient values is from -1 to +1. The researcher used the guidelines, set by Cohen (1988), for identifying the strength of the
relationship. A relationship of .10 to .29 indicated a low correlation. If the r-value was between .30 and .49, a moderate relationship was assumed. An r-value between .50 and 1.0 indicated a strong relationship.

The results of the Pearson Product Moment Correlation between the mean score on diversity-related activities and satisfaction indicated a statistically significant relationship ($r = .284, p < .001$). Only 8% of the variance in the diversity-related activities score and student satisfaction was shared, leaving 92% unexplained by the relationship. A minimal positive relationship existed revealing that students who reported having more diversity-related activities also had positive responses on satisfaction.

A statistically significant relationship ($r = .630, p < .001$) was also determined by the results of the Pearson Product Moment Correlation between the mean score on shared understanding and experiences and satisfaction. Almost 40% of the variance in the shared understanding and experiences score and student satisfaction was shared, leaving 60% unexplained. A strong positive relationship existed revealing students who reported having more shared understanding and experiences also had positive responses on satisfaction.

The Pearson Product Moment Correlation between the mean score on interaction with peers and satisfaction indicated a statistically significant relationship ($r = .310, p < .001$). Almost 10% of the variance in the interaction with peers score and student satisfaction was shared, leaving 90% unexplained. A positive moderately strong relationship existed revealing students who reported having more peer interaction also had positive responses on satisfaction.
The results of the Pearson Product Moment Correlation between the mean score on interaction with faculty members and satisfaction indicated a statistically significant relationship \( (r = .313, p < .001) \). Almost 10% of the variance in the interaction with faculty members score and student satisfaction was shared, leaving 90% unexplained. A positive moderately strong relationship existed revealing students who reported having more faculty interaction also had positive responses on satisfaction.

The results of the Pearson Product Moment Correlation between the mean score of active and collaborative learning and satisfaction indicated a statistically significant relationship \( (r = .400, p < .001) \). Only 16% of the variance in the active and collaborative learning score and student satisfaction was shared, leaving 84% unexplained. A positive moderately strong relationship existed, revealing that students who reported having more active and collaborative learning experiences also had positive responses on satisfaction.

A statistically significant relationship \( (r = .398, p < .001) \) was found to exist as a result of the Pearson Product Moment Correlation between the mean score on integrated learning and satisfaction. Almost 16% of the variance in the integrated learning score and student satisfaction was shared, leaving 84% unexplained. A positive moderately strong relationship existed and revealed that students who reported having more integrated learning experiences also had positive responses on satisfaction.

The results of the Pearson Product Moment Correlation between the mean score for out-of-class experiences and satisfaction indicated a statistically significant relationship \( (r = .334, p < .001) \). Over 11% of the variance in the out-of-class experiences score and student satisfaction was shared, leaving approximately 89% unexplained. A
positive moderately strong relationship existed and revealed that students who reported having more out-of-class experiences also had positive responses on satisfaction.

The Pearson Product Moment Correlation between the mean score on academic challenge and satisfaction indicated a statistically significant relationship (r = .572, p < .001). Almost 33% of the variance in the academic challenge score and student satisfaction was shared, leaving approximately 67% unexplained. A strong positive relationship existed and revealed that students who reported having a greater academic challenge also had positive responses on satisfaction.

In summary, all eight engagement factors positively correlated with satisfaction to some degree. As reported engagement increased so did student satisfaction. The results are displayed in Table 19.

Table 19

Pearson Product Moment Correlations of Engagement Factors With Satisfaction

<table>
<thead>
<tr>
<th>Engagement Factors</th>
<th>r</th>
<th>r²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diversity-related activities</td>
<td>.284*</td>
<td>.081</td>
<td>.000</td>
</tr>
<tr>
<td>Shared understanding and experiences</td>
<td>.630***</td>
<td>.397</td>
<td>.000</td>
</tr>
<tr>
<td>Interaction with peers</td>
<td>.310**</td>
<td>.096</td>
<td>.000</td>
</tr>
<tr>
<td>Interaction with faculty members</td>
<td>.313**</td>
<td>.098</td>
<td>.000</td>
</tr>
<tr>
<td>Active and collaborative learning</td>
<td>.400**</td>
<td>.160</td>
<td>.000</td>
</tr>
<tr>
<td>Integrated learning</td>
<td>.398**</td>
<td>.158</td>
<td>.000</td>
</tr>
<tr>
<td>Out-of-class experiences</td>
<td>.334**</td>
<td>.112</td>
<td>.000</td>
</tr>
<tr>
<td>Academic challenge</td>
<td>.572***</td>
<td>.327</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note. * .10 < r < .29. ** .30 < r < .49. *** .50 < r < 1.0
CHAPTER 5
SUMMARY AND RECOMMENDATIONS

Overview

Research has been conducted over several decades in an effort to identify critical elements of a successful undergraduate college experience, and student engagement and satisfaction were found to play an important role in retention (Tinto, 1993). Over time, it was determined that institutions play a significant role in providing engaging opportunities for students in the learning process, and students were viewed as responsible for putting the necessary energy and effort into their college experiences (Tinto, 1993). Researchers have also demonstrated that institutions can adopt policies and practices to foster student engagement. In order to help institutions determine appropriate types of engaging opportunities, researchers have developed best practices of engagement. Chickering and Gamson (1987) recommended seven principles of good practice intended to shape the college environment in ways that would positively impact the undergraduate student experience. Their suggested practices included student and faculty interaction, cooperative and reciprocal learning among students, active learning, prompt feedback, effective time management, high expectations, and respect for diversity. NSSE also identified five national benchmarks of good practice including: “level of academic challenge, active and collaborative learning, student interactions with faculty members, enriching educational experiences and supportive campus environment” (Kuh, 2001, p. 13). Finally, Haworth and Conrad’s (1997) engagement theory of academic program quality included three clusters containing 11 attributes
related to student engagement. The attributes included: diverse and engaged faculty, diverse and engaged students, engaged leaders, shared program direction, community of learners, risk-taking environment, critical dialogue, integrative learning, mentoring, cooperative peer learning, and out-of-class activities.

After conducting a factor analysis on the data collected, and considering best practices, the researcher identified eight factors of student engagement: (a) diversity-related activities, (b) shared understanding and experiences, (c) interaction with peers, (d) interaction with faculty members, (e) active and collaborative learning, (f) integrated learning, (g) out-of-class experiences, and (h) academic challenge. The Venn diagram presented in Figure 5 displays visually the interrelationship of the eight engagement factors identified in this study with best practices outlined by Chickering and Gamson (1987), NSSE, and Haworth and Conrad (1997).
This study was primarily guided by Haworth and Conrad’s (1997) engagement theory of academic program quality. The eight factors of engagement found in ISSES were relatable to many of the attributes in Haworth and Conrad’s (1997) theory. This study’s factor, diversity-related activities, shared many features with Haworth and Conrad’s (1997) diverse and engaged faculty and students. In addition, shared understanding and experiences was parallel to Haworth and Conrad’s (1997) attribute, shared program direction. The factor identified in ISSES as interaction with peers shared
features with the attribute, diverse and engaged students, and interaction with faculty members identified with diverse and engaged faculty. Active and collaborative learning, as described in this study, included aspects of Haworth and Conrad’s (1997) attributes, community of learners, mentoring, and cooperative peer learning. This study’s factor, integrated learning was directly related to the attribute, integrative learning, and the out-of-class experiences factor was parallel to the out-of-class activities attribute. Finally, academic challenge within this study was slightly descriptive of Haworth and Conrad’s (1997) critical dialogue attribute. Of the three clusters from the engagement theory of academic program quality used to frame this study, there were two attributes that were not referenced. They were engaged leaders and risk-taking environment. The relationship of the 11 attributes of engagement theory of academic program quality and their related factors of engagement for this study are displayed in Table 20.

Also examined in this study was the impact of nontraditional student characteristics on student engagement. In addition, students enrolled in an interdisciplinary studies program were specifically targeted to identify the ways in which they reported engagement. Finally, the impact of enrollment in core interdisciplinary courses on engagement was studied.
Table 20

Relationship of Engagement Theory Attributes and ISSES Factors of Engagement

<table>
<thead>
<tr>
<th>Engagement Theory Attributes</th>
<th>ISSES Factors of Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diverse and engaged faculty</td>
<td>Diversity-related activities/interaction with faculty</td>
</tr>
<tr>
<td>Diverse and engaged students</td>
<td>Diversity-related activities/interaction with peers</td>
</tr>
<tr>
<td>Engaged leaders</td>
<td></td>
</tr>
<tr>
<td>Shared program direction</td>
<td>Shared understanding and experiences</td>
</tr>
<tr>
<td>Community of learners</td>
<td>Active and collaborative learning</td>
</tr>
<tr>
<td>Risk-taking environment</td>
<td></td>
</tr>
<tr>
<td>Critical dialogue</td>
<td>Academic challenge</td>
</tr>
<tr>
<td>Integrative learning</td>
<td>Integrated learning</td>
</tr>
<tr>
<td>Mentoring</td>
<td>Active and collaborative learning</td>
</tr>
<tr>
<td>Cooperative peer learning</td>
<td>Active and collaborative learning</td>
</tr>
<tr>
<td>Out-of-class activities</td>
<td>Out-of-class experiences</td>
</tr>
</tbody>
</table>

*Note. ISSES = Interdisciplinary Studies Student Engagement Survey*

Discussion

There were three research questions that were used to guide this research. The following three sections of this chapter have been organized to explore in detail the results of the research as they relate to each of these questions. The chapter is concluded with two additional sections containing implications for practice and policy and recommendations for future research.

Research Question 1

How do interdisciplinary studies students report academic program engagement as measured by eight engaging activities
- diversity-related activities
- shared understanding and experiences
c. interaction with peers
d. interaction with faculty members
e. active and collaborative learning
f. integrated learning
g. out-of-class experiences
h. academic challenge
and how does reported engagement differ based on selected enrollment and demographic characteristics?
  a. age
  b. place of residence
c. course modality
d. transfer status
e. enrollment type

To determine the frequency of participation in each of the engagement factors, the responses of all participants were averaged, and the mean scores of all factors were compared. This exploratory analysis enabled the researcher to speak knowledgably about the types of engagement in which this population of interdisciplinary alumni participated.

**Ranking of Engagement Factors**

A comparison of the means of the eight engagement factors was conducted. The results of the analysis on the reported engagement for all Interdisciplinary Studies alumni are displayed in Figure 6.
Of the eight factors of engagement, alumni reported the highest mean score in integrated learning. On average, alumni reported that they often participated in integrated learning. This was expected given the integrated nature of interdisciplinary study (Gnassia & Seabury, 2002; Klein, 2010; Lattuca et al., 2004). Integrated learning was one of the goals of the Interdisciplinary Studies core curriculum (Hampton, 2009). Interdisciplinary Studies students took courses from at least three different disciplines and were expected to be able to make connections between the disciplines (University of Central Florida, 2006). Since alumni reported participating in integrated learning activities more frequently than any other engaging activity, it was determined that the
Interdisciplinary Studies Program was meeting its goal of offering an integrating learning experience.

Although integrated learning was reported as having occurred most frequently, active and collaborative learning followed closely behind. This result was not surprising given that best practices in interdisciplinary study have primarily included active and collaborative learning pedagogies (Gnassia & Seabury, 2002; Holley, 2009; Hursh et al., 1983; Klein, 2010; MacKenzie & Bjornson, 2005; Welch, 2003).

Academic challenge had the third highest mean score, but this finding must be interpreted with caution given that the academic challenge factor was based on a single question that did not ask students to report their perceptions of academic difficulty. Nevertheless, this result was somewhat unexpected given that the UCF Interdisciplinary Studies Program did not have a reputation for having a challenging curriculum. Although the changes implemented in 2007 contributed to a more structured and academically stringent program, the College that houses the Interdisciplinary Studies Program, Undergraduate Studies, still had the lowest average GPA at UCF (University of Central Florida, 2011b). However, student perceptions of academic challenge are subjective and may be unrelated to GPA. In fact, a Pearson’s Product Moment Correlation test found no relationship ($r = -.066, p = .208$) between reported GPA and mean score on academic challenge.

Closely following academic challenge in the engagement factor rankings was shared understanding and experiences. UCF’s Interdisciplinary Studies Program developed core courses to create a curriculum with a shared agenda and shared
experiences among students (University of Central Florida, 2006). The results of this survey indicated that most alumni reported often having shared understanding and experiences within the Program.

The fifth-ranked factor was diversity-related activities. This low ranking was somewhat unexpected given that interdisciplinary programs are inherently diverse and are traditionally made up of a diverse group of students and faculty (Klein, 1999). However, the UCF Interdisciplinary Studies Program was comprised of over 65% Caucasian students so the limited diversity within the student population may account for the lower score on diversity-related activities.

The three lowest ranked factors included interaction with peers, interaction with faculty members, and out-of-class experiences being ranked sixth, seventh, and eighth respectively. Given that the Interdisciplinary Studies alumni surveyed had largely nontraditional student characteristics, these results were expected. It has been demonstrated that nontraditional students have less social integration with peers and faculty than do their residential and traditional age counterparts (Bean & Metzner, 1985; Chickering, 1974; Flanagan, 1976; Kuh & Ardaioio, 1979; Lenning & Hanson, 1977; Solmon & Gordon, 1981; Wallace, 1979; Welty, 1976; Wolfgang & Dowling, 1981). In addition, the 2006 NSSE found that nontraditional students were less engaged in out-of-class experiences than were traditional students (Lorenzetti, 2006). The lowest ranked factors, while not surprising, are still somewhat worrisome given the high impact of peer interaction, faculty interaction, and out-of-class experiences on student success.
Independent t-tests

As documented in the review of the literature, part-time, commuter, transfer, adult, and distance learning students have all been found to be less engaged with the college community than their full-time residential counterparts (Carr, 2000; Kerka, 1996; Kuh, 2003; Mann, 2001; Orlando, 2000; Pittman, 1997; Taub, 1998; Twale et al., 2002). It was expected that differences in engagement scores would be apparent between participants with traditional student characteristics and participants with nontraditional student characteristics. To test this, independent t-tests were conducted to compare mean engagement scores among various academic characteristics.

In this study, alumni who were full-time students were found to have participated more frequently than those who were part-time students in diversity-related activities, interaction with peers, interaction with faculty members, and out-of-class experiences. These outcomes were expected given previous research findings. Part-time students tend to have other commitments such as work and family responsibilities that prevent them from attending school full-time. This means that they are on campus less often and have fewer opportunities to interact with classmates or faculty (Twale et al., 2002). The limited interaction with faculty and peers would also likely limit the amount of diversity to which they would be exposed. Part-time students would also have less time to devote to out-of-class activities. It is interesting that no significant difference in the amount of shared understanding and experiences between full- and part-time students was found. A difference was expected based on previous findings in which part-time students did not have a strong connection to the campus or department (Pittman, 1997; Twale et al.,
The lack of a significant difference supports Kember et al. (2001), who found that part-time students reported a higher level of sense of belonging than what would be expected.

Alumni who took the majority of their classes online participated more frequently in active and collaborative learning and academic challenge but less frequently in diversity-related activities and interaction with peers than those enrolled in face-to-face courses. These results are somewhat expected. The finding that alumni who were online students had higher participation in active and collaborative learning supports findings from the 2006 NSSE administration and the research of Rabe-Hemp et al. (2009). Similarly, the finding that online students had lower interaction with peers was supportive of prior research. The low levels of peer interaction would also limit the amount of diversity-related activities in which online students would participate. The finding that alumni who were online students reported higher academic challenge is interesting. It may be that online students find online course modalities challenging or that the courses are more challenging. It may also be that online students are traditionally adult students who may be coming back to school after some time away.

Surprisingly there was no significant difference between alumni who were online students and alumni who were enrolled in face-to-face courses in interaction with faculty members, out-of-class experiences, or shared understanding and experiences. It was expected, based on the literature, that students in online courses would report less frequent participation in these activities. The findings of this study suggest that online students and students in face-to-face classes have similar amounts of faculty interaction,
out-of-class experiences, and shared understanding and experiences. These results may be influenced by the fact that interaction with faculty members and out-of-class experiences were reported as being the least frequent engagement factors, on average, for all Interdisciplinary Studies alumni. In addition, both the online cornerstone and capstone courses within the Interdisciplinary Studies Program required collaborative group projects as well as mentoring and service learning. The infusion of active and collaborative learning pedagogies into online courses may lead to increased amounts of faculty interaction, out-of-class experiences, and shared understanding and experiences for online students.

There was a significant difference in engagement scores between transfer and non-transfer respondents for shared understanding and experiences, active and collaborative learning, and academic challenge. For each of these factors, transfers had more frequent participation than non-transfers. These results were unexpected given that NSSE found transfer students to be less engaged in educational activities than non-transfers in four of the five NSSE benchmarks (Kuh, 2003). Level of academic challenge was the only NSSE benchmark that was not significantly different between transfers and non-transfers; however, in this study, academic challenge was found to be higher for those alumni who were transfer students. Although it was expected that interaction with peers, interaction with faculty, and out-of-class experiences would be lower for transfers, no differences were identified in this study for these factors. This may be a result of the relationship between UCF and the surrounding community colleges. Students who transfer to UCF with their Associate of Arts degrees from partner community colleges
have been guaranteed admission into the University. This agreement may result in transfer students enrolling at UCF who have more traditional student characteristics.

**One-way Analysis of Variance (ANOVA)**

In addition to t-tests, one-way ANOVAs were conducted to test differences in engagement scores on those background characteristics that contained more than two groups, specifically, age and place of residence. The review of literature revealed that commuter and adult students have had less social integration than their residential and traditional age counterparts (Chickering, 1974; Flanagan, 1976; Kuh & Ardaioilo, 1979; Lenning & Hanson, 1977; Solmon & Gordon, 1981; Wallace, 1979; Welty, 1976; Wolfgang & Dowling, 1981). Therefore, it was expected that the alumni who were commuter and adult students would have had less frequent participation in diversity-related activities, shared understanding and experiences, interaction with peers, interaction with faculty, and out-of-class experiences.

Participants were divided into the following five different age categories based on age at time of graduation: 20-24 years old, 25-29 years old, 30-34 years old, 35-39 years old, and 40 years or older. The 20-24 year age group represented traditional age students based on reports in the literature (U.S. Department of Labor, 2007).

There were statistically significant differences in engagement scores among the five age groups for three engagement factors: interaction with peers, active and collaborative learning, and academic challenge. The post hoc comparison showed that the traditional age group of 20-24 year olds participated significantly more in peer interaction
than did the 40 and older group. This was expected given previous research findings that adult students have less social integration than traditional age students. The post hoc comparison also found that alumni in the 30-34 year age group and in the 40 and older age group participated more frequently in active and collaborative learning than did the traditional age alumni in the 20-24 year age group. Alumni in the 40 years and older group also had more frequent participation in active and collaborative learning than did those in the 25-29 year age group. The finding that adult learners participated in more active and collaborative learning than traditional age students was consistent with the findings in this study regarding other nontraditional student characteristics. Online learners and transfer students also had higher levels of active and collaborative learning than did their traditional counterparts.

Finally, even though a significant difference was found in the ANOVA between the age groups in academic challenge, the Scheffe test did not identify a significant difference between any of the groups. In reviewing the mean scores, however, the lowest scoring group for this factor was the 20-24 age group. The two highest scoring groups were the 34-39 age group and the 40 and older age group. This means that although the difference was insufficient to appear in the post hoc test, alumni who were adult students did have higher levels of academic challenge than alumni who were traditional age students. Interestingly, there was no significant difference found among any of the groups for diversity-related activities, shared understanding and experiences, interaction with faculty, and out-of-class experiences. Similar results were found during the data analysis for the online versus face-to-face t-test.
A one-way ANOVA was conducted to compare the mean engagement scores of alumni who lived on campus, off campus but within walking distance, off campus but within driving distance, in fraternity or sorority housing, and who lived elsewhere (presumably not within driving distance of campus). There was a significant difference in engagement scores among groups for interaction with peers and active and collaborative learning. The post hoc comparison showed that alumni who lived within walking or driving distance of campus had more frequent peer interaction than did alumni who lived elsewhere off campus (presumably not within driving distance). This was surprising because it would be expected that students who lived on campus or in fraternity or sorority housing would have significantly higher levels of peer interaction. This, however, was not the case. This may be because the total proportion of respondents who lived on campus or in sorority or fraternity housing for the majority of their college enrollment was only 5% and did not represent a true sample of students who live on campus. On the other hand, those who lived within walking distance or driving distance did have more frequent peer interaction than alumni who did not live within the same proximity. This was to be expected given that the physical separation of distance from campus may create a barrier to promoting community and engaging students (Kerka, 1996; Rovai, 2002; Sanders et al., 2006; Taub, 1998).

Finally, the Scheffe test did not identify a significant difference in mean score between any of the groups in the active and collaborative learning factor. However, in looking at the mean scores, the groups with the least amount of active and collaborative learning were the sorority and fraternity house residents and the on campus residents. The
group with the greatest amount of active and collaborative learning was the group that lived further than driving distance from campus. It was interesting that participants who presumably lived the furthest away from campus reported having the most active and collaborative learning. These findings partially support Pascarella and Chapman’s (1983) research that found that students at commuter institutions had differing levels of social and academic integration than did students at primarily residential institutions. Based on the literature, it was expected that commuter students would have lower levels of diversity-related activities, shared understanding and experiences, interaction with faculty, and out-of-class experiences; however, this was not the case for this study. Similar to online students, and adult students, there were no significant differences found for commuter students in these factors.

To summarize these findings, five independent variables were found to have significant differences in at least one of the engagement factors. Those variables included full- versus part-time enrollment, face-to-face versus online enrollment, non-transfer versus transfer student status, traditional age versus adult student, and commuter within driving distance versus further than driving distance of campus. For each variable, the former category relates to traditional student characteristics and the latter relates to the nontraditional student characteristics with the exception of the commuter status. Since only 5% of respondents lived on campus, commuter status was examined for those commuters who lived within walking or driving distance and those who lived further away.
Bean and Metzner (1985) argued that for nontraditional students, academic integration was paramount, but that traditional students were impacted by both academic and social integration variables. If the eight engagement factors are categorized as either academic integration or social integration, consistent with this study’s initial definitions of academic and social integration, the social integration factors include the following: diversity-related activities, shared understanding and experiences, interaction with peers, interaction with faculty members, and out-of-class experiences. The academic integration factors consist of active and collaborative learning, integrated learning, and academic challenge.

Based on this categorization, the findings of this study partially support the argument of Bean and Metzner (1985). For diversity-related activities and interaction with peers, alumni who had traditional characteristics had significantly higher levels of participation. On the other hand, for active and collaborative learning and academic challenge, alumni who had nontraditional characteristics had significantly higher levels of participation. Diversity-related activities were more frequently reported for full-time and face-to-face participants. Full-time, face-to-face, and traditional age respondents and commuters within driving distance reported having more frequent interaction with peers. On the other hand, commuters living further than driving distance and adult, transfer, and online learners reported greater participation in active and collaborative learning. Adult, transfer, and online participants also reported higher levels of academic challenge. For the shared understanding and experiences, interaction with faculty members, and out-of-class experiences factors, only one independent variable resulted in significant
differences. For the integrated learning factor, there were no significant differences observed for any of the independent variables. Table 21 displays these findings.

In summary, integrated learning was the most frequently reported engagement factor for all Interdisciplinary Studies alumni regardless of traditional or nontraditional status. Out-of-class activities and interaction with faculty members were the least frequently reported factors for the majority of alumni. The engagement factors that were most closely related to social integration including diversity-related activities and interaction with peers, and to a lesser extent, interaction with faculty members and out-of-class activities, were more frequently reported for alumni who had traditional student characteristics. On the other hand, the engagement factors that more closely aligned with academic integration, including active and collaborative learning and academic challenge, were more frequently reported for alumni who had nontraditional student characteristics. These findings supported the findings of Bean and Metzner (1985). It was surprising that there were not more differences found between the traditional student characteristics and nontraditional student characteristics for shared understanding and experiences, interaction with faculty members, and out-of-class experiences. Shared understanding and experiences had the most unexpected results in that the only difference noted was that alumni who were transfer students reported more shared understanding and experiences than did those who were non-transfer students.
Table 21

*Traditional vs. Nontraditional Characteristics on Engagement*

<table>
<thead>
<tr>
<th></th>
<th>Traditional</th>
<th>Higher Mean Scores Based on Student Characteristics</th>
<th>Nontraditional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full-time</td>
<td>Face-to-face</td>
<td>Nontransfer</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>20-24</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>20-24</td>
<td>Commute</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>Commute</td>
<td>Near</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>Diversity related activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>Shared understanding and experiences</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>Interaction with peers</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>Interaction with faculty</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>Active and collaborative learning</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>Integrated learning</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>Out-of-class experiences</td>
</tr>
<tr>
<td></td>
<td>X</td>
<td>X</td>
<td>Academic challenge</td>
</tr>
</tbody>
</table>

*Note.* X = statistically significant higher mean score
Research Question 2

What is the difference in academic program engagement between students who participate in interdisciplinary studies core courses and those who do not?

Many researchers in recent years have touted the benefits of developing and requiring core interdisciplinary courses for undergraduate programs (Bailis, 2002; Holley, 2009; Klein, 1999, 2010; Newell, 1990; Newell, 1998; Nuhfer, 1999; Repko, 2006; Welch, 2003). One argued benefit is the potential for engagement that can result from mandatory interdisciplinary curricula within an interdisciplinary studies program (Klein, 1999; Welch, 2003). However, there was no empirical evidence found to support this argument (Lattuca et al., 2004). Lattuca et al. (2004) encouraged a survey of the landscape of interdisciplinary teaching and learning to include variables such as student demographics, instructional resources, and teaching pedagogies. They specifically called for research on how interdisciplinary courses and instruction might engage students and increase motivation. This research question was posed to facilitate the discovery of any significant difference in reported engagement activities of participants who completed UCF’s Interdisciplinary Studies core courses and those who did not. As of fall 2007, newly enrolled Interdisciplinary Studies students were required to complete IDS 3933 Cornerstone in Interdisciplinary Studies and IDS4934 Capstone in Interdisciplinary Studies. This study consisted of approximately 60% of respondents who completed both core courses and 40% who did not.
A significant difference was found in reported participation for all engagement factors except for academic challenge between alumni who completed the core courses and alumni who did not. For the seven factors where a statistically significant difference was observed, alumni who completed the core courses had more frequent participation in engaging activities than alumni who did not complete the core courses. These findings support the argument that students can become more engaged in an academic program as a result of completing mandatory core courses.

Alumni who completed both core courses had more frequent participation in diversity-related activities. This supports the claim of Anderson et al. (2002), who found that completion of a common core course was positively related to the “understanding and/or appreciation of diversity” (p. 15). Alumni who completed both core courses also had more shared understanding and experiences. This was expected given the fact that Interdisciplinary Studies students may not have had any shared courses prior to the University’s mandating core courses. This finding is compatible with Welch’s (2003) recommendation to develop an interdisciplinary core curriculum in order to achieve a greater sense of identity within interdisciplinary studies. It also helps to explain the greater frequency of peer and faculty interactions among students who completed the core courses.

Alumni who completed the core courses reported participating in more active and collaborative learning than did students who did not complete the core courses. Integrated learning was also enhanced for alumni who completed the core courses. This was expected given that a major goal of the core courses was to teach students to integrate
material from different disciplines. This supported Newell’s (1990, 2006) argument that mandatory interdisciplinary core courses provided a venue for students to learn to integrate and synthesize information from the different disciplines. Alumni who completed the core courses also reported more out-of-class experiences. This was expected given that the core courses require service learning, mentoring, and group work.

Academic challenge was the only factor that did not result in a significant difference between alumni who completed the core courses and those who did not. The results for the academic challenge factor may have been insignificant because there was only one question that comprised this factor.

Respondents who completed core interdisciplinary courses had higher scores on seven engagement factors than those who did not take the core courses. Since other background characteristics and demographics were not controlled in this study, it was impossible to conclude that enrollment in core courses resulted in greater engagement. Based on the data, however, enrollment in the core courses was positively related to academic program engagement. In addition to core courses positively influencing engagement, alumni who completed the core courses had higher levels of reported satisfaction than alumni who had not completed the core courses.

In summary, survey participants who completed the Interdisciplinary Studies core courses had higher reported scores on diversity-related activities, shared understanding and experiences, interaction with peers, interaction with faculty members, active and collaborative learning, integrated learning, and out-of-class experiences. There was no
significant difference found for academic challenge. In addition, completion of cornerstone and capstone courses was positively related to satisfaction.

Research Question 3

What is the relationship between academic program engagement in an interdisciplinary studies program and perceptions of satisfaction?

There are many different measures of student success in college. This study measured student success based on positive educational experiences (Ewell & Wellman, 2007). Research Question 3 enabled the investigation of the relationship between engagement and satisfaction as one way to infer student success. The satisfaction variable for this study referred to overall satisfaction with the Interdisciplinary Studies Program as measured by items adapted from NSSE. NSSE measured satisfaction with overall experience, interactions with others, and the school’s ability to offer programs, policies, and practices that help students attain personal and educational goals. As evidenced in many of the studies cited in the review of the literature and related research, it was expected that engagement would be positively related to satisfaction.

In this study, almost 82% of survey respondents evaluated their entire educational experience in the Interdisciplinary Studies Program at the University of Central Florida as good or excellent. Almost 60% of participants reported that they would probably or definitely choose to graduate with a degree in Interdisciplinary Studies if they could start over again. However, the overall satisfaction factor for this study had an average score of 2.36, with 1 being the lowest satisfaction score and 4 being the highest. When looking at
the other items in the satisfaction variable, over 50% of respondents said that the Interdisciplinary Studies program puts very little emphasis on “helping you cope with your non-academic responsibilities, (work, family, etc.).” Over 40% of respondents reported that the Interdisciplinary Studies program puts very little emphasis on “providing the support you needed to thrive socially” and “attending campus events and activities (special speakers, cultural performances, athletic events, etc.).” Overall, satisfaction in the Interdisciplinary Studies Program was lower than what would be desired.

To answer this research question, all eight engagement factors were tested against the satisfaction variable to see if any correlations emerged. The results of Pearson Product Moment Correlations indicated that all eight engagement factors were positively correlated with satisfaction. Diversity-related activities had a low correlation with satisfaction. Interaction with peers, interaction with faculty members, active and collaborative learning, integrated learning, and out-of-class experiences all had a moderate correlation with satisfaction. Finally, strong correlations existed between shared understanding and experiences and satisfaction and academic challenge and satisfaction. In summary, all eight engagement factors positively correlated with satisfaction to some degree. Therefore, as reported engagement increased, so did student satisfaction.

**Significant Findings**

The findings in this study support the argument that interdisciplinary students can become more engaged and satisfied in an academic program as a result of completing
mandatory core courses. In this study, it was found that respondents who completed core interdisciplinary courses had more frequent participation in seven of the eight engagement factors than did those who did not complete the core courses. Survey participants who completed the Interdisciplinary Studies core courses had higher reported scores on diversity-related activities, shared understanding and experiences, interaction with peers, interaction with faculty members, active and collaborative learning, integrated learning, and out-of-class experiences. In addition, completion of cornerstone and capstone courses was positively related to satisfaction.

The results of this study also support the premise that increasing student engagement can assist in increasing student satisfaction, and, therefore, retention. All eight engagement factors positively correlated with satisfaction to some degree. Thus, as reported engagement increased, so did student satisfaction.

In addition, the data indicated that traditional students participated more frequently in social engagement, and nontraditional students participated more frequently in academic engagement. The engagement factors that were most closely related to social integration, including diversity-related activities and interaction with peers and to a lesser extent, interaction with faculty members and out-of-class activities, were more frequently reported for alumni who had traditional student characteristics. In contrast, the engagement factors that more closely aligned with academic integration, including active and collaborative learning and academic challenge, were more frequently reported for alumni who had nontraditional student characteristics.
Finally, of the eight factors of engagement, alumni reported the highest mean score in integrated learning. The lowest engagement scores were reported in interaction with faculty members and out-of-class experiences respectively. These findings were expected given the strong emphasis on integration in interdisciplinary programs and the high percentage of nontraditional students who participated in this study. Although not surprising, this is still somewhat worrisome given the high impact of interaction with faculty members and out-of-class experiences on student success.

The results of this study were used to evaluate the UCF Interdisciplinary Studies Program’s core courses that were implemented in the 2007-2008 academic year. This investigation sought to determine whether or not the Interdisciplinary Studies Program influenced student engagement as a result of requiring interdisciplinary core courses. The results indicated that by requiring core interdisciplinary courses, the Interdisciplinary Studies Program increased engagement in seven different factors.

It was also demonstrated that the Interdisciplinary Studies Program met its goal of offering an integrated learning experience because alumni reported participating in integrated learning activities more frequently than any other engaging activity. The majority of all alumni reported that they often participated in integrated learning, and participants who completed the core courses had significantly more integrated learning experiences. UCF’s Interdisciplinary Studies Program also developed the core courses to create a curriculum with a shared agenda and shared experiences among students (University of Central Florida, 2006). The Program also met this goal. Most alumni reported that they often had shared understanding and experiences within the Program,
and participants who completed the core courses had significantly more shared understanding and experiences. Overall, the impact of the core courses on engagement was significantly positive. The Interdisciplinary Studies Program successfully increased the engagement of students enrolled in the program by requiring core courses. Although causality could not be established based on this study, students who enrolled in the core courses did have greater levels of engagement. Finally, overall satisfaction in the Interdisciplinary Studies Program was lower than what would be ideal, but the more engaged students were, the more satisfied they became.

**Implications for Practice and Policy**

Though the results of this study are specific to the Interdisciplinary Studies Program at UCF, they can easily be considered by a larger audience. Any administrator, faculty, or staff member in any type of academic program may find the results of this research to be helpful when examining ways to increase student engagement. In addition, academic programs wishing to implement core courses may find these research results to be beneficial in making a compelling argument for the benefit of such courses. Researchers such as Tinto (1993) have shown that student engagement and satisfaction play an important role in retention and that the more engaged a student is the more satisfied he or she will be. It is important for academic programs to encourage some type of engagement, because it was found that all types of engaging experiences were positively related to satisfaction. Not only should academic programs encourage
engagement, they can implement policies and practices to promote engagement and satisfaction.

As mentioned in Chapter 2, Tinto (1998) argued that the research on student persistence has led to many retention programs and student affairs programming, however there has not been comparable programming efforts on the academic side of institutions. In order for many of the following recommendations to be successful, academic affairs offices will need to collaborate with student affairs offices and practitioners who are knowledgeable about the study of student engagement. This collaboration will require faculty and staff to work outside of their comfort zones in an effort to implement engaging policies and practices for students.

In this study, it was found that different types of students experience engagement differently. For example, nontraditional students tended to be more engaged as a result of academic engagement whereas traditional students tended to be more engaged as a result of social engagement. These findings can be used by many different practitioners within academic and student service departments who serve both traditional and nontraditional students. Knowing that nontraditional students experience engagement differently than traditional students can help programs tailor engaging activities to specific groups of students in ways that are meaningful to them.

As found by numerous researchers in conducting their studies, interaction with faculty members and out-of-class activities had the lowest levels of participation (Kuh, 2001; Pascarella & Terenzini, 2001; Spitzberg & Thorndike, 1992). They also determined that student-faculty interactions were less frequent than suggested by best practices. In
addition, researchers (Kuh, 1999; Spitzberg & Thorndike, 1992) also found that out-of-class activities were substantially lower than what was recommended. In response to these low levels of student engagement, researchers have recommended that programs devote more resources to out-of-class experiences such as speakers, events, and internships (Spitzberg & Thorndike, 1992; Terenzini et al., 1999).

This study’s findings suggest that a more effective way to encourage participation is for programs to offer activities that are specifically tailored to their students’ needs. Although all types of engagement can increase satisfaction, not all students will want to or be able to participate in all types of engaging activities, and they should not be expected to participate in every type of engaging experience available. However, the activities in which they choose to engage should be encouraged and opportunities maximized so that students can participate as frequently as possible. It is important for academic departments that are trying to increase engagement to first survey the student population to discern their background characteristics. Rather than trying to get nontraditional students to remain on campus for out-of-class activities, faculty and staff should ensure that there are a variety of engaging experiences available in the classroom. For example, courses should include active and collaborative learning pedagogies such as peer mentoring, group activities, or service learning to enhance academic engagement. Departments may also go so far as to implement policies that require active and collaborative learning components in all courses.

In addition, for traditional students who tend to have higher levels of social engagement, faculty and staff can create socialization opportunities for these students that
are meaningful and academically related, e.g., academic departments can create a
dedicated physical space for students to work together, study, and socialize with faculty
accessible to students either in or near the student designated space. By implementing
mandatory office hours or hours staffing the study lounge, departments can encourage
more student-faculty interactions outside of class.

Interaction with faculty members can also be increased if programs offer release
time to faculty to act as advisors. If departmental faculty members are trained to advise
students on academic degree requirements, graduation requirements, career goals, or
other essential advising topics, students will be more likely to interact with them outside
of class. It is also recommended that faculty be included in new student orientations so
that students are introduced to faculty early in their academic careers. In order for faculty
to be able to devote time to advising students, departments will need to reconsider how
advising is weighed in annual evaluation and tenure review processes.

Faculty interaction is typically even more limited with students enrolled in online
courses. It is, therefore, recommended that faculty create some type of personal message
in online courses to introduce themselves and find ways to personally interact with
students. With the many forms of technology available, faculty can include video
conferencing and instant messaging in online courses as ways to communicate with
students in real time. One other avenue to increase student-faculty interaction may be to
reduce class size. It is recommended that programs keep class sizes as small as resources
will allow. This will foster a greater sense of community among students, more frequent
interaction between students and faculty, and more participation in class. Where it is
impossible to reduce class sizes, having students split into assigned groups for studying, projects, or class discussions may help to create the feeling of being in a smaller course.

Getting students to participate in out-of-class activities is often a challenging task. One of the important things to consider is whether or not the activity is relevant to the targeted group of students. To encourage participation, faculty and staff should receive input from students. If possible, student leaders or student groups should be tasked with organizing events. If students do not seem interested in organizing an event, there is a good chance that they will not be interested in participating either. If programs want to encourage participation in out-of-class activities, but do not wish to create an entirely new event, other planned events on campus can be supported by adding an additional component targeted toward the program’s students, e.g., offering a reception/discussion as a follow-up to a student government sponsored speech. Academic programs, particularly those whose students are primarily nontraditional, should not feel pressured to constantly plan events. As indicated, there are other course related engaging activities that can be effective.

The findings of this study indicated that one way to promote engagement is to implement departmental core courses. Enrollment in mandatory core courses positively influenced engagement of respondents in seven of eight factors. Enrollment in core courses was also positively related to satisfaction. Thus, the results of this study support the idea that requiring core courses for interdisciplinary studies students can increase engagement which can, in turn, lead to higher levels of satisfaction. As demonstrated, common curricula may benefit students. However, this alone will not increase
engagement. Programs must create an environment that promotes and nurtures engagement by offering students the opportunity to interact with students from diverse backgrounds, have common understandings and experiences with peers, spend time with peers, interact with faculty, participate in active and collaborative learning, integrate classroom content with real life experiences, attend events and activities outside of class, and be challenged academically. Successful implementation of an engaging interdisciplinary program will require active participation of students, faculty, and staff.

There are two groups responsible for student engagement: the institution that creates and facilitates engaging opportunities and the students who participate and put forth effort. In order for an engaging experience to be successful, both groups must be willing and able to do their part.

**Recommendations for Future Research**

The findings of this research expand on the existing body of knowledge on student engagement and add to the limited literature focused on undergraduate interdisciplinary studies students. This investigation also resulted in findings relevant to the literature on nontraditional students and core courses. However, because this research was conducted on a small population of interdisciplinary alumni at one institution, there are many avenues for future research.

The population surveyed for this study was very specific. This survey could be replicated using different populations. For example, students in other academic programs can be surveyed, and a comparison can be made among interdisciplinary studies students.
and students in other majors. In addition, students in interdisciplinary studies programs at other universities can be surveyed, and the results compared. From these studies, other questions can be answered. It can be determined whether there is a difference in engagement based on program curriculum, program structure, or student composition. The perceptions regarding student engagement of faculty, staff, and administrators in interdisciplinary studies programs could be examined to determine the adequacy of resources and support provided to create engaging opportunities for students. Finally, it may be interesting to survey those alumni who did not respond to this study. The respondents of this study may have been more engaged in general because they chose to respond to the survey. It would be interesting to discover if those alumni who did not respond to this survey were similarly engaged during their enrollment in the Interdisciplinary Studies Program.

In addition, a study could be conducted on a larger scale to identify the types of students enrolled in undergraduate interdisciplinary studies programs around the country. Such a study could focus on the extent to which interdisciplinary programs enroll nontraditional students. This would help to determine if the results of this and other studies can be generalized to other populations. It would also be interesting to further explore commonalities in identity among interdisciplinary studies students and whether the program curriculum or structure makes a difference in the types of students that are enrolled. For example, it would be helpful to note whether programs with core courses enroll different types of students than programs that do not require core courses.
Different methods can also be used to answer similar research questions. For example, qualitative data on student engagement can be collected by conducting interviews, observations, and focus groups. These studies may give further insight into the types of engaging experiences which should be supported by programs.

Additional studies on this topic could also control for background variables and pre-college characteristics to further strengthen the correlations between engagement and satisfaction and enrollment in core courses and engagement. The ISSES instrument can also be adjusted to increase the strength of the results. Since the academic challenge factor was based on only one item, it would be important to create additional questions to address this factor. It would also be important to further research the concept of academic challenge to be able to better operationalize this factor. An initial study may explore whether faculty and staff have different perceptions of academic challenge than students. In addition, this study asked various demographic questions that were not analyzed in the current study. The data collected can be used to explore differences in engagement based on race, gender, hours worked per week, first generation status, and other characteristics.

Finally, additional relationships can be examined in future research. The effect of course modality on engagement can be examined to help administrators to determine if online, face-to-face, or mixed-mode courses are meeting the engagement needs of students. It would also be critical for future researchers to examine the relationship between engagement and retention. In addition, it may be useful to examine the relationship between engagement and academic performance.
Conclusion

In conclusion, this research was undertaken to examine undergraduate interdisciplinary studies students’ perceptions of engagement. Eight factors of engagement supported by best practices outlined by Chickering and Gamson (1987), NSSE, and Haworth and Conrad (1997) were identified. Of the eight factors of engagement, respondents reported the most frequent participation in integrated learning. The least amount of participation was reported in out-of-class experiences. Findings indicated that different types of students experience engagement differently. The data analysis revealed that traditional students participated more frequently in social engagement and that nontraditional students participated more frequently in academic engagement. It was also found that implementing mandatory core courses in one interdisciplinary studies program significantly increased engagement in seven of eight factors and overall satisfaction. Finally, the results of this study support the idea that increasing student engagement can help to increase student satisfaction and, therefore, retention. All eight engagement factors positively correlated with satisfaction to some degree.

Institutions play a significant role in creating engaging opportunities for students. In particular, academic programs are in a unique position to offer engaging opportunities that are tailored for a specific group of students both in and out of the classroom. Interdisciplinary studies programs are in a precarious position because they are often under attack and easily eliminated from campuses (Augsburg & Henry, 2009). Therefore, it is important for these programs to maintain high levels of enrollment and retention in
order to justify their existence. One way to increase satisfaction and retention is to offer engaging opportunities to students. Specifically, by implementing core courses, interdisciplinary studies programs can increase engagement and satisfaction.
Jennifer looks at her class schedule and sees that her next class is Cornerstone Experience in Interdisciplinary Studies in Room 101. Jennifer has no idea what this class involves, only that her new academic advisor told her that it is required for all Interdisciplinary Studies students. As she heads toward Room 101, she wonders if she made a mistake by changing her major. Jennifer reaches the assigned classroom and heads inside. She finds a seat toward the back of the room, ready to make a dash for the door if need be. As she sits down, she overhears three of her classmates talking about the combinations of disciplines that they chose to create their individualized majors. Jennifer chimes in that her major will hopefully help her start her own fitness studio.

As class begins, the professor passes around the syllabus to the small group of around 30 students. Jennifer notices that there is a job shadowing component for the class, and she wonders if she can shadow at the fitness center on campus. She also sees that there is a group project required and that she will be assigned a mentor who is a senior in the Capstone Experience course. The rest of the class goes by quickly with introductions and an overview of the class. The professor also assigns groups for the class project. At the end of class Jennifer meets with her group to discuss their upcoming project. They agree to meet next week before class in the Interdisciplinary Studies student lounge to get started. As Jennifer leaves the classroom, she thinks that this major may have been a good choice after all.
APPENDIX A
PERMISSION TO REPRINT FIGURE 1
From: "Forschler, Jenell"
To: Jessica Simmons
Date: Friday, August 20, 2010 1:58 PM
Subject: Permission agreement

PERMISSION AGREEMENT

Div: 0G  Code: 9780205195466
Req No: 40650; Cust No: 15546

AUG 20 10

Jessica Simmons
Office of Interdisciplinary Studies
FL

Jessica Simmons:

is hereby granted permission to use the material indicated in the following acknowledgement. This acknowledgement must be carried on the copyright or acknowledgements page of your printed/digital dissertation book or as a footnote on the page on which the material appears:

Haworth & Conrad, EMBLEMS OF QUALITY IN HIGHER EDUCATION, Figure 3.1, p. 29, ©1997. Reprinted by permission of Pearson Education, Inc.

To reprint Figure 3.1, p. 29 in your dissertation concerning engagement in an undergraduate interdisciplinary studies program to fulfill a graduation requirement at the University of Central Florida.
This is a non-exclusive permission for one time use in your printed/digital dissertation, thesis or research project in the English language and in all copies to meet your degree requirements. Permission is also granted for UMI (University Microfilms) Dissertation Services to make single copies on demand. This authorization covers the inclusion of the material cited in non-profit educational material only. Use beyond the terms and conditions of this letter, including inclusion of this material in any future published or for-profit versions of your research paper, in any derivatives of this work, will require a re-securing of permission.

(Please note: This authorization does not include your use of any material within the pages specified that has been credited to other sources. In order to use this material you will need to secure permission directly from the sources cited. At this time, we are unable to provide you with any additional information regarding these sources beyond that provided in our publication.)

Thank you for contacting our offices regarding this matter. We wish you success with your educational and career objectives.

Sincerely,

Jeneil Forschler
Permissions Administrator

Pearson Education, Inc.
501 Boylston St., Suite 900
Boston, MA 02116

Phone: 617.671.2295
Fax: 617.671.2290

Information on where and who to apply to in order to obtain copyright permission is available at http://www.pearsoned.com/legal/permissions.htm
For alternative text files for students with a disability, go to
Interdisciplinary Studies Survey of Student Engagement Final

1. Enrollment at UCF

* 1. When did you graduate from the Interdisciplinary Studies Program at UCF?
   - Summer 2008 (August 2008)
   - Fall 2008 (December 2008)
   - Spring 2009 (May 2009)
   - Summer 2009 (August 2009)
   - Fall 2009 (December 2009)
   - Spring 2010 (May 2010)
   - Summer 2010 (August 2010)
   - Fall 2010 (December 2010)
   - Spring 2011 (May 2011)

* 2. Did you complete IDS3933 Cornerstone Experience in Interdisciplinary Studies?
   - Yes
   - No

* 3. Did you complete IDS4934 Capstone Experience in Interdisciplinary Studies?
   - Yes
   - No
## 2. Enrollment at UCF

Thinking about the majority of your enrollment at UCF...

* **4. How would you characterize the majority of your enrollment?**
  - [ ] Full-time
  - [ ] Less than full-time

* **5. Did you take the majority of your courses entirely on-line?**
  - [ ] Yes
  - [ ] No

* **6. Which of the following best describes where you were living for the majority of your time at UCF?**
  - [ ] Dormitory or other campus housing (not fraternity/sorority house)
  - [ ] Residence (house, apartment, etc.) within walking distance of the institution
  - [ ] Residence (house, apartment, etc.) within driving distance of the institution
  - [ ] Fraternity or sorority house
  - [ ] None of the above
### 3. Enrollment at UCF

Thinking about your enrollment at UCF...

**7. Did you begin college at UCF or elsewhere?**
- [ ] Started at UCF
- [ ] Started Elsewhere

**8. Were you a member of a social fraternity or sorority?**
- [ ] Yes
- [ ] No

**9. Were you a student-athlete on a team sponsored by your UCF’s athletics department?**
- [ ] Yes
- [ ] No

**10. What was your overall GPA when you graduated from UCF?**
- [ ] 3.0-4.0
- [ ] 3.0-3.49
- [ ] 2.0-2.99
- [ ] 2.0-2.49
**11. In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, about how often did you do each of the following?**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asked questions in class or contributed to class discussions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Made a class presentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepared two or more drafts of a paper or assignment before turning it</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worked on a paper or project that required integrating ideas or information from various sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Went to class without completing readings or assignments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worked with other students on projects during class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worked with classmates outside of class to prepare class assignments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Interdisciplinary Studies Survey of Student Engagement Final

5.

12. In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, about how often did you do each of the following?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put together ideas or concepts from different courses when completing assignments or during class discussions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tutored or taught other students (paid or voluntary)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participated in a community-based project (e.g., service learning) as part of a regular course</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used e-mail to communicate with an instructor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discussed grades or assignments with an instructor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talked about career plans with a faculty member or advisor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discussed ideas from your readings or classes with faculty members outside of class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
13. In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, about how often did you do each of the following?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worked harder than you thought you could to meet an instructor’s standards or expectations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Had serious conversations with students of a different race or ethnicity than your own</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Had serious conversations with students who were very different from you in terms of their religious beliefs, political opinions, or personal values</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
14. In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, how much do you agree or disagree with the following?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students in the Interdisciplinary Studies Program had similar classroom experiences</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I could easily relate to other students in the Interdisciplinary Studies Program</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Interdisciplinary Studies Program traditions and celebrations played an important role in my life as a student</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>My experiences in the Interdisciplinary Studies Program increased my sense of belonging</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Interdisciplinary Studies Program allowed me to interact to other students like me</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I had classes with other Interdisciplinary Studies students</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
15. Select the circle that best represents the extent to which you were challenged to do your best work while you were a student in the Interdisciplinary Studies Program at the University of Central Florida.

1. Very Little  2  3  4  5  6  7 Very Much
16. Which of the following did you complete during your time as a student in the Interdisciplinary Studies Program at the University of Central Florida?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Completed on multiple occasions</th>
<th>Completed once</th>
<th>Never Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practicum, internship, field experience, co-op experience, or clinical assignment</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Community service or volunteer work</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Participated in a learning community or some other formal program where groups of students take two or more classes together</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Worked on a research project with a faculty member outside of course or program requirements</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
**17. About how many hours did you spend in a typical 7-day week working for pay on campus while you were a student in the Interdisciplinary Studies Program at the University of Central Florida?**

- [ ] 0 hours per week
- [ ] 1-5 hours per week
- [ ] 6-10 hours per week
- [ ] 11-15 hours per week
- [ ] 16-20 hours per week
- [ ] 21-25 hours per week
- [ ] 26-30 hours per week
- [ ] 31+ hours per week

**18. About how many hours did you spend in a typical 7-day week working for pay off campus while you were a student in the Interdisciplinary Studies Program at the University of Central Florida?**

- [ ] 0 hours per week
- [ ] 1-5 hours per week
- [ ] 6-10 hours per week
- [ ] 11-15 hours per week
- [ ] 16-20 hours per week
- [ ] 21-25 hours per week
- [ ] 26-30 hours per week
- [ ] 31+ hours per week
<table>
<thead>
<tr>
<th><strong>19.</strong> To what extent did the Interdisciplinary Studies Program at the University of Central Florida emphasize each of the following?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spending significant amounts of time studying and on academic work</td>
</tr>
<tr>
<td>Providing the support you needed to help you succeed academically</td>
</tr>
<tr>
<td>Encouraging contact among students from different economic, social, and racial or ethnic backgrounds</td>
</tr>
<tr>
<td>Helping you cope with your non-academic responsibilities (work, family, etc.)</td>
</tr>
<tr>
<td>Providing the support you needed to thrive socially</td>
</tr>
<tr>
<td>Attending campus events and activities (special speakers, cultural performances, athletic events, etc.)</td>
</tr>
<tr>
<td>Question</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>20. How would you evaluate your entire educational experience in the</td>
</tr>
<tr>
<td>Interdisciplinary</td>
</tr>
<tr>
<td>Studies Program at the University of Central Florida?</td>
</tr>
<tr>
<td>21. If you could start over again, would you choose to graduate with</td>
</tr>
<tr>
<td>a degree in Interdisciplinary Studies?</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
### 13. Demographics

* **22. Select your year of birth:** 

* **23. Your sex:**
  - Male
  - Female
**24. Were you an international student or foreign national?**

- Yes
- No

**25. What is your racial or ethnic identification? (Select only one.)**

- American Indian or other Native American
- Asian, Asian American, or Pacific Islander
- Black or African American
- White (non-Hispanic)
- Mexican or Mexican American
- Puerto Rican
- Other Hispanic or Latino
- Multiracial
- Other
- I prefer not to respond
15. Parent’s Education

* 26. What is the highest level of education that your father completed?

- Did not finish high school
- Graduated from high school
- Attended college but did not complete degree
- Completed an associate’s degree (A.A., A.S., etc.)
- Completed a bachelor’s degree (B.A., B.S., etc.)
- Completed a master’s degree (M.A., M.S., etc.)
- Completed a doctoral degree (Ph.D., J.D., M.D., etc.)

* 27. What is the highest level of education that your mother completed?

- Did not finish high school
- Graduated from high school
- Attended college but did not complete degree
- Completed an associate’s degree (A.A., A.S., etc.)
- Completed a bachelor’s degree (B.A., B.S., etc.)
- Completed a master’s degree (M.A., M.S., etc.)
- Completed a doctoral degree (Ph.D., J.D., M.D., etc.)
16. Acknowledgment

Thank you for your participation!

4-9, 11-13, and 15-27 used with permission from The College Student Report, National Survey of Student Engagement, Copyright 2001-11 The Trustees of Indiana University
1. Enrollment at UCF

* 1. When did you first enroll in the Interdisciplinary Studies Program at UCF?
   - Prior to Fall 2007
   - Fall 2007
   - Spring 2008
   - Summer 2008
   - Fall 2008
   - Spring 2009
   - Summer 2009
   - Fall 2009
   - Spring 2010
   - Summer 2010
   - Fall 2010
   - Spring 2011

* 2. Did you complete IDS3933 Cornerstone Experience in Interdisciplinary Studies?
   - Yes
   - No

* 3. Did you complete IDS4934 Capstone Experience in Interdisciplinary Studies?
   - Yes
   - No
2. Enrollment at UCF

Thinking about the majority of your enrollment at UCF...

* **4. How would you characterize the majority of your enrollment?**
  - Full-time
  - Less than full-time

* **5. Do you take the majority of your courses entirely on-line?**
  - Yes
  - No

* **6. Which of the following best describes where you have lived for the majority of your time at UCF?**
  - Dormitory or other campus housing (not fraternity/sorority house)
  - Residence (house, apartment, etc.) within walking distance of the institution
  - Residence (house, apartment, etc.) within driving distance of the institution
  - Fraternity or sorority house
  - None of the above
3. Enrollment at UCF

Thinking about your enrollment at UCF...

* 7. Did you begin college at UCF or elsewhere?
   - [ ] Started at UCF
   - [ ] Started Elsewhere

* 8. Are you a member of a social fraternity or sorority?
   - [ ] Yes
   - [ ] No

* 9. Are you a student-athlete on a team sponsored by your UCF’s athletics department?
   - [ ] Yes
   - [ ] No

* 10. What is your overall GPA?
   - [ ] 3.6-4.0
   - [ ] 3.0-3.49
   - [ ] 2.5-2.99
   - [ ] 2.0-2.49
4.

* 11. In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, about how often do you do each of the following?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ask questions in class or contributed to class discussions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Make a class presentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare two or more drafts of a paper or assignment before turning it</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work on a paper or project that requires integrating ideas or information from various sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Include diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Go to class without completing readings or assignments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work with other students on projects during class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work with classmates outside of class to prepare class assignments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
12. In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, about how often do you do each of the following?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put together ideas or concepts from different courses when completing assignments or during class discussions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tutor or teach other students (paid or voluntary)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate in a community-based project (e.g., service learning) as part of a regular course</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use email to communicate with an instructor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discuss grades or assignments with an instructor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talk about career plans with a faculty member or advisor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discuss ideas from your readings or classes with faculty members outside of class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
13. In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, about how often do you do each of the following?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive prompt written or oral feedback from faculty on your academic performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work harder than you thought you could to meet an instructor’s standards or expectations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discuss ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have serious conversations with students of a different race or ethnicity than your own</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have serious conversations with students who were very different from you in terms of their religious beliefs, political opinions, or personal values</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**14. In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, how much do you agree or disagree with the following?**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students in the Interdisciplinary Studies Program have similar classroom experiences</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I can easily relate to other students in the Interdisciplinary Studies Program</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The Interdisciplinary Studies Program traditions and celebrations play an important role in my life as a student</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>My experiences in the Interdisciplinary Studies Program increase my sense of belonging</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>The Interdisciplinary Studies Program allows me to interact with other students like me</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>I have classes with other Interdisciplinary Studies students</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
* 15. Select the circle that best represents the extent to which you are challenged to do your best work as a student in the Interdisciplinary Studies Program at the University of Central Florida.

- 1 Very Little
- 2
- 3
- 4
- 5
- 6
- 7 Very Much
16. Which of the following have you done or do you plan to do during your time as a student in the Interdisciplinary Studies Program at the University of Central Florida?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Done</th>
<th>Plan to do</th>
<th>Do not plan to do</th>
<th>Have not decided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practicum, internship, field experience, co-op experience, or clinical assignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community service or volunteer work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participate in a learning community or some other formal program where groups of students take two or more classes together</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work on a research project with a faculty member outside of course or program requirements</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study abroad</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
10.

**17.** About how many hours do you spend in a typical 7-day week working for pay on campus while a student in the Interdisciplinary Studies Program at the University of Central Florida?

- [ ] 0 hours per week
- [ ] 1-5 hours per week
- [ ] 6-10 hours per week
- [ ] 11-15 hours per week
- [ ] 16-20 hours per week
- [ ] 21-25 hours per week
- [ ] 26-30 hours per week
- [ ] 31+ hours per week

**18.** About how many hours do you spend in a typical 7-day week working for pay off campus while a student in the Interdisciplinary Studies Program at the University of Central Florida?

- [ ] 0 hours per week
- [ ] 1-5 hours per week
- [ ] 6-10 hours per week
- [ ] 11-15 hours per week
- [ ] 16-20 hours per week
- [ ] 21-25 hours per week
- [ ] 26-30 hours per week
- [ ] 31+ hours per week

**19.** About how many hours do you spend in a typical 7-day week participating in co-curricular activities (organizations, campus publications, student government, fraternity or sorority, intercollegiate or intramural sports, etc.) while a student in the Interdisciplinary Studies Program at the University of Central Florida?

- [ ] 0 hours per week
- [ ] 1-5 hours per week
- [ ] 6-10 hours per week
- [ ] 11-15 hours per week
- [ ] 16-20 hours per week
- [ ] 21-25 hours per week
- [ ] 26-30 hours per week
- [ ] 31+ hours per week

Page 10
20. Select the circle that best represents the quality of your relationships with other students in the Interdisciplinary Studies Program at the University of Central Florida

1. Unfriendly, Unsupportive, Sense of alienation
2. 3. 4. 5. 6. 7. Friendly, Supportive, Sense of belonging

21. Select the circle that best represents the quality of your relationships with faculty in the Interdisciplinary Studies Program at the University of Central Florida

1. Unavailable, Unhelpful, Unsympathetic
2. 3. 4. 5. 6. 7. Available, Helpful, Sympathetic
22. To what extent does the Interdisciplinary Studies Program at the University of Central Florida emphasize each of the following?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very much</th>
<th>Quite a bit</th>
<th>Some</th>
<th>Very Little</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spending significant amounts of time studying and on academic work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Providing the support you needed to help you succeed academically</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Encouraging contact among students from different economic, social,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and racial or ethnic backgrounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helping you cope with your non-academic responsibilities (work, family,</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Providing the support you needed to thrive socially</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending campus events and activities (special speakers, cultural</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>performances, athletic events, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
23. How would you evaluate your entire educational experience in the Interdisciplinary Studies Program at the University of Central Florida?
   - Excellent
   - Good
   - Fair
   - Poor

24. If you could start over again, would you choose to major in Interdisciplinary Studies?
   - Definitely yes
   - Probably yes
   - Probably no
   - Definitely no
14. Demographics

* 25. Select your year of birth:

* 26. Your sex:
   - Male
   - Female
15. Demographics

* 27. Are you an international student or foreign national?
   - Yes
   - No

* 28. What is your racial or ethnic identification? (Select only one.)
   - American Indian or other Native American
   - Asian, Asian American, or Pacific Islander
   - Black or African American
   - White (non-Hispanic)
   - Mexican or Mexican American
   - Puerto Rican
   - Other Hispanic or Latino
   - Multiracial
   - Other
   - I prefer not to respond
16. Parent’s Education

* 29. What is the highest level of education that your father completed?

- Did not finish high school
- Graduated from high school
- Attended college but did not complete degree
- Completed an associate’s degree (A.A., A.S., etc.)
- Completed a bachelor’s degree (B.A., B.S., etc.)
- Completed a master’s degree (M.A., M.S., etc.)
- Completed a doctoral degree (Ph.D., J.D., M.D., etc.)

* 30. What is the highest level of education that your mother completed?

- Did not finish high school
- Graduated from high school
- Attended college but did not complete degree
- Completed an associate’s degree (A.A., A.S., etc.)
- Completed a bachelor’s degree (B.A., B.S., etc.)
- Completed a master’s degree (M.A., M.S., etc.)
- Completed a doctoral degree (Ph.D., J.D., M.D., etc.)
17. Acknowledgment

Thank you for your participation!

As a token of my appreciation, you may enter into a drawing to win a $25 Visa Gift Card. To be entered into this drawing, please email jsimmon@mail.ucr.edu with the subject line “Visa Gift Card”. Include your name and PID in the body of the email. The drawing will be held on February 1, and the winner will be notified via email.

Items 4-9, 11-13, and 15-30 used with permission from The College Student Report, National Survey of Student Engagement, Copyright 2001-11 The Trustees of Indiana University
APPENDIX D

NSSE ITEMS IN ISSES PILOT
<table>
<thead>
<tr>
<th>NSSE Item #</th>
<th>NSSE Variable</th>
<th>New Variable</th>
<th>ISSES Pilot Question # (question-part)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>graduate</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>compcorn</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>compcap</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>22</td>
<td>enrolment</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>--</td>
<td>disted</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>26</td>
<td>livenow</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>20</td>
<td>enter</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>23</td>
<td>fratsoro</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>24a</td>
<td>athlete</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>overgpa</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>1a</td>
<td>clquest</td>
<td></td>
<td>11-a</td>
</tr>
<tr>
<td>1b</td>
<td>clpresen</td>
<td></td>
<td>11-b</td>
</tr>
<tr>
<td>1c</td>
<td>rewropap</td>
<td></td>
<td>11-c</td>
</tr>
<tr>
<td>1d</td>
<td>integrat</td>
<td></td>
<td>11-d</td>
</tr>
<tr>
<td>1e</td>
<td>divclass</td>
<td></td>
<td>11-e</td>
</tr>
<tr>
<td>1f</td>
<td>clunprep</td>
<td></td>
<td>11-f</td>
</tr>
<tr>
<td>1g</td>
<td>classgrp</td>
<td></td>
<td>11-g</td>
</tr>
<tr>
<td>1h</td>
<td>occgrp</td>
<td></td>
<td>11-h</td>
</tr>
<tr>
<td>1i</td>
<td>intideas</td>
<td></td>
<td>12-a</td>
</tr>
<tr>
<td>1j</td>
<td>tutor</td>
<td></td>
<td>12-b</td>
</tr>
<tr>
<td>1k</td>
<td>commproj</td>
<td></td>
<td>12-c</td>
</tr>
<tr>
<td>11</td>
<td>itacadem</td>
<td></td>
<td>12-d</td>
</tr>
<tr>
<td>1m</td>
<td>email</td>
<td></td>
<td>12-e</td>
</tr>
<tr>
<td>1n</td>
<td>facgrade</td>
<td></td>
<td>12-f</td>
</tr>
<tr>
<td>1o</td>
<td>facplans</td>
<td></td>
<td>12-g</td>
</tr>
<tr>
<td>1p</td>
<td>facideas</td>
<td></td>
<td>12-h</td>
</tr>
<tr>
<td>1q</td>
<td>facfeed</td>
<td></td>
<td>13-a</td>
</tr>
<tr>
<td>1r</td>
<td>workhard</td>
<td></td>
<td>13-b</td>
</tr>
<tr>
<td>1s</td>
<td>facother</td>
<td></td>
<td>13-c</td>
</tr>
<tr>
<td>1t</td>
<td>oocideas</td>
<td></td>
<td>13-d</td>
</tr>
<tr>
<td>1u</td>
<td>divrstud</td>
<td></td>
<td>13-e</td>
</tr>
<tr>
<td>1v</td>
<td>diffstul2</td>
<td></td>
<td>13-f</td>
</tr>
<tr>
<td></td>
<td>isclexp</td>
<td></td>
<td>14-a</td>
</tr>
<tr>
<td></td>
<td>isrelate</td>
<td></td>
<td>14-b</td>
</tr>
<tr>
<td></td>
<td>istrad</td>
<td></td>
<td>14-c</td>
</tr>
<tr>
<td></td>
<td>isbelong</td>
<td></td>
<td>14-d</td>
</tr>
<tr>
<td></td>
<td>isinter</td>
<td></td>
<td>14-e</td>
</tr>
<tr>
<td>Column</td>
<td>Value</td>
<td>isclass</td>
<td>Column</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td>5</td>
<td>exams</td>
<td>14-f</td>
<td>1</td>
</tr>
<tr>
<td>7a</td>
<td>intern04</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>7b</td>
<td>volntr04</td>
<td>16-a</td>
<td>7</td>
</tr>
<tr>
<td>7c</td>
<td>lrncom04</td>
<td>16-b</td>
<td>7</td>
</tr>
<tr>
<td>7d</td>
<td>resrch04</td>
<td>16-c</td>
<td>7</td>
</tr>
<tr>
<td>7f</td>
<td>stdabr04</td>
<td>16-d</td>
<td>7</td>
</tr>
<tr>
<td>9b</td>
<td>workon01</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>9c</td>
<td>workof01</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>9d</td>
<td>cocurr01</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>8a</td>
<td>envstu</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>8b</td>
<td>envfac</td>
<td>21</td>
<td>8</td>
</tr>
<tr>
<td>10a</td>
<td>envschol</td>
<td>22-a</td>
<td>10</td>
</tr>
<tr>
<td>10b</td>
<td>envsuprt</td>
<td>22-b</td>
<td>10</td>
</tr>
<tr>
<td>10c</td>
<td>envdivrs</td>
<td>22-c</td>
<td>10</td>
</tr>
<tr>
<td>10d</td>
<td>envnacad</td>
<td>22-d</td>
<td>10</td>
</tr>
<tr>
<td>10e</td>
<td>envsocal</td>
<td>22-e</td>
<td>10</td>
</tr>
<tr>
<td>10f</td>
<td>envevent</td>
<td>22-f</td>
<td>10</td>
</tr>
<tr>
<td>13</td>
<td>entirexp</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>14</td>
<td>samecoll</td>
<td>24</td>
<td>14</td>
</tr>
<tr>
<td>15</td>
<td>birthyr</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>sex</td>
<td>26</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>internat</td>
<td>27</td>
<td>17</td>
</tr>
<tr>
<td>18</td>
<td>race05</td>
<td>28</td>
<td>18</td>
</tr>
<tr>
<td>27a</td>
<td>fathredu</td>
<td>29</td>
<td>27a</td>
</tr>
<tr>
<td>27b</td>
<td>mothredu</td>
<td>30</td>
<td>27b</td>
</tr>
</tbody>
</table>
APPENDIX E
NSSE ITEM USAGE AGREEMENT
The College Student Report
Item Usage Agreement

The National Survey of Student Engagement’s (NSSE) survey instrument, The College Student Report, is copyrighted and the copyright is owned by The Trustees of Indiana University. Any use of survey items contained within The College Student Report is prohibited without prior written permission from Indiana University. When fully executed, this Agreement constitutes written permission from the University, on behalf of NSSE, for the party named below to use an item or items from The College Student Report in accordance with the terms of this Agreement.

In consideration of the mutual promises below, the parties hereby agree as follows:

1) The University hereby grants Jessica Simmons (“Licensee”) a nonexclusive, worldwide, irrevocable license to use, reproduce, distribute, publicly display and perform, and create derivatives from, in all media now known or hereafter developed, the item(s) listed in the proposal attached as Exhibit A, solely for the purpose of including such item(s) in the survey activity described in Exhibit A, which is incorporated by reference into this Agreement. This license does not include any right to sublicense others. This license only covers the survey instrument, time frame, population, and other terms described in Exhibit A. Any different or repeated use of the item(s) shall require an additional license.

2) In exchange for the license granted in section 1, Licensee agrees:

a) there will be no licensing fee to use NSSE items for the purposes described in Exhibit A;

b) to provide to NSSE frequency distributions and means on the licensed item(s);

c) on the survey form itself, and in all publications or presentations of data obtained through the licensed item(s), to include the following citation: “Items xx and xr used with permission from The College Student Report, National Survey of Student Engagement, Copyright 2001-11 The Trustees of Indiana University”;

d) to provide to NSSE a copy of any derivatives of, or alterations to, the item(s) that Licensee makes for the purpose of Licensee’s survey (“modified items”), for NSSE’s own nonprofit, educational purposes, which shall include the use of the modified items in The College Student Report or any other survey instruments, reports, or other educational or professional materials that NSSE may develop or use in the future. Licensee hereby grants the University a nonexclusive, worldwide, irrevocable, royalty-free license to use, reproduce, distribute, create derivatives from, and publicly display and perform the modified items, in any media now known or hereafter developed; and

e) to provide to NSSE, for its own nonprofit, educational purposes, a copy of all reports, presentations, analyses, or other materials in which the item(s) licensed under this Agreement are used.

Indiana University Center for Postsecondary Research 1900 East Tenth Street • Eigenmann Hall, Suite 419 • Bloomington, IN 47406 Phone: (812) 856-5624 • Fax: (812) 856-5150 • E-mail: nsse@indiana.edu • Web Address: www.nsse.iub.edu
Agreement, or modified items, and any responses to licensed or modified items, are presented, discussed, or analyzed. NSSE shall not make public any data it obtains under this subsection in a manner that identifies specific institutions or individuals, except with the consent of the Licensee.

3) This Agreement expires on December 31, 2011.

The undersigned hereby consent to the terms of this Agreement and confirm that they have all necessary authority to enter into this Agreement.

For The Trustees of Indiana University:

[Signature]

Alexander C. McCormick
Director
National Survey of Student Engagement

[Signature]

[Date] 12/16/2010

For Licensee:

[Signature]

Jessica Simmons
Doctoral Student
University of Central Florida

[Signature]

Tammy Boyd, Ph.D.
Assistant Professor
University of Central Florida

[Signature]

[Date] 1/3/11

[Signature]

[Date] 2/3/11
REQUESTS TO USE NSSE SURVEY ITEMS

The National Survey of Student Engagement’s (NSSE) survey instrument, The College Student Report, is copyrighted and the copyright is owned by The Trustees of Indiana University. Any use of survey items contained within The College Student Report is prohibited without prior written permission from Indiana University.

In addition, as a non-subsidized, cost-recovery project, the NSSE program may ask researchers who wish to borrow from, adapt, or translate the NSSE instrument to pay a fair price for the time and effort the NSSE staff put into forming such Agreements, and as reasonable estimate of the value of NSSE’s intellectual property.

In addition, such Agreements typically entail the following terms briefly described below, but to appear in formal legal detail in the actual Agreement:

1. That all details of the license be negotiated in advance and in writing, which is incorporated by reference into the Agreement;

2. The Agreement does not include any right to sublicense others. Any different or repeated use of the item(s) require an additional license;

3. The researcher agrees:
   a. To provide to NSSE frequency distributions and means on the licensed item(s);
   b. On the survey form itself, and in all publications or presentations of data obtained through the licensed item(s), to note that the items were used with permission from Indiana University;
   c. To provide to NSSE a copy of all surveys that include NSSE items or modified items; and
   d. To provide to NSSE a copy of all reports, presentations, analyses, or other materials in which the borrowed item(s) are presented, discussed, or analyzed.

4. The Agreement will include an expiration date.

5. Other terms as deemed necessary to govern the Agreement as determined by either party.
Proposal to Use Items from *The College Student Report*

Contact information:

December 7, 2010

Simmons  
Last Name  
Jessica  
First Name

Doctoral Student/Academic Advisor

University of Central Florida

Interdisciplinary Studies Program

4000 Central Florida Blvd., CL1 302L

Orlando  FL  32806-1998  USA

407-823-0013  407-823-2028

Email: jsimmons@mail.ucf.edu

Indiana University Center for Postsecondary Research  
1900 East Tenth Street  •  Eigenmann Hall, Suite 419  •  Bloomington, IN 47406  
Phone: (812) 856-5824  •  Fax: (812) 856-5150  •  E-mail: nsse@indiana.edu  •  Web Address: www.nsse.iub.edu

Last revised June 2006
Please answer the following questions in as much detail as possible. Feel free to attach additional documents in support of the proposal.

1. State the objective of your survey:

My proposed survey will be used as part of a doctoral dissertation requirement. The primary purpose of this study will be to determine the ways in which interdisciplinary studies students at the University of Central Florida (UCF) report academic program engagement while exploring the impact of mandatory core courses on engagement and satisfaction. By studying interdisciplinary studies students' experiences of engagement as they relate to integrated learning, active and collaborative learning, interaction with faculty members, interaction with peers, diversity-related activities, out-of-class experiences, shared understanding and experiences, and academic challenge, and their impact on student satisfaction, recommendations can be made regarding how to establish a successful program both at UCF and at universities across the country.

2. Identify the specific item(s) to be used:

The items identified below have been modified slightly from the NSSE instrument because the context of my proposed survey is different. In my official survey, alumni will be surveyed so all of the questions are past tense. Further, the questions will ask about engagement within an academic department as opposed to engagement at the University in general.

<table>
<thead>
<tr>
<th>NSSE Item #</th>
<th>NSSE Variable</th>
<th>Proposed Survey Question # (question-part)</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>enrollment</td>
<td>4</td>
</tr>
<tr>
<td>23</td>
<td>lived</td>
<td>6</td>
</tr>
<tr>
<td>20</td>
<td>enter</td>
<td>7</td>
</tr>
<tr>
<td>23a</td>
<td>fratso</td>
<td>8</td>
</tr>
<tr>
<td>1a</td>
<td>quest</td>
<td>11-a</td>
</tr>
<tr>
<td>1b</td>
<td>clpresn</td>
<td>11-b</td>
</tr>
<tr>
<td>1c</td>
<td>rewrop</td>
<td>11-c</td>
</tr>
<tr>
<td>1d</td>
<td>integr</td>
<td>11-d</td>
</tr>
<tr>
<td>1e</td>
<td>divclass</td>
<td>11-e</td>
</tr>
<tr>
<td>1f</td>
<td>clunprep</td>
<td>11-f</td>
</tr>
<tr>
<td>1g</td>
<td>classgrp</td>
<td>11-g</td>
</tr>
<tr>
<td>1h</td>
<td>occgrp</td>
<td>11-h</td>
</tr>
<tr>
<td>1i</td>
<td>inideas</td>
<td>12-a</td>
</tr>
<tr>
<td>1j</td>
<td>tutor</td>
<td>12-b</td>
</tr>
<tr>
<td>1k</td>
<td>commproj</td>
<td>12-c</td>
</tr>
<tr>
<td>1l</td>
<td>itacadem</td>
<td>12-d</td>
</tr>
</tbody>
</table>
### National Survey of Student Engagement

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1m</td>
<td>email</td>
<td>12-e</td>
</tr>
<tr>
<td>1n</td>
<td>facgrade</td>
<td>12-f</td>
</tr>
<tr>
<td>10</td>
<td>facplans</td>
<td>12-g</td>
</tr>
<tr>
<td>1p</td>
<td>facideas</td>
<td>12-h</td>
</tr>
<tr>
<td>1q</td>
<td>facfeed</td>
<td>13-a</td>
</tr>
<tr>
<td>1r</td>
<td>workhard</td>
<td>13-b</td>
</tr>
<tr>
<td>1s</td>
<td>facother</td>
<td>13-c</td>
</tr>
<tr>
<td>1t</td>
<td>oocidea</td>
<td>13-d</td>
</tr>
<tr>
<td>1u</td>
<td>divrstd</td>
<td>13-e</td>
</tr>
<tr>
<td>1v</td>
<td>diffstu2</td>
<td>13-f</td>
</tr>
<tr>
<td>5</td>
<td>exams</td>
<td>15</td>
</tr>
<tr>
<td>7a</td>
<td>intern04</td>
<td>16-a</td>
</tr>
<tr>
<td>7b</td>
<td>volun04</td>
<td>16-b</td>
</tr>
<tr>
<td>7c</td>
<td>lrcom04</td>
<td>16-c</td>
</tr>
<tr>
<td>7d</td>
<td>resrch04</td>
<td>16-d</td>
</tr>
<tr>
<td>7f</td>
<td>stdbr04</td>
<td>16-e</td>
</tr>
<tr>
<td>9b</td>
<td>workon1</td>
<td>17</td>
</tr>
<tr>
<td>9c</td>
<td>workof1</td>
<td>18</td>
</tr>
<tr>
<td>9d</td>
<td>cocurt01</td>
<td>19</td>
</tr>
<tr>
<td>8a</td>
<td>envstu</td>
<td>20</td>
</tr>
<tr>
<td>8b</td>
<td>envflac</td>
<td>21</td>
</tr>
<tr>
<td>10a</td>
<td>envschol</td>
<td>22-a</td>
</tr>
<tr>
<td>10b</td>
<td>envsupr</td>
<td>22-b</td>
</tr>
<tr>
<td>10c</td>
<td>envdivrs</td>
<td>22-c</td>
</tr>
<tr>
<td>10d</td>
<td>envnacad</td>
<td>22-d</td>
</tr>
<tr>
<td>10e</td>
<td>envsoc</td>
<td>22-e</td>
</tr>
<tr>
<td>10f</td>
<td>envvent</td>
<td>22-f</td>
</tr>
<tr>
<td>13</td>
<td>entirexp</td>
<td>23</td>
</tr>
<tr>
<td>14</td>
<td>samecoll</td>
<td>24</td>
</tr>
<tr>
<td>15</td>
<td>birthey</td>
<td>25</td>
</tr>
<tr>
<td>16</td>
<td>sex</td>
<td>26</td>
</tr>
<tr>
<td>17</td>
<td>internat</td>
<td>27</td>
</tr>
<tr>
<td>18</td>
<td>race05</td>
<td>28</td>
</tr>
<tr>
<td>27a</td>
<td>fithredu</td>
<td>29</td>
</tr>
<tr>
<td>27b</td>
<td>mothrerd</td>
<td>30</td>
</tr>
</tbody>
</table>

3. To whom will the survey be administered?

Pilot Survey – The participants will all be UCF interdisciplinary studies students over the age of 18 who will have earned between 90-119 credit hours earned by the end of spring 2011.
National Survey of Student Engagement

Final Survey – The participants will all be UCF alumni over the age of 18 who graduated with a bachelor’s degree in interdisciplinary studies between summer 2008 and spring 2011.

4. How will the survey be administered—through oral interviews, on paper, electronically, a combination of methods, other?

The survey will be administered electronically via www.surveymonkey.com

5. Describe your sampling methodology.

Pilot Survey – The survey will be administered as a census survey to all UCF undergraduate students majoring in Interdisciplinary Studies who will have earned between 90-119 credit hours by the end of spring 2011. This group of students was chosen purposefully for the pilot study because they will not be in the sample participating in the final survey but will have had enough experience in the program to answer the questions effectively.

Final Survey – The survey will be administered as a census survey inviting all graduates of UCF’s Interdisciplinary Studies Program in the 2008-2011 school years to participate. Alumni from 2008-2011 were chosen purposefully for this study because this sample will include a mix of individuals who completed the core courses and those who were not required to complete the core courses. Alumni from the three most recent academic years were also chosen so that they will have a better recollection of their undergraduate college experiences.

6. State your maximum number of survey recipients.

Pilot Survey – Not more than 600 students

Final Survey – Not more than 1600 students

7. List your expected start and end dates for survey administration. Please indicate if you intend to use these items on a continuing basis (e.g., each semester or year).

Pilot Survey – January 1, 2011 – March 31, 2011 (single administration)

Final Survey – May 1, 2011 – September 30, 2011 (single administration)

8. Append a copy of the proposed survey instrument to be used, noting where the NSSE items are located.

Both the pilot survey and the final survey instrument are included. The surveys are identical except for the tense used in the questions.

9. Please list all sponsoring organizations and funding sources for this study.
University of Central Florida

10. If your institution is NSSE eligible, will a NSSE administration be under way at the same time as your proposed research?

UCF will be conducting a NSSE administration in Spring 2011, which will be during the same time as my pilot survey; however, the two surveys are examining different aspects of engagement. My survey will be examining engagement specifically within the Interdisciplinary Studies Program at UCF. I will also not be reporting data from my pilot survey, but will only be using the data to validate my survey instrument. The NSSE administration will not be conducted while I am administering my final survey and since my participants will be alumni, they would not be surveyed by NSSE anyway.

11. Provide the name, title, and organization of your principal investigator, if different from the contact person described above.

Same as above

12. If you are a student working on your dissertation or other research, please list your advisor.

Tammy Boyd, Ph.D.
Assistant Professor
Educational and Human Sciences
University of Central Florida
P.O. Box 161250
Orlando, FL 32816-1250
407-823-5179
tboyd@mail.ucf.edu
APPENDIX F
PILOT SURVEY CODEBOOK
<table>
<thead>
<tr>
<th>Score</th>
<th>Variable</th>
<th>Response Values and Labels</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Graduate</td>
<td>When did you first enroll in the Interdisciplinary Studies Program at UCF?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - Prior to Fall 2007</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Fall 2007</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 - Spring 2008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 - Summer 2008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 - Fall 2008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 - Spring 2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7 - Summer 2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 - Fall 2009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 - Spring 2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 - Summer 2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11 - Fall 2010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12 - Spring 2011</td>
</tr>
<tr>
<td>2</td>
<td>Complete</td>
<td>Did you complete IDS-0913 Core course Experience in Interdisciplinary Studies?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Yes</td>
</tr>
<tr>
<td>3</td>
<td>Complete</td>
<td>Did you complete IDS-0914 Capstone Experience in Interdisciplinary Studies?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Yes</td>
</tr>
<tr>
<td>4</td>
<td>Ordinate</td>
<td>How would you characterize the majority of your enrollment?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - Less than full-time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Full-time</td>
</tr>
<tr>
<td>5</td>
<td>Online</td>
<td>Do you take the majority of your courses entirely online?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Yes</td>
</tr>
<tr>
<td>6</td>
<td>Residence</td>
<td>Which of the following best describes where you have lived for the majority of your time at UCF?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - Dormitory or other campus housing (not fraternity/sorority house)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Residence (house, apartment, etc.) within walking distance of the institution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 - Residence (house, apartment, etc.) within driving distance of the institution</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 - Primarily or entirely off-campus</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 - None of the above</td>
</tr>
<tr>
<td>7</td>
<td>Enter</td>
<td>Did you begin college at UCF or elsewhere?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - Started at UCF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Started elsewhere</td>
</tr>
<tr>
<td>8</td>
<td>Status</td>
<td>Are you a member of a social fraternity or sorority?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Yes</td>
</tr>
<tr>
<td>9</td>
<td>Athletic</td>
<td>Are you a student athlete on a team sponsored by your UCF's athletics department?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - Yes</td>
</tr>
<tr>
<td>10</td>
<td>Overall</td>
<td>What is your overall GPA?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 - 1.5-1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 - 3.0-3.49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 - 3.5-3.99</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 - 4.0-4.0</td>
</tr>
<tr>
<td>Code</td>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>11a</td>
<td>11a</td>
<td>Ask questions in class or contribute to class discussions</td>
</tr>
<tr>
<td>11b</td>
<td>11b</td>
<td>Make a class presentation</td>
</tr>
<tr>
<td>11c</td>
<td>11c</td>
<td>Prepare two or more drafts of a paper or assignment before turning it in</td>
</tr>
<tr>
<td>11d</td>
<td>11d</td>
<td>Work on a paper or project that required integrating ideas or information from various sources</td>
</tr>
<tr>
<td>11e</td>
<td>11e</td>
<td>Include diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments</td>
</tr>
<tr>
<td>11f</td>
<td>11f</td>
<td>Go to class without completing readings or assignments</td>
</tr>
<tr>
<td>11g</td>
<td>11g</td>
<td>Work with other students on projects during class</td>
</tr>
<tr>
<td>11h</td>
<td>11h</td>
<td>Work with classmates outside of class to prepare class assignments</td>
</tr>
<tr>
<td>12a</td>
<td>12a</td>
<td>Put together ideas or concepts from different courses when completing assignments or during class discussions</td>
</tr>
<tr>
<td>12b</td>
<td>12b</td>
<td>Tutor or taught other students (paid or voluntary)</td>
</tr>
<tr>
<td>12c</td>
<td>12c</td>
<td>Participate in a community-based project (e.g., service learning) as part of a regular course</td>
</tr>
<tr>
<td>12d</td>
<td>12d</td>
<td>Use an electronic medium (electronic discussion forums, chat groups, email, IM, social networking, etc.) to discuss or complete an assignment</td>
</tr>
<tr>
<td>12e</td>
<td>12e</td>
<td>Use email to communicate with an instructor</td>
</tr>
<tr>
<td>12f</td>
<td>12f</td>
<td>Discuss grades or assignments with an instructor</td>
</tr>
<tr>
<td>12g</td>
<td>12g</td>
<td>Talk about course plans with a faculty member or advisor</td>
</tr>
<tr>
<td>12h</td>
<td>12h</td>
<td>Discuss ideas from your readings or classes with faculty members outside of class</td>
</tr>
<tr>
<td>13a</td>
<td>13a</td>
<td>Receive prompt written or oral feedback from faculty on your academic performance</td>
</tr>
</tbody>
</table>
Interdisciplinary Studies Student Survey of Engagement

**Codebook**

<table>
<thead>
<tr>
<th>Area</th>
<th>Variable</th>
<th>Variable Label</th>
<th>Possible Values and Labels</th>
</tr>
</thead>
<tbody>
<tr>
<td>13a</td>
<td>workhard</td>
<td>Work harder than you thought you could to meet an instructor’s standards or expectations</td>
<td>1 = Never, 2 = Sometimes, 3 = Other, 4 = Very Often</td>
</tr>
<tr>
<td>13b</td>
<td>facint</td>
<td>Work with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)</td>
<td>1 = Never, 2 = Sometimes, 3 = Other, 4 = Very Often</td>
</tr>
<tr>
<td>13c</td>
<td>readina</td>
<td>Discuss ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)</td>
<td>1 = Never, 2 = Sometimes, 3 = Other, 4 = Very Often</td>
</tr>
<tr>
<td>13d</td>
<td>discina</td>
<td>Have serious conversations with students of a different race or ethnicity than your own</td>
<td>1 = Never, 2 = Sometimes, 3 = Other, 4 = Very Often</td>
</tr>
<tr>
<td>13e</td>
<td>disrela</td>
<td>Have serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values</td>
<td>1 = Never, 2 = Sometimes, 3 = Other, 4 = Very Often</td>
</tr>
</tbody>
</table>

**Question 14.** In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, how much do you agree or disagree with the following?

14a. instegp | Students in the Interdisciplinary Studies Programs have similar classroom experiences |
14b. instcoll | I can easily relate to other students in the Interdisciplinary Studies Program |
14c. instadv | The Interdisciplinary Studies Program traditions and celebrations play an important role in my life as a student |
14d. instbel | My experiences in the Interdisciplinary Studies Program increase my sense of belonging |
14e. instint | The Interdisciplinary Studies Program allows me to interact with other students like me |
14f. instw| Have classes with other Interdisciplinary Studies students |

**Question 15.** On a scale of 1-7, how much do you agree or disagree with the following?

15a. instst | Students in the Interdisciplinary Studies Programs have similar classroom experiences |
15b. instsoc | I can easily relate to other students in the Interdisciplinary Studies Program |
15c. instcult | The Interdisciplinary Studies Program traditions and celebrations play an important role in my life as a student |
15d. instbel | My experiences in the Interdisciplinary Studies Program increase my sense of belonging |
15e. instint | The Interdisciplinary Studies Program allows me to interact with other students like me |
15f. instw | Have classes with other Interdisciplinary Studies students |

**Question 16.** How much do you agree or disagree with the following?

16a. instint | My experiences in the Interdisciplinary Studies Program increase my sense of belonging |
16b. instsoc | The Interdisciplinary Studies Program traditions and celebrations play an important role in my life as a student |
16c. instcult | I can easily relate to other students in the Interdisciplinary Studies Program |
16d. instst | Students in the Interdisciplinary Studies Programs have similar classroom experiences |
16e. instw | Have classes with other Interdisciplinary Studies students |

**Question 17.** How much do you agree or disagree with the following?

17a. workh | About how many hours do you spend in a typical 7-day week working for pay on campus while you are a student in the Interdisciplinary Studies Program at the University of Central Florida? |
17b. workf | About how many hours do you spend in a typical 7-day week working for pay off campus while you are a student in the Interdisciplinary Studies Program at the University of Central Florida? |
17c. worser | About how many hours do you spend in a typical 7-day week participating in extracurricular activities (organizations, campus publications, student government, intramural or sport teams, clubs or intramural sports, etc.) while a student in the Interdisciplinary Studies Program at the University of Central Florida? |
17d. worcor | Select the circle that best represents the quality of your relationships with other students in the Interdisciplinary Studies Program at the University of Central Florida |
17e. worfac | Select the circle that best represents the quality of your relationships with faculty in the Interdisciplinary Studies Program at the University of Central Florida |

**Question 18.** To what extent does the Interdisciplinary Studies Program at the University of Central Florida emphasize each of the following?

18a. Unavailable, Unhelpful, Unsympathetic |
18b. Available, Helpful, Sympathetic |

---

* Eight revisions from last year; ** Significant revisions from last year or new variable created; *** New variable
<table>
<thead>
<tr>
<th>Item #</th>
<th>Variable</th>
<th>Variable Label</th>
<th>Possible Values and Labels</th>
</tr>
</thead>
<tbody>
<tr>
<td>22a</td>
<td>envs3</td>
<td>Spending significant amounts of time studying and on academic work</td>
<td>1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much</td>
</tr>
<tr>
<td>22b</td>
<td>envs5pt</td>
<td>Providing the support you need to help you succeed academically</td>
<td>1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much</td>
</tr>
<tr>
<td>22c</td>
<td>envs6</td>
<td>Encouraging contact among students from different economic, social, and racial or ethnic backgrounds</td>
<td>1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much</td>
</tr>
<tr>
<td>22d</td>
<td>envs8</td>
<td>Helping you cope with your non-academic responsibilities (work, family, etc.)</td>
<td>1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much</td>
</tr>
<tr>
<td>22e</td>
<td>envs9</td>
<td>Providing the support you need to thrive socially</td>
<td>1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much</td>
</tr>
<tr>
<td>22f</td>
<td>envvent</td>
<td>Attending campus events and activities (special speakers, cultural performances, athletic events, etc.)</td>
<td>1 = Poor, 2 = Fair, 3 = Good, 4 = Excellent</td>
</tr>
<tr>
<td>23</td>
<td>envexp</td>
<td>How would you evaluate your entire educational experience in the Interdisciplinary Studies Program at the University of Central Florida?</td>
<td>1 = Definitely no, 2 = Probably no, 3 = Probably yes, 4 = Definitely yes</td>
</tr>
<tr>
<td>24</td>
<td>envmajo</td>
<td>If you could start over again, would you choose to major in Interdisciplinary Studies?</td>
<td>1 = Definitely no, 2 = Probably no, 3 = Probably yes, 4 = Definitely yes</td>
</tr>
<tr>
<td>25</td>
<td>birthyr</td>
<td>Select your year of birth</td>
<td>1 = 21 or younger, 2 = 22-25, 3 = 26-28, 4 = 29-30, 5 = 30-40, 6 = Over 40</td>
</tr>
<tr>
<td>26</td>
<td>sex</td>
<td>Year sex</td>
<td>1 = Male, 2 = Female</td>
</tr>
</tbody>
</table>

* Higher values from last year, ** Significant revision from last year or new variable name created, *** New variable
<table>
<thead>
<tr>
<th>Item #</th>
<th>Variable</th>
<th>Variable Label</th>
<th>Response Values and Labels</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>inter</td>
<td>Were you an international student or foreign national?</td>
<td>1 = No, 2 = Yes</td>
</tr>
<tr>
<td>28</td>
<td>race5</td>
<td>What is your racial or ethnic identification? (Select only one)</td>
<td>1 = American Indian or other Native American, 2 = Asian, Asian American, or Pacific Islander, 3 = Black or African American, 4 = White (non-Hispanic), 5 = Mexican or Mexican American, 6 = Puerto Rican, 7 = Other Hispanic or Latino, 8 = Multiracial, 9 = Other, 10 = I prefer not to respond</td>
</tr>
<tr>
<td>29</td>
<td>fathed</td>
<td>What is the highest level of education that your father completed?</td>
<td>1 = Did not finish high school, 2 = Graduated from high school, 3 = Attended college but did not complete degree, 4 = Completed an associate’s degree (A.A., A.S., etc.), 5 = Completed a bachelor’s degree (B.A., B.S., etc.), 6 = Completed a master’s degree (M.A., M.S., etc.), 7 = Completed a doctoral degree (Ph.D., J.D., M.D., etc.)</td>
</tr>
<tr>
<td>30</td>
<td>mothed</td>
<td>What is the highest level of education that your mother completed?</td>
<td>1 = Did not finish high school, 2 = Graduated from high school, 3 = Attended college but did not complete degree, 4 = Completed an associate’s degree (A.A., A.S., etc.), 5 = Completed a bachelor’s degree (B.A., B.S., etc.), 6 = Completed a master’s degree (M.A., M.S., etc.), 7 = Completed a doctoral degree (Ph.D., J.D., M.D., etc.)</td>
</tr>
</tbody>
</table>

* Slight revision from last year. ** Significant revision from last year or new variable in current year. *** New variable
# Interdisciplinary Studies Student Survey of Engagement

## Codebook

<table>
<thead>
<tr>
<th>Item#</th>
<th>Variable</th>
<th>Variable Label</th>
<th>Response Options and Value</th>
</tr>
</thead>
</table>
| 1     | grad     | When did you graduate from the Interdisciplinary Studies Program at UCF? | 1 - Summer 2016 (August 2016)  
2 - Fall 2016 (December 2016)  
3 - Spring 2017 (May 2017)  
4 - Summer 2017 (August 2017)  
5 - Fall 2017 (December 2017)  
6 - Spring 2018 (May 2018)  
7 - Summer 2018 (August 2018)  
8 - Fall 2018 (December 2018)  
9 - Spring 2019 (May 2019) |
| 2     | course    | Did you complete [d}STA126A Course Experience in Interdisciplinary Studies? | 1 - Yes  
2 - No |
| 3     | comp      | Did you complete [d}STA126B Course Experience in Interdisciplinary Studies? | 1 - Yes  
2 - No |
| 4     | excl      | How would you characterize the quality of your mentorship? | 1 - Very satisfied  
2 - Satisfied  
3 - Neutral  
4 - Dissatisfied  
5 - Very dissatisfied |
| 5     | dur       | Did you take the majority of your courses entirely online? | 1 - Yes  
2 - No |
| 6     | bow       | Which of the following best describes your major in the majority of your time at UCF? | 1 - Chemistry or other sciences (not business or engineering)  
2 - Economics, Finance, Accounting, or business  
3 - Liberal Arts, Humanities, or other liberal arts  
4 - Social Sciences, many of which are within the College of Social Sciences  
5 - None of the above |
| 7     | major     | Did you lose college at UCF as an elect? | 1 - Started at UCF  
2 - Started elsewhere |
| 8     | inst      | Were you involved in a social fraternity or sorority? | 1 - Yes  
2 - No |
| 9     | alumn     | Were you a student athlete in a team-sponsor by your UCF’s athletics department? | 1 - Yes  
2 - No |
| 10    | uscmp     | What was your overall GPA when you graduated from UCF? | 3.0-3.4 = 1  
3.5-3.8 = 2  
3.9-4.0 = 3  
2.0-2.9 = 4  
2.0-1.0 = 5 |

* Eight months left year. ** Eighteen months left year. *** Ten months left year. ** ** Twenty months left year.
### Interdisciplinary Studies Student Survey of Engagement

**Codebook**

**Question 15:** In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, about how often did you do each of the following?

<table>
<thead>
<tr>
<th>Question 15</th>
<th><strong>Variable</strong></th>
<th><strong>Variable Label</strong></th>
<th><strong>Response Scale and Notes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>15a.</td>
<td>at least</td>
<td>Admitted questions in class or contributed to class discussions</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
<tr>
<td>15b.</td>
<td>during</td>
<td>Made a class presentation</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
<tr>
<td>15c.</td>
<td>overview</td>
<td>Prepared texts or other materials before attending class</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
<tr>
<td>15d.</td>
<td>integrate</td>
<td>Worked on a paper or project that required integrating ideas or information from outside source</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
<tr>
<td>15e.</td>
<td>diversify</td>
<td>Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
<tr>
<td>15f.</td>
<td>delay</td>
<td>Visited the class without completing readings or assignments</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
<tr>
<td>15g.</td>
<td>discuss</td>
<td>Worked with other students on projects during class</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
<tr>
<td>15h.</td>
<td>explain</td>
<td>Worked with classmates outside of class to prepare class assignments</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
</tbody>
</table>

**Question 16:** In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, about how often did you do each of the following?

<table>
<thead>
<tr>
<th>Question 16</th>
<th><strong>Variable</strong></th>
<th><strong>Variable Label</strong></th>
<th><strong>Response Scale and Notes</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>16a.</td>
<td>out of class</td>
<td>Participated in workshops or other events outside of class</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
<tr>
<td>16b.</td>
<td>share</td>
<td>Shared ideas or concepts from different courses when completing assignments or during class discussions</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
<tr>
<td>16c.</td>
<td>encourage</td>
<td>Participated in a community-based project (e.g., service learning) as part of a regular course</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
<tr>
<td>16d.</td>
<td>email</td>
<td>Used email to communicate with an instructor</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
<tr>
<td>16e.</td>
<td>discuss</td>
<td>Discussed or disagreed with an instructor</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
<tr>
<td>16f.</td>
<td>share</td>
<td>Shared ideas or concepts from outside of class</td>
<td>1 = Rarely, 2 = Occasionally, 3 = Sometimes, 4 = Very often</td>
</tr>
</tbody>
</table>

* Eighteen or less; ** Significant (t-test); *** Very significant (t-test)
### Interdisciplinary Studies Student Survey of Engagement

#### Codebook

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Response Value</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>13b</td>
<td>workload</td>
<td>1 = Never</td>
<td>2 = Sometimes</td>
</tr>
<tr>
<td>13c</td>
<td>friendly</td>
<td>1 = No</td>
<td>2 = Some</td>
</tr>
<tr>
<td>13d</td>
<td>difficulty</td>
<td>1 = No</td>
<td>2 = Some</td>
</tr>
</tbody>
</table>

#### Question 14: In your experience as a student in the Interdisciplinary Studies Program at the University of Central Florida, how much do you agree or disagree with the following?

| 14a | Unlike other students in the Interdisciplinary Studies Program, my course experiences were enjoyable. | 1 = Strongly Disagree | 2 = Disagree | 3 = Agree | 4 = Strongly Agree |
| 14b | I am more than satisfied with my experience in the Interdisciplinary Studies Program. | 1 = Very Little | 2 = Little | 3 = Extensive | 4 = Very Much |
| 14c | The Interdisciplinary Studies Program has increased my sense of belonging. | 1 = Strongly Disagree | 2 = Disagree | 3 = Agree | 4 = Strongly Agree |
| 14d | The Interdisciplinary Studies Program has increased my interest in new fields. | 1 = Strongly Disagree | 2 = Disagree | 3 = Agree | 4 = Strongly Agree |

#### Question 15: How did the Interdisciplinary Studies Program prepare you for the workforce or graduate school?

| 15a | The program's focus on interdisciplinary skills helped prepare me for the workforce. | 1 = Strongly Disagree | 2 = Disagree | 3 = Agree | 4 = Strongly Agree |
| 15b | The program's coursework aligned well with the workforce needs. | 1 = Strongly Disagree | 2 = Disagree | 3 = Agree | 4 = Strongly Agree |

#### Question 16: Which of the following did you complete during your time as a student in the Interdisciplinary Studies Program at the University of Central Florida?

| 16a | I participated in a research project with a faculty member outside of class. | 1 = Never completed | 2 = Partially completed | 3 = Completed |
| 16b | I completed a research project with a faculty member outside of class. | 1 = Never completed | 2 = Partially completed | 3 = Completed |

* Eight implies last year. ** Significant differences last years over observation years. *** Other variables.
<table>
<thead>
<tr>
<th>Codebook</th>
<th>Question</th>
<th>Response Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>285</td>
<td>Q17</td>
<td>How many hours did you spend on research?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. 0 hours per week</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. 1-5 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. 6-10 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. 11-15 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. 16-20 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. 21-25 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. &gt; 25 hours</td>
</tr>
<tr>
<td></td>
<td>Q18</td>
<td>How many hours did you spend on coursework?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. 0 hours per week</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. 1-5 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. 6-10 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. 11-15 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. 16-20 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6. 21-25 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. &gt; 25 hours</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. &gt; 30 hours</td>
</tr>
</tbody>
</table>

*Item reference*
### Interdisciplinary Studies Student Survey of Engagement

**Codebook**

<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Variable Label</th>
<th>Response Order and Labels</th>
</tr>
</thead>
<tbody>
<tr>
<td>22a</td>
<td>attended</td>
<td>Spending significant amounts of time studying and on academic work</td>
<td>1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much</td>
</tr>
<tr>
<td>22b</td>
<td>account</td>
<td>Providing the support you need to help you succeed academically</td>
<td>1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much</td>
</tr>
<tr>
<td>22c</td>
<td>account</td>
<td>Encouraging contact among students from different economic, social, and racial or ethnic backgrounds</td>
<td>1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much</td>
</tr>
<tr>
<td>22d</td>
<td>account</td>
<td>Helping you cope with your non-academic responsibilities (work, family, etc.)</td>
<td>1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much</td>
</tr>
<tr>
<td>22e</td>
<td>account</td>
<td>Providing the support you need to foster sociality</td>
<td>1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much</td>
</tr>
<tr>
<td>22f</td>
<td>account</td>
<td>Attending campus events and activities (social speakers, cultural performances, athletic events, etc.)</td>
<td>1 = Very little, 2 = Some, 3 = Quite a bit, 4 = Very much</td>
</tr>
<tr>
<td>23</td>
<td>utility</td>
<td>How would you evaluate your overall educational experience in the Interdisciplinary Studies Program at the University of Central Florida?</td>
<td>1 = Poor, 2 = Fair, 3 = Good, 4 = Excellent</td>
</tr>
<tr>
<td>24</td>
<td>outcome</td>
<td>If you could start over again, would you choose to graduate with a degree in Interdisciplinary Studies?</td>
<td>1 = Definitely no, 2 = Probably no, 3 = Probably yes, 4 = Definitely yes</td>
</tr>
<tr>
<td>25</td>
<td>utility</td>
<td>Select your year of birth</td>
<td>1 = 1920-1929, 2 = 1930-1939, 3 = 1940-1949, 4 = 1950-1959, 5 = after 1960</td>
</tr>
</tbody>
</table>

* Eighteen plus last year. **Eighteen to Nineteen plus last year is one combination missed. ***Over twenty.
# Interdisciplinary Studies Student Survey of Engagement

## Codebook

<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Variable Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>sex</td>
<td>Yes (or) No</td>
</tr>
<tr>
<td>27</td>
<td>Indian</td>
<td>Were you an international student or foreign national?</td>
</tr>
<tr>
<td>38</td>
<td>race</td>
<td>What is your racial or ethnic identification? (Select only one.)</td>
</tr>
<tr>
<td>39</td>
<td>father</td>
<td>What is the highest level of education that your father completed?</td>
</tr>
<tr>
<td>40</td>
<td>mother</td>
<td>What is the highest level of education that your mother completed?</td>
</tr>
</tbody>
</table>

### race
1. American Indian or Native Alaskan
2. Asian, Asian American or Pacific Islander
3. Black or African American
4. White (not Hispanic)
5. Hispanic or Latino American
6. Puerto Rican
7. Other Hispanic or Latino
8. Multiracial
9. Other
10. I don't want to respond

### father
1. Did not finish high school
2. Completed high school
3. Attended college but did not complete degree
4. Completed an associate's degree (A.A., A.S., etc.)
5. Completed a bachelor's degree (B.A., B.S., etc.)
6. Completed a master's degree (M.A., M.S., etc.)
7. Completed a doctoral degree (Ph.D., Ed.D., M.D., etc.)

* Eight Given This last year. ** Excludes Given This last year who transferred or exited. *** Not transferable

---

287
Dear [FirstName],

You may recognize my name because I am an academic advisor in the Interdisciplinary Studies Office at the University of Central Florida and assisted you while you were a student. Today I am writing to you as a graduate student and researcher. I need your help to collect valuable data that will not only help me finish my doctoral degree but will also help enhance the quality of the Interdisciplinary Studies program.

I am asking you to participate in a brief survey regarding your experiences at UCF and in the Interdisciplinary Studies major. As a graduate of the Interdisciplinary Studies program, your experiences may have been quite unique from other UCF alumni. Your input is critical to the success of the program and the success of future Interdisciplinary Studies students.

This is a short survey, and it should take you no more than 5-10 minutes to complete. Please click on the link below to go to the survey website (or copy and paste the survey link into your internet browser).

http://www.surveymonkey.com/s/ [survey link]

Your participation in this survey is entirely voluntary, and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses in any reports of this data. There are no anticipated risks for you participating in this research. There are no financial or academic benefits from participating in this study. You must be 18 years of age or older to participate.

If you have any further questions or comments, please feel free to contact me at jessica.simmens@ucf.edu or my faculty advisor, Dr. Tammy Boyd, at tammy.boyd@ucf.edu.

Thank you for participating in this study! Your time and consideration in completing the survey will not only help the Interdisciplinary Studies Office, but will also help me complete an important requirement for my doctoral program.

Thank you,

Jessica (B)romer Simmens
Principal Investigator
Doctoral Candidate

http://www.surveymonkey.com/s/ [survey link]
University of Central Florida  
jessica.jermons@ucf.edu  
407-823-0013  

Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3240 or by telephone at (407) 823-2061.  

http://www.surveymonkey.com/insight.aspx
Dear [First Name],

Last week I sent you an email asking you to respond to a brief survey about your experiences as an Interdisciplinary Studies student. I need your help to collect valuable data that will not only help me finish my doctoral degree but will also help enhance the quality of the Interdisciplinary Studies program.

I noticed that you have not yet taken this survey, and I would really appreciate if you could take about 15 minutes of your time to complete it. Please click on the link below to go to the survey website (or copy and paste the survey link into your internet browser).

http://www.surveymonkey.com/s.php

Your participation in this survey is entirely voluntary and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses in any reports of the data. There are no anticipated risks for you participating in this research. There are no financial or academic benefits from participating in this study. You must be 18 years of age or older to participate.

Should you have any further questions or comments, please feel free to contact me at jessica.simmons@ucf.edu or my faculty advisor, Dr. Tammy Boyd, at tammy.boyd@ucf.edu.

If you do not complete this survey, I will send you one more reminder email next week, but I will not contact you again after that. I hope that you will help me by completing this survey.

Thank you,

Jessica Simmons
Principal Investigator
Doctoral Candidate
University of Central Florida
jessica.simmons@ucf.edu

940-333-0311

Research at the University of Central Florida involving human participants is carried out under the oversight of the...
Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3248 or by telephone at (407) 823-2001.

http://www.surveymonkey.com/optout.aspx

« Back to Messages List
Dear [First Name],

For the last five weeks, I have sent you emails asking you to respond to a brief survey about your experiences as an Interdisciplinary Studies student. I need your help to collect valuable data that will not only help me finish my doctoral degree but will also help enhance the quality of the Interdisciplinary Studies program.

I noticed that you have not yet taken this survey, and I would really appreciate if you could take about 15 minutes of your time to complete it. Please click on the link below to go to the survey website or copy and paste the survey link into your internet browser.

http://www.surveymonkey.com/s/ESq6VT

Your participation in this survey is entirely voluntary and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses in any reports of this data. There are no anticipated risks to you participating in this research. There are no financial or academic benefits from participating in this study; you must be 18 years of age or older to participate.

If you have any further questions or comments, please feel free to contact me at Jessica.Simmons@ucf.edu or my faculty advisor, Dr. Tammy Boyd, at Tammy.Boyd@ucf.edu.

This will be my last email to the email address regarding this survey, I hope that you will help me by completing this survey.

Thank you,

Jessica (Berenson) Simmons
Principal Investigator
Doctoral Candidate
University of Central Florida
Jessica.simmons@ucf.edu
407-823-3213

Research at the University of Central Florida involving human participants is carried out under the oversight of the

http://www.surveymonkey.com/MyCollector_Message_Summary.spp?surveyName=MVfgSEBPtX6aMTdpmi8kMgZzbpMj7Qe8B000eH3H76133031.9:59:00 AM]
From: Jessica Simmons  
To: Joanne Muratori  
CC: Janice Turchin; Tammy Boyd  
Date: Wednesday, December 22, 2010 1:30 PM  
Subject: Re: Fwd: IRB for Pilot Study

Hello Joanne,

Thank you for your response. I only intend to use the results of the pilot to validate my instrument, finalize my questions, and I will not be using this data for "generalizable knowledge". I will submit the final study to IRB in advance of conducting my dissertation research.

Happy Holidays!

Jessica Simmons  
Academic Advisor  
Office of Interdisciplinary Studies  
University of Central Florida  
jsimon@mail.ucf.edu  
407-823-0144  
Fax: 407-823-2028

UCF Stands for Opportunity

>>> Joanne Muratori 12/22/10 12:01 PM >>>

Jessica:

If the your purpose in doing the "pilot" is to obtain feedback as to the questions used, how the survey is completed, etc. in preparation for your research, and you will not use the data to produce "generalizable knowledge," then it is not considered to be "human subjects research" and does not need to be submitted to the IRB.

Just confirm that is what you plan to do and that you will submit the study to the IRB in advance of conducting your dissertation research so that you have IRB approval, as required.

If you have questions or think we need to talk about this further, please phone the IRB office at 407-823-2901. We are here until 5:00 p.m. and will return to the office tomorrow at 8:00 a.m.

Regards,

Joanne
IRB info at www.research.ucf.edu/Compliance/irb.html

Joanne Muratori, CIM  
University of Central Florida  
Office of Research & Commercialization  
12201 Research Parkway, Suite 501  
Orlando, FL 32826–3246  
E-mail: jmurator@mail.ucf.edu  
Phone: 407–823–2901  
Fax: 407–823–3299

>>> Jessica Simmons 12/22/2010 11:51 AM >>>
Hello Joanne,

I sent the following email to you back on November 30, but I haven’t heard back from you. Is there someone else that I should email?

Thank you,

Jessica Simmons  
Academic Advisor  
Office of Interdisciplinary Studies  
University of Central Florida  
jsimmon@mail.ucf.edu  
407–823–0144  
Fax: 407–823–2028  

UCF Stands for Opportunity


>>> Jessica Simmons 11/30/10 5:42 PM >>>
Hello Joanne,

I am a doctoral student working on my dissertation, and I was just emailing you to get clarification on one question that I had regarding the IRB process. For my dissertation I am creating a survey and will be doing a pilot study to validate the instrument. I will not be reporting the results of the pilot. Do I need to submit an IRB request for the pilot study?
Thank you,

Jessica Simmons  
Academic Advisor  
Office of Interdisciplinary Studies  
University of Central Florida  
jsimmon@mail.ucf.edu  
407–823–0144  
Fax: 407–823–2028

UCF Stands for Opportunity
Dear [Firstname],

You may recognize my email address because I am one of the academic advisors in the Interdisciplinary Studies Office. However, today I am writing you as a fellow student and researcher. I need your help to collect valuable data that will not only help me finish my doctoral degree but will also enhance the quality of the Interdisciplinary Studies program.

I am asking juniors and seniors like you to participate in a brief survey regarding your experiences at UCF and in the Interdisciplinary Studies major. As a student in the Interdisciplinary Studies program, some of your experiences may be quite unique from other students at UCF. Your input is critical to the success of the program and the success of future Interdisciplinary Studies students.

This is a short survey and should take you no more than 15 minutes to complete. As a token of my appreciation, you may enter a drawing to win a $25 Visa Gift Card after completing the survey. Please click on the link below to go to the survey website (or copy and paste the survey link into your internet browser).


Your participation in this survey is entirely voluntary and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses in any reports of this data. Should you have any further questions or comments, please feel free to contact me at jsimmons@mail.ucf.edu or 407-823-0015.

Thank you for participating in this study! Your time and consideration in completing the survey will not only help the Interdisciplinary Studies Office, but will also help me complete an important requirement for my doctoral program. I wish you the best of luck in accomplishing your degree program as well.

Thank you,

Jessica Simmons
Doctoral Candidate
Academic Advisor
University of Central Florida
jsimmons@mail.ucf.edu
407-823-0015

Interdisciplinary Studies Survey of Student Engagement Pilot

Message Summary

Message Delivery Schedule
Delivery completed on January 18, 2011 6:52 PM.

Message Recipients
The message mailed to 6 recipients(s).

Message Preview
Below is a preview of your message based on the first recipient in your list ([Email]).

To: [Email]
From: jimmon@mail.ucf.edu
Subject: Advising Survey - Chance to Win Visa Gift Card
Body: January 18, 2011

Dear [FirstName]:

Last week I sent you an email asking you to respond to a brief survey about your experiences as an Interdisciplinary Studies student. I need your help to collect valuable data that will not only help me finish my doctoral degree but will also help enhance the quality of the Interdisciplinary Studies program.

I noticed that you have not yet taken this survey, and I would really appreciate it if you could take about 15 minutes of your time to complete it. As a token of my appreciation, you may enter a drawing to win a $25 Visa Gift Card after completing the survey. Please click on the link below to go to the survey website (or copy and paste the survey link into your internet browser).

http://www.surveymonkey.com/k.aspx

Your participation in this survey is entirely voluntary and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses in any reports of this data. Should you have any further questions or comments, please feel free to contact me at jimmon@mail.ucf.edu or 407-823-0013.

If you do not complete this survey, I will send you one more reminder email at the end of the week, but I will not contact you again after that. I hope that you will help me by completing this survey.

Thank you,

Jessica Simmons
Doctoral Candidate
Academic Advisor
University of Central Florida
jimmon@mail.ucf.edu
407-823-0013

http://www.surveymonkey.com/koptout.aspx

< Back to Messages List
New Email Invitation

Message Summary

Message Delivery Schedule
Delivery completed on January 23, 2011 3:33 PM.

Message Recipients
The message mailed to 451 recipient(s).

Message Preview
Below is a preview of your message based on the first recipient in your list (Email).

To: [Email]
From: jsimmon@mail.ucf.edu
Subject: Last Chance to Complete Survey and Win Visa Gift Card!
Body: January 23, 2011

Dear [First Name],

For the last two weeks I have sent you emails asking you to respond to a brief survey about your experiences as an Interdisciplinary Studies student. I understand that some of these emails may have gone to your spam mail. I apologize for that. I need your help to collect valuable data that will not only help me finish my doctoral degree but will also help enhance the quality of the Interdisciplinary Studies program.

I noticed that you have not yet taken this survey, and I would really appreciate it if you could take about 15 minutes of your time to complete it. As a token of my appreciation, you may enter a drawing to win a $25 Visa Gift Card after completing the survey. Please click on the link below to go to the survey website (or copy and paste the survey link into your internet browser).

http://www.surveymonkey.com/v.aspx

Your participation in this survey is entirely voluntary and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses in any reports of this data. Should you have any further questions or comments, please feel free to contact me at jsimmon@mail.ucf.edu or 407-823-3013.

This will be my last email regarding this survey. I hope that you will help me by completing this survey.

Thank you,

Jessica Simmons
Doctoral Candidate
Academic Advisor
University of Central Florida
jsimmon@mail.ucf.edu
407-823-3013

http://www.surveymonkey.com/voptout.aspx
APPENDIX K
FACTOR ANALYSIS MATRIX
<table>
<thead>
<tr>
<th></th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
<th>Factor 5</th>
<th>Factor 6</th>
<th>Factor 7</th>
<th>Factor 8</th>
<th>Factor 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>isbelong</td>
<td>.806</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>isinter</td>
<td>.790</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>istrate</td>
<td>.749</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>isrelate</td>
<td>.680</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>envstu</td>
<td>.584</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>isclexp</td>
<td>.504</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>isclass</td>
<td>.484</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>facideas</td>
<td>.476</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>commproj</td>
<td>.681</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>volntr04</td>
<td>.667</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>facother</td>
<td>.538</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>facplans</td>
<td>.531</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>intern04</td>
<td>.520</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tutor</td>
<td>.517</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>resrch04</td>
<td>.502</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>lrncom04</td>
<td>.497</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>envsocal</td>
<td></td>
<td>.887</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>envnacad</td>
<td></td>
<td>.820</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>envdivrs</td>
<td></td>
<td>.767</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>envevent</td>
<td></td>
<td>.679</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>envsuprt</td>
<td></td>
<td>.552</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>occgrp</td>
<td></td>
<td></td>
<td>.637</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>classgrp</td>
<td></td>
<td></td>
<td>.620</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>clpresen</td>
<td></td>
<td></td>
<td>.585</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cocurr01</td>
<td></td>
<td></td>
<td>.362</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>entirexp</td>
<td></td>
<td></td>
<td></td>
<td>.748</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>envfac</td>
<td></td>
<td></td>
<td></td>
<td>.693</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>samecoll</td>
<td></td>
<td></td>
<td></td>
<td>.556</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>stdabr04</td>
<td></td>
<td></td>
<td></td>
<td>.225</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>intideas</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.691</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>divclass</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.637</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>email</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.634</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>integrat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.605</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facgrade</td>
<td>.488</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oocideas</td>
<td>.485</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Itacadem</td>
<td>.438</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divrstud</td>
<td>.948</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diffstu2</td>
<td>.880</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rewropap</td>
<td>.626</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workhard</td>
<td>.518</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clquest</td>
<td>.483</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exams</td>
<td>.469</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faceed</td>
<td>.443</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clunprep</td>
<td>.358</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Envschol</td>
<td>.467</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.
APPENDIX L
ITEMS AND FACTORS FOR FINAL ISSUES
<table>
<thead>
<tr>
<th>NSSE Item #</th>
<th>NSSE Variable</th>
<th>New Variable</th>
<th>Survey Question # (question-part)</th>
<th>Factors</th>
<th>RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>graduate</td>
<td></td>
<td></td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>compcorn</td>
<td></td>
<td></td>
<td>Bio</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>compcap</td>
<td></td>
<td></td>
<td>Bio</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>enrolment</td>
<td></td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>--</td>
<td>disted</td>
<td></td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>livenow</td>
<td></td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>enter</td>
<td></td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>fratsoro</td>
<td></td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>24a</td>
<td>athlete</td>
<td></td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>overgpa</td>
<td></td>
<td></td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1a</td>
<td>clquest</td>
<td>11-a</td>
<td>Active</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1b</td>
<td>clpresen</td>
<td>11-b</td>
<td>Peers</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1c</td>
<td>rewropap</td>
<td>11-c</td>
<td>Active</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1d</td>
<td>integrat</td>
<td>11-d</td>
<td>Integrate</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1e</td>
<td>divclass</td>
<td>11-e</td>
<td>Integrate</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1f</td>
<td>clunprep</td>
<td>11-f</td>
<td>Active</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1g</td>
<td>classgrp</td>
<td>11-g</td>
<td>Peers</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1h</td>
<td>occgrp</td>
<td>11-h</td>
<td>Peers</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1i</td>
<td>intideas</td>
<td>12-a</td>
<td>Integrate</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1j</td>
<td>tutor</td>
<td>12-b</td>
<td>Out-of-class</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1k</td>
<td>commproj</td>
<td>12-c</td>
<td>Out-of-class</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1m</td>
<td>email</td>
<td>12-d</td>
<td>Faculty</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1n</td>
<td>facgrade</td>
<td>12-e</td>
<td>Faculty</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1o</td>
<td>facplans</td>
<td>12-f</td>
<td>Faculty</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1p</td>
<td>facideas</td>
<td>12-g</td>
<td>Faculty</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1r</td>
<td>workhard</td>
<td>13-a</td>
<td>Active</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1s</td>
<td>facother</td>
<td>13-b</td>
<td>Faculty</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1t</td>
<td>oocideas</td>
<td>13-c</td>
<td>Integrate</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1u</td>
<td>divrstud</td>
<td>13-d</td>
<td>Diversity</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>1v</td>
<td>diffstu2</td>
<td>13-e</td>
<td>Diversity</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>isclexp</td>
<td></td>
<td>14-a</td>
<td>Shared</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>isrelate</td>
<td></td>
<td>14-b</td>
<td>Shared</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>istrad</td>
<td></td>
<td>14-c</td>
<td>Shared</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>isbelong</td>
<td></td>
<td>14-d</td>
<td>Shared</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>isinter</td>
<td></td>
<td>14-e</td>
<td>Shared</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>isclass</td>
<td></td>
<td>14-f</td>
<td>Shared</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>exams</td>
<td>15</td>
<td>Active</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>7a</td>
<td>intern04</td>
<td>16-a</td>
<td>Out-of-class</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>7b</td>
<td>volntr04</td>
<td>16-b</td>
<td>Out-of-class</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>7c</td>
<td>lrncom04</td>
<td>16-c</td>
<td>Out-of-class</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>7d</td>
<td>resrch04</td>
<td>16-d</td>
<td>Out-of-class</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>9b</td>
<td>workon01</td>
<td>17</td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>9c</td>
<td>workof01</td>
<td>18</td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10a</td>
<td>envschol</td>
<td>19-a</td>
<td>Challenge</td>
<td>1,2,3</td>
<td></td>
</tr>
<tr>
<td>10b</td>
<td>envsuprt</td>
<td>19-b</td>
<td>Satisfaction</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>10c</td>
<td>envdivrs</td>
<td>19-c</td>
<td>Satisfaction</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>10d</td>
<td>envnacad</td>
<td>19-d</td>
<td>Satisfaction</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>10e</td>
<td>envsoca</td>
<td>19-e</td>
<td>Satisfaction</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>10f</td>
<td>envevent</td>
<td>19-f</td>
<td>Satisfaction</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>entirexp</td>
<td>20</td>
<td>Satisfaction</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>samecoll</td>
<td>21</td>
<td>Satisfaction</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>birthyr</td>
<td>22</td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>sex</td>
<td>23</td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>internat</td>
<td>24</td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>race05</td>
<td>25</td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>27a</td>
<td>fathredu</td>
<td>26</td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>27b</td>
<td>mothredu</td>
<td>27</td>
<td>Bio</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX M
IRB APPROVAL OF EXEMPT HUMAN RESEARCH
Approval of Exempt Human Research

From: University of Central Florida Institutional Review Board #1
FWA0000351, IRB0001138

To: Jessica Lynn Simmons

Date: April 21, 2011

Dear Researcher:

On 4/21/2011, the IRB approved the following activity as human participant research that is exempt from regulation:

<table>
<thead>
<tr>
<th>Type of Review:</th>
<th>Exempt Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Title:</td>
<td>INTERDISCIPLINARY STUDIES ACADEMIC PROGRAM ENGAGEMENT</td>
</tr>
<tr>
<td>Investigator:</td>
<td>Jessica Lynn Simmons</td>
</tr>
<tr>
<td>IRB Number:</td>
<td>SBE-11-07630</td>
</tr>
<tr>
<td>Funding Agency:</td>
<td>Grant Title:</td>
</tr>
<tr>
<td>Research ID:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Kendra Dimond Campbell, MA, JD, UCF IRB Interim Chair, this letter is signed by:

Signature applied by Joanne Muratori on 04/21/2011 08:46:03 AM EDT

IRB Coordinator
REFERENCES


318


http://portal.acm.org/citation.cfm?id=1150034.1150193&coll=portal&dl=ACM&CFID=60602591&CFTOKEN=80571898


*Distance Education Report, 10*(24), 4&7.


*College Student Journal, 29*(3), 270-277.


Rovai, A. P. (2002). Building sense of community at a distance. *International Review of Research in Open and Distance Learning, 3*(1), 1-16.


common ground (pp. 87-106). Washington, DC: AAHE/Carnegie Foundation for the Advancement of Teaching.


