

FACEBOOK USE AND ENGAGEMENT OF  
COLLEGE FRESHMEN

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## ABSTRACT

### FACEBOOK USE AND ENGAGEMENT OF COLLEGE FRESHMEN

The purpose of this research was to investigate the effects of intensity of Facebook use and compare the effects of Facebook use with retention program participation on the engagement of college freshmen. The sample consisted of 141 freshmen at the University of West Florida (UWF). The participants were surveyed using questions from the National Survey of Student Engagement (NSSE) and the Facebook Intensity Scale. Participants were compared on engagement, intensity of Facebook use, and participation in a first-year seminar and/or living learning community. The data were analyzed through ANOVA, Kruskal-Wallis, MANOVA, *t-test*, and regression analysis. No significant difference in NSSE means was found between intensity of Facebook user groups. No significant causal relationship was found between individual Facebook Intensity Scale scores and NSSE scores. A significant difference in NSSE means was found between participants and non-participants in the living learning community. No significant difference in NSSE group means was found between participants and non-participants in the first-year seminar course. No significant difference in NSSE means was found between the combination of intensity of Facebook use and program participation groups. While Facebook did not have a significant effect on freshmen engagement in this data set, the website is highly used by college freshmen and could be a supplement to higher education retention programming.

# CHAPTER I

## INTRODUCTION

College student dropout is one of the foremost concerns for college and university administrators, government officials, parents, and students (Kuh, 2001). As reported in the Academic College Test (ACT) Institutional Data File (2010), 60% of students who begin college at four-year public institutions like the UWF drop out before degree attainment. Student engagement is a movement in higher education that receives attention from school and government officials because researchers (Astin, 1999; Kuh, 2001; Pascarella & Terenzini, 1998; Tinto, 1998) have found that student engagement decreases student dropout.

Students must accept some of the responsibility for dropout, but it is also the responsibility of college and university personnel to examine why students leave and what influences students to remain in school. The highest percentage of college students drop out during their freshman year (ACT Institutional Data File, 2010; Horn & Carroll, 1998; Tinto, 1993). Most institutions of higher education implement freshman year retention programs to help increase engagement and influence retention of freshmen (Barefoot, 2004). Two popular freshman retention programs are learning communities and first-year seminars. Freshmen involved in learning communities and first-year seminars have been found to be more engaged (Kuh, 2007) and persist to the sophomore year at higher rates than students who are not involved in these programs (Pascarella & Terenzini, 2005).

Despite freshmen retention programming, in 2010 the average national dropout rate for freshmen was 29.2% (Digest of Education Statistics, 2011). Astin (1975) suggests it is important to continue searching for ways to engage students in hopes of promoting retention. Facebook is an Internet-based social network site that college students use for communicating, making

friends, organizing groups and events, and gathering and disseminating information (Madge, Meek, Wellens, & Hooley, 2009; Morris et al., 2010; Reese, Beck, & Mattis, 2010). Morris et al. (2010) found that 37% of the students they studied reported that Facebook improved or enriched their academic lives and that 70% said that Facebook improved their social lives. Junco (2012a) also found that Facebook use influences engagement. Researchers have determined that students are engaging academically as well as socially on Facebook (Ellison, 2010; Selwyn, 2009).

The purpose of this study was to examine the effects of Facebook.com on the engagement of freshmen at the UWF and compare the levels of engagement of freshmen who participate in two university-based retention programs, the living learning community and the first-year seminar. The intent of the researcher was to explore whether or not Facebook use influences engagement, especially when combined with freshman retention programs. If students are using Facebook for academic and social purposes and if Facebook use influences engagement, perhaps Facebook can ultimately be incorporated into freshman retention programming.

In this chapter, an overview and the background of the study will be introduced followed by the explanation of the theoretical framework. An alignment of the statement of the problem and research questions with the theoretical framework will be presented. Then the significance of the study will be examined. In conclusion, the research design and data analysis will be presented.

### **Background of the Study**

Student dropout, also called attrition, is a concern for various stakeholders in higher education including students, institution administrators, the government, and society. Student engagement is a viable tool in promoting persistence, which is the act of remaining in school until degree attainment (Astin, 1975, 1999; Chickering & Gamson, 1987; Kuh, 2003; Tinto,

1975). Learning communities and first-year seminars are implemented by institutional administrators with the goal of retaining freshmen. Participants of learning communities and first-year seminars have been found to be more engaged than non-participants (Barefoot, 2005; Blowers, 2005; Henscheid, 2004; Zhao & Kuh, 2004). Facebook.com is not an institution-based retention program, but the majority of college students use the social networking site to communicate and exchange information (Boyd, 2004; Boyd & Heer, 2006; Donath & Boyd, 2004; Ellison, Steinfield, & Lampe, 2006; Locke, 2007). Facebook has also been found to be used for both social and academic interactions (Ellison, 2010; Fontana, 2009; Junco, 2012b; Selwyn, 2009).

In the background of the study, the concept of student engagement will be established, followed by an explanation of attrition and retention and the connection of both to engagement. Next, the effects of student attrition will be offered. Freshman retention programming will be discussed followed by an overview of what the social networking site Facebook is, how students use it, the pros and cons of Facebook use, and how the website facilitates engagement of college freshmen.

**Student engagement.** Kuh (2009) defines student engagement as “the time and effort students devote to activities that are empirically linked to desired outcomes of college and what institutions do to induce students to participate in these activities” (p. 683). Student engagement is positively linked to student outcomes including grades (Astin, 1977, 1993; Pike, Schroeder, & Berry, 1997), GPA (Fuller, Wilson, & Toblin, 2001), satisfaction with college life (McKelfresh, 1980), and persistence (Astin, 1985; Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2007; Pike et al., 1997). Institution administrators use student outcomes including engagement, grades, GPA, and satisfaction with college life as predictors of student persistence. Researchers (Astin, 1975;

Chickering & Gamson, 1987; Kuh, 2003; Tinto, 1975) have suggested that the more engaged a student is in the college experience, the better chance the student has to remain in school and graduate.

Student engagement can be characterized by academic and social engagement. Academic engagement is involvement in academic areas such as attending and participating in class, studying, talking to instructors, and collaborating with other students. Social engagement includes involvement in student groups, recreation, and social events. Academic and social engagement can influence student persistence individually, but students have been found to be most successful in college when they engage academically and socially because academic engagement influences grades and GPA and social engagement influences feelings of belonging, increases satisfaction with college life, and provides emotional support for students (Astin, 1975, 1999; Tinto, 1975, 1993).

**Retention and attrition.** Arnold (1999) describes retention as when a student re-enrolls the next academic year at the institution where he or she first enrolled. Arnold (1999) describes persistence as when a student re-enrolls until he or she obtains a degree from the institution where he or she first enrolled. The Center for Education Policy Analysis differentiates retention as an institutional measure as opposed to persistence which refers to a student measure (Hagedorn, 2005). Institutions retain, and students persist.

In academic terms, student dropout is defined as attrition. Attrition is the reduction of the student population of a college or university as a result of student transfers or dropouts (Horn & Carroll, 1998). Students who leave an institution before obtaining a degree at that institution are considered dropouts. At the end of an academic year, students (excluding graduates) who do not re-enroll from the previous semester are counted in attrition rates. There is a need to assess

attrition rates because attrition often has far reaching negative effects for students, institutions, the government, and society.

**Effects of attrition.** When students drop out of college before degree completion, the outcomes may have a negative impact on the student, the institution, the state and federal governments, and the society at large. Students who drop out of college and never complete a degree may forfeit future career opportunities, compile debt, and acquire poor credit when they cannot repay financial aid and student loans (Swail, 2004). Attrition affects institutions through loss of revenue and state and federal funding received for students. Attrition also impacts state and federal governments through loss of funding invested in students. Finally, attrition can produce negative outcomes for society at large because college graduates promote an educated workforce, add to the economy, and support civic responsibility (Ehrlich, 2000).

**Freshmen retention programming.** The largest percentage of student dropout occurs during the freshman year (Digest of Education Statistics, 2011). In the United States, approximately 32.2% of freshmen do not return for their sophomore year (ACT, 2010). Tinto (1993) states that although there are students who are suspended by the institution, most decide to leave by choice, suggesting that both the student and the institution play a role in dropout rates. Factors relating to student dropout include financial problems; academic under-preparedness; and the attitude, intentions, and development of the student (Astin, 1993).

Retention refers to the institution's ability to retain students enrolled from one year to the next (Hagedorn, 2005). Retention programs, such as support services for the problems students face, can be used as intervention programs to prevent dropout. To combat freshman attrition, programs that incorporate engagement components can be established that encourage retention. Two common retention programs for freshmen that have been found to promote engagement

are learning communities and first-year seminars (Barefoot, 2005; Blowers, 2005; Henscheid, 2004; Kinzie & Kuh, 2007; Zhao & Kuh, 2004).

***Learning communities.*** A learning community is a group of students who are co-enrolled by institution personnel in two or more courses (Malnarich, Slaon, Van Slyck, Dusenberry, & Swinton, 2003; Taylor, Moore, MacGregor, Lindblad, 2003; Tinto, 2003). This process is also called blocked scheduling. Students taking multiple classes together develop closer relationships, persist at higher rates, are more satisfied with college life, and engage more than do students who take only one class together (Inkelas & Weisman, 2003; Knight, 2003; Kuh, 2007; Pascarella & Terenzini, 2005; Taylor et al., 2003; Zhao & Kuh, 2004). When a residential component is added to a learning community, the community is called a residential or living learning community. The combination of block scheduling and living in the same dorm increases academic and social engagement (Zhao & Kuh, 2004). The UWF freshman learning community, Delphi, incorporates block scheduling with a residential component.

***First-year seminars.*** According to researchers at the National Resource Center for the First-Year Experience and Students in Transition (Keup & Webb, 2011), first-year seminar courses are designed to engage freshman with peers and faculty, teach college success strategies, and provide knowledge of resources and policies on campus. Hunter and Linder (2005) describe a first-year seminar as a course designed to “assist students in their academic and social development and in their transition to college” (p. 275-276). Researchers (Barefoot, 1993, 2005; Blowers, 2005; Henscheid, 2004; Padgett, 2011) suggest that freshmen who participate in first-year seminars are more engaged and persist at higher rates than freshmen who do not participate in first-year seminars. The UWF first-year seminar course is called the Academic Foundations Seminar.



*Non-institution-based engagement.* Students engage and often develop unique places of their own to interact. In the latter part of the 20th century college students gathered at the student union, attended sporting events, and celebrated at homecoming and dances by word of mouth and flyers. Students got to know each other in person or through the printed school photo albums. In the beginning of the 21st century, college students began using technology to meet people, communicate, promote events, and interact (Boyd, 2007). One tool that many college students use to interact in 2012 is a social network site called Facebook.com.

**Facebook.** In 2004, a group of college students at Harvard University developed a website called Facebook (Facebook Newsroom, 2013). The developers originally designed the website to mimic printed albums used to introduce Harvard students to one another. Within a year, the website use spread to most colleges in the United States, and within three years, the website expanded beyond college students to anyone 12 years of age or older with an email address (Facebook Newsroom, 2013). At the time of this study, Facebook was one of the most popular websites used by college students (Arrington, 2005; Educause Center for Applied Research [ECAR], 2010; Ellison et al., 2006; Junco, 2012b) and everyone else. In December 2012, there were 680 million Facebook members world-wide (Facebook Newsroom, 2013) and an estimated 95% to 97% of college students were users (Ellison, 2010; Junco, 2012b).

*College student use.* Facebook creators describe the website as a social utility and a tool for engagement created to help users communicate, organize groups and events, find information, and disseminate information (Locke, 2007). Facebook is primarily a social tool, but researchers have found that college students are also using Facebook to meet academic needs (Ellison, 2010; Fontana, 2009; Junco, 2012b; Selwyn, 2009). Students' use of Facebook to communicate with other students indicates that Facebook can be, and is, a tool for engagement.

**Facebook research.** Researchers have explored the relationship between Facebook use and grades and GPA (Hargittai & Hsieh, 2010; Karpinski & Duberstein, 2009; Morris et al., 2010), involvement in student activities (Higher Education Research Institute [HERI], 2007; Karpinski & Duberstein, 2009; Martin, 2009; Morris et al., 2010), time spent studying (Junco, 2012b), and persistence (Morris et al., 2010). Duration and frequency of Facebook use and number of Facebook friends are common variables in research conducted on Facebook. Ellison et al. (2006) developed the Facebook Intensity Scale to measure frequency and duration of Facebook use, number of Facebook friends, and the strength of the relationship the student has with using the website. The Facebook Intensity Scale was used in conjunction with the NSSE as the instrument in this research.

**Summary.** Attrition is a major issue in higher education that has negative impacts on students, institutions, state and federal governments, and overall societal structure. Student engagement is an important concern in higher education because students who are more engaged have higher rates of retention than students who are not engaged. Retention programs are designed to promote engagement and combat student dropout. Many retention programs are designed to engage the freshman class because the highest attrition happens during the freshman year (Digest of Education Statistics, 2011). Facebook, is not an institutionally-based engagement tool, but the majority of college students are utilizing the website at high rates for social and academic interactions.

### **Theoretical Framework**

The theoretical framework for this study is based on student engagement theory which is similar in concept to other student retention theories including student integration theory (Tinto, 1975) and student involvement theory (Astin, 1975). Social network theory was also used in this

study as a foundation for the use of Facebook as a social network in this research. The theoretical framework will be used to connect the concepts of social network theory to student retention theories and student engagement and then back to the use of the online social network Facebook.

The basic premise of this theoretical framework (Figure 1) is that a college campus is a social network. The more students integrate and engage the more likely they are to persist. Facebook is a social network found online. Facebook is also a social network within the overall college social network. Facebook has also been found to be a tool for engagement.

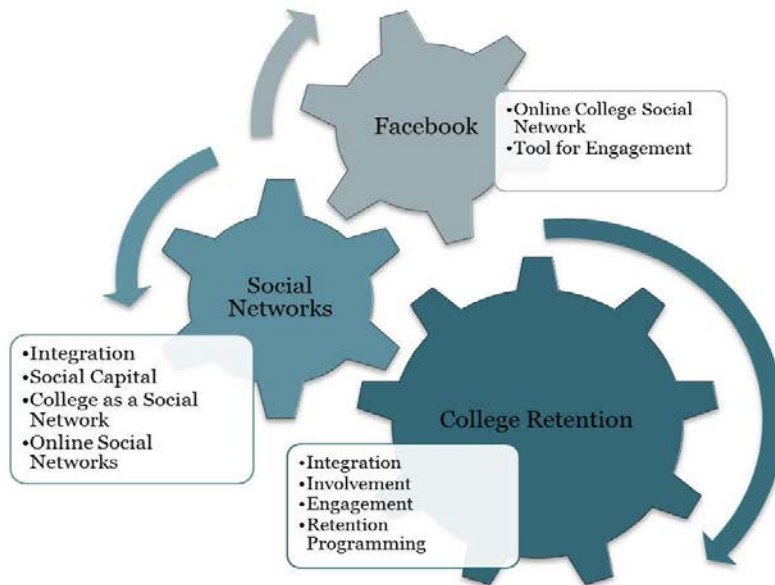


Figure 1. Diagram of theoretical framework.

**Social network theory.** A social network is a community or group and the relationships between the members of the group (Bourdieu, 1986; Coleman, 1990; Putnam, 2001). A social network is made up of smaller networks that can be broken down into separate cultures and subcultures; neighborhoods; schools; families; and, on the smallest level, individual relationships. All of the relationships that an individual has and the groups to which an individual belongs make up his or her social network. A social network can also consist of a combination of

all of the relationships between individuals within a community. Access to and participation in social networks is beneficial to the individual because members can access and transfer resources through other members of the network (Coleman, 1990; Putnam, 2001).

The basic premise of social network theory is that relationships lead to benefits and access to benefits increases as individuals form additional relationships. The benefits that social networks provide are called social capital and include support; psychological well-being; and increased access to information, resources, and opportunities that an individual may not be able to access on his or her own (Bourdieu, 1986; Coleman, 1990; Lin, 1999; Putnam, 1995, 2001; Resnick, 2002). Resources from relationships are considered a form of capital because those resources are beneficial for network members. Social capital is important because the benefits that come from relationships often lead to success for the individual and the social network as a whole (Bourdieu, 1986; Coleman, 1990; Putnam, 2001; Resnick, 2002).

Success can be defined differently depending on the social network. Within most communities, increased social capital leads to health, wealth, jobs, and support, which are factors that bring about success for individuals (Bourdieu, 1986; Coleman, 1990; Putnam, 1995; Resnick, 2002). Lin (1999) suggests that the college campus is a social network made up of students, staff, and faculty. Social capital for college students includes directions, advice, money, friendship, and support, which are vital to the success of freshmen transitioning from the home and family social network to the college social network (Ellison et al., 2006; Lin, 1999).

Integration is a common term in social network theory and higher education. According to Tinto (1975), integration is the process new individuals or outsiders go through to become part of a social network. As individuals integrate, they form relationships with current members of the network and gain access to resources within the network. Tinto describes integration

within higher education as the process freshmen go through to become a part of the community and gain access to the resources and benefits available on campus. Integration is the concept that ties social network theory to Tinto's theory of student integration.

**Online social networks.** Historically, social networks have been formed and maintained face-to-face. Researchers have found that individuals can form and maintain social networks via the Internet (Kavanaugh, Carroll, Rosson, Zin, & Reese, 2005; Kavanaugh & Patterson, 2001; Resnick, 2002; Williams, 2006) that are equal to face-to-face networks (Resnick, 2002; Rheingold, 2000; Wellman, Quan-Haase, Witte, & Hampton, 2001). Researchers (Ellison et al., 2006; Wellman, 1999) suggest that online social networks have been shown to supplement and increase an individual's face-to-face social network (Wellman et al., 2001).

Facebook is a social network website. Similar to social networks in general, Facebook is made up of smaller networks. These smaller networks are associated with not only family and friends, but also with institutions such as schools and businesses. Facebook has been extremely popular on college campuses and has become a social network within the overall campus social network.

**Student retention theories.** The underlying theories to student retention are student integration, student involvement, and student engagement. Researchers have conducted large numbers of studies on preventing freshman attrition based on student integration theory (Tinto, 1975), student involvement theory (Astin, 1975), and student engagement theory (Kuh, Gonyea, & Palmer, 2001; Kuh, Kinzie, Schuh, & Whitt, 2005). A common set of principles can be found in all of these theories; the most important principles that theorists Astin, Kuh, and Tinto have in common is that academic and social experiences of a student are important to persistence and the more students are involved and engaged, the more likely the student is to be retained.

***Student integration.*** Tinto (1975) developed the theory of student integration to account for students who drop out during the transition phase to college. Integration is the process of a freshman becoming a member of the college community. According to Tinto (1993), students have pre-college entry goals and commitments. As students begin college, they have experiences on campus. The experiences can increase a student's level of integration, thus helping maintain or strengthen the student's original academic goals and commitment to the institution. If new students have negative experiences and do not integrate into the campus community, the student's original goals and commitments can weaken. Students may base the decision to remain in or drop out from an institution on the new goals and commitments.

Social network theory shares the common component of integration with Tinto's (1975) theory of student integration. As individuals integrate, they gain access to community resources that lead to success. Tinto (1975, 1993) adds that integration is both an academic and social facet of college and argues that integration into academic areas leads to goal commitments such as grades, GPA, and degree attainment while social integration leads to higher levels of institutional commitment, influencing a student's decision to remain in school.

***Student involvement.*** As Tinto (1975) presented his theory of student integration, Astin (1975) introduced the theory of student involvement. The basis of student involvement theory is the more involved a student is academically and socially, the more likely the student is to persist. Astin (1984) depicts involvement as the amount of physical and psychological energy a student devotes to the college experience. Students invest different amounts of energy in different areas, and student success is proportional to the quantity and quality of involvement (Astin, 1984). According to Astin (1975, 1984), an involved student is "one who devotes considerable energy to academics, spends much time on campus, participates actively in student organizations and

activities, and interacts often with faculty” (p. 292). Like Tinto (1975) in relation to student integration, Astin (1984) incorporates academic and social elements within his conceptualization of student involvement. Astin (1985) also includes an element of responsibility for institutions by stating that educational effectiveness is related to the ability to create an environment which supports student involvement.

***Student engagement.*** College retention researchers often use engagement to refer to the interaction between individual students and the institution they attend (Kuh, 2001). The notion of student engagement theory is that the more students are involved in quality experiences inside and outside the classroom, the better they perform and the more likely they are to stay in school (Astin, 1975; Chickering & Gamson, 1987; Kuh, 2003; Pace, 1984; Tinto, 1975). Engagement is defined as “the quality of effort students themselves devote to educationally purposeful activities that contribute directly to desired outcomes” (Hu & Kuh, 2002, p.555).

The theory of student engagement was built on the work of several theorists. Astin (1984) found that the more students are engaged in college life, the more likely they are to persist. Pace (1984) added that students must be engaged in quality activities for the experiences to be beneficial. Astin (1984) and Pace (1984) suggest that institutional personnel have a responsibility to provide quality opportunities for engagement for students. Kuh, Schuh, and Whitt (1991) added that not only is engagement inside the classroom beneficial, but the activities that students engage in outside of the classroom also foster student learning and development.

Researchers (Astin, 1977, 1993; Fuller et al., 2001; Pike et al., 1997) have found that student engagement is a critical factor in positive student outcomes including grades and GPA. Student engagement is also positively linked to persistence (Astin, 1985; Kuh et al., 2007; Pike et al., 1997). Because of the positive influences of student engagement on student outcomes,

engagement became a new way to assess students and institutions starting in 2000 (Pike & Kuh, 2005). Chickering and Gamson (1987) reviewed 20 years of retention research and identified Seven Principles of Good Practice in Higher Undergraduate Education that are empirically linked to desired outcomes of college. The principles are student-faculty contact, active learning, prompt feedback, time on task, high expectations, experiences with diversity, and cooperation among students (Chickering & Gamson, 1987). The principles were used to develop the Benchmarks for Effective Educational Practice and the basis for the NSSE (NSSE, 2000, 2012). The benchmarks include level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, and supportive campus environment.

**Summary.** In summary, engagement is student involvement (Astin, 1975) in college-related quality activities (Pace, 1984), both social and academic (Astin, 1975; Tinto, 1975). As students engage they become integrated (Tinto, 1975) into the college community and gain additional access to benefits (social network theory), a factor which increases the likelihood of persistence. Individuals can access the relationships and benefits found within their face-to-face social networks in online social networks (Rheingold, 2000; Wellman, 1999, 2004) including websites such as Facebook (Ellison et al., 2006).

### **Statement of the Problem**

College student attrition has a negative impact on students, institutions, state and federal governments, and society. Researchers (Astin, 1993; Pascarella & Terenzini, 1991; Tinto, 1993) have consistently found that the freshman year of college is the most critical time to influence persistence. To combat freshmen attrition, freshmen retention programs are used by institutions to increase persistence. For example, institutions develop learning communities and first-year seminar courses. These programs are designed to impact academic and social engagement,



providing students with information and resources and encouraging interaction with students, faculty, and services on campus. Numerous studies have been conducted on learning communities and first-year seminar courses and how these freshmen retention programs promote engagement and in turn persistence (Kuh, 2007; Pascarella & Terenzini, 2005; Tinto, 1998; Zhao & Kuh, 2004).

Despite retention programming at institutions of higher education, in 2010, the average national first-to-second-year attrition rate was 32.3% for four-year public institutions such as the UWF (ACT, 2010). In 2011, the UWF first-to-second-year attrition rate was 25% (UWF Common Data Set, 2012). This number is lower than the national average, but still is evidence that more needs to be done to promote retention of freshmen.

Facebook has become part of the social system of a college campus. Because of the media attention given to the extensive use of Facebook by college students, there is a great interest in how Facebook use affects students. College students use Facebook to obtain and disseminate information, meet new people, form groups, and communicate (Ellison et al., 2006). Facebook is an engagement tool (Jenness, 2011; Junco, 2012a), and students use Facebook for academic and social interactions (Ellison, 2010; Selwyn, 2009).

According to Astin (1993), almost any form of student engagement in college experiences is beneficial. Engagement in the academic and social environments of college and access to resources may be reasons that engaged students are more likely to persist than unengaged students (Astin, 1993; Kuh, 2003; Tinto, 1975, 1993). Programs that provide access to the academic and social parts of campus and access to resources may increase engagement and, in turn, persistence. Facebook could be one of these programs, but at the time of this research there was limited research on Facebook and how it affects students (Abramson, 2011;

Kamenetz, 2011) and even fewer studies related to the relationship between Facebook use and student engagement.

### **Research Questions**

The researcher conducted this study as an exploration of the effects that Facebook use has on freshman engagement. Research questions were generated based on the conceptual framework and statement of the problem:

1. How does intensity of use of social networks such as Facebook influence college freshmen engagement?
2. How do institution-based retention programs such as learning communities and first-year seminar courses influence freshman engagement?
3. How do institution-based retention programs such as learning communities and first-year seminar courses influence freshman engagement when combined with intensity of Facebook use?

### **Significance of the Study**

A study on student engagement, participation in freshmen retention programs, and intensity of Facebook use may provide insights to higher education administrators, faculty, staff, and students on what activities highly engaged college freshmen are participating in and which combination of programming and Facebook use produces the most engaged students. At the time of this study, less than ten studies had been conducted on the possible link between Facebook use and student engagement. The results of this research will add to the limited current scholarly research on Facebook and engagement of college students, specifically freshmen. The results of this research could also lead to inclusion of social network sites like Facebook in retention programming.

Attrition has negative effects on the student, institution, state and federal government, and society. First, freshmen who drop-out of college may face economic and career hardships. Next, institutions that lose a large number of freshmen may lose funding which then affects state and federal budgets that support higher education. The state and federal budgets affect tax payers. Lastly, college dropouts may not contribute to the economy as much as a college graduate would, so society is negatively impacted. If Facebook promotes engagement, then use of the website by institutional personnel and students may help reduce the 25%-30% of freshmen who drop out of college on a yearly basis.

### **Research Design**

This study was a causal-comparative design. Causal-comparative design is used when comparing at least two groups on pre-existing differences (Agresti & Finlay, 2009). In this research, groups based on the independent variables of intensity of Facebook use and participation in two UWF freshman retention programs were compared on the dependent variable, student engagement. The NSSE was used to measure student engagement to find what effect engagement levels may have on the freshmen in this study. Intensity of Facebook use was measured to find out what effect intensity of Facebook use had on the freshmen in this study. Then the two measurements were combined to find the total affect that engagement and intensity of Facebook use had on college freshmen.

**Procedure.** The researcher submitted the research proposal to the UWF Institutional Review Board (IRB) and the proposal was approved. The IRB is listed in Appendix A. The data were collected through an online survey distributed to the UWF freshmen. The researcher visited a psychology class of 250 students and explained the research, the informed consent form (Appendix B), and the survey. As a result of low response rate from the psychology class, the

researcher asked for an extension of the IRB and was approved. The researcher was also approved permission to email the survey to an additional 600 freshmen who qualify for a retention program for first-generation, low-income, and minority students.

The survey was hosted on SurveyMonkey.com and emailed to the participants. The survey contained demographic and descriptive measures, questions about intensity of Facebook use, questions concerning student participation in the living learning community and first-year seminar, and questions from the NSSE. Descriptive statistics and regression analysis were used to analyze the data (Creswell, 2010). The data collected were kept on the SurveyMonkey website and downloaded into Excel and Statistical Package for the Social Sciences (SPSS) software for analysis. Data analysis procedures included ANOVA, *t-test*, MANOVA, Kruskal-Wallis test, and Tukey HSD post-hoc statistics. The data were analyzed and incorporated into the dissertation in tables and narrative form.

**Participants.** The population for this study consisted of freshmen at the UWF. The freshman class for the Spring 2012 semester consisted of 1,290 students (UWF Office of Institutional Research, personal communication, March 10, 2012). Approximately 345 freshmen were enrolled in the first-year seminar during the Fall 2011 semester. The first-year seminar is only offered in the Fall semester. Of the 1,290 freshmen enrolled at the UWF, approximately 296 freshmen participated in the living learning community, Delphi (UWF Office of Housing, personal communication, March 10, 2012). Eight of the first-year seminar courses were reserved for Delphi participants and 135 of the 296 Delphi students were enrolled in a first-year seminar course (UWF Office of the Registrar, personal communication, March 10, 2012).

The sample consisted of 141 freshmen; 90 participants came from the psychology class, and 51 participants came from the 600 additional freshmen included in the study as a result of low

response rate from the psychology class. The list of additional freshmen was obtained from the Office of Student Success Programs, and the participants consisted of first-generation and minority students. Because parental education and ethnicity have been found to influence student engagement, the variables of parental education and ethnicity were analyzed to explore if the variables had any effect on engagement in this study.

**Instrument.** The survey instrument for this research contained demographic and descriptive measures and questions from the NSSE and the Facebook Intensity Scale (Ellison et al., 2006). The NSSE is designed to assess student engagement. The Facebook Intensity Scale was designed to assess how students use Facebook and the intensity of that use. Among other general descriptive and demographic measures, the survey included questions concerning whether or not students participated in the UWF freshmen retention programs, the living learning community, and/or the first-year seminar.

**Data analysis.** The researcher analyzed the data through descriptive statistics and regression analysis. First, the nominal data from the survey were analyzed with descriptive statistics, and the survey participants were compared based on demographics. Second, the respondents were grouped based on intensity of Facebook use, and the NSSE means for each group were compared using an ANOVA statistic. Third, because some of the intensity groups contained fewer than 20 participants after the ANOVA was performed, a Kruskal-Wallis test was performed to enhance reliability of findings. Fourth, for further exploration, the intensity of Facebook use groups were combined into above average and below average intensity users based on whether the intensity score fell above or below the sample mean. The group NSSE means of the above average intensity and below average intensity groups were then compared using a *t*-test.

Fifth, the sample was grouped based on participation in the living learning community, first-year seminar, combined participation in the living learning community and first-year seminar, and non-participants. Sixth, the sample was broken down into groups based on intensity of Facebook use and participation in retention programs and compared on NSSE means using a MANOVA, Kruskal-Wallis, and Tukey HSD post-hoc statistics. Last, using a regression analysis the causal relationship between intensity of Facebook use and NSSE scores were investigated.

### **Definition of Key Terms**

*Academic activities.* Academic activities in this study are described in the NSSE survey as time spent participating in activities such as studying, reading, writing, doing homework, analyzing data, rehearsing, and other academic activities.

*Academic engagement.* Degree to which a college student is connected to other individuals in the academic aspects of the college social network (Lotkowski, Robbins, & Noeth, 2004).

*Attrition.* Reduction in the student population of a college or university as a result of transfers or dropouts (Bean, 1980).

*Co-curricular activities.* Co-curricular activities in this study are described in the NSSE survey as time spent participating in activities such as student organizations, campus publications, student government, fraternity or sorority, and intercollegiate or intermural sports.

*Dropout.* Termination of an education before degree attainment (Alexander, Entwisle, & Kabbani, 2001).

*Facebook.* Online social network that helps individuals connect and share with the people in their lives through individual profiles, photographs, and information. (Facebook Newsroom, 2013).

*Graduation rates.* Ratio of the number of students who complete a degree to the number of students initially enrolled (Arnold, 1999).

*Integration.* Degree to which a college student is connected to other individuals in the college social network (Tinto, 1975).

*Online Social Network.* Website where individuals meet, connect, and communicate with others.

*Persistence.* Decision by a student to continue participation in a learning event, specifically degree attainment (Berge & Huange, 2004).

*Retention.* Continued student participation in learning to completion of degree or certificate (Berge & Huange, 2004).

*Retention rate.* Percentage showing the number of students who re-enrolled at the college or university they attended the previous year (Arnold, 1999).

*Social activities.* Social activities in this study are described in the NSSE survey as time spent participating in activities such as relaxing, socializing, watching TV, and partying.

*Social capital.* According to Bourdieu and Wacquant (1992), social capital is defined as, “The sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a network of relationships” (p. 243).

*Social engagement.* Degree to which a college student is connected to other individuals in the academic aspects of the college social network (Lotkowski et al., 2004).

*Social Network.* Social structure between individuals and groups (Scott, 2000).

*Social Network Site.* Online website focused on building and maintaining social networks.

*Student Engagement.* “The time and energy students devote to educationally sound activities inside and outside of the classroom, and the policies and practices that institutions use to induce students to take part in these activities” (Kuh, 2003).

## **Chapter Summary**

In this chapter, an overview and the background of the study were introduced followed by the explanation of the theoretical framework. The alignments of the statement of the problem and research questions with the theoretical framework were discussed. The significance of the study was explained. The research design, data analysis, and definition of key terms were presented.



## CHAPTER II

### LITERATURE REVIEW

Student engagement is a popular pedagogy in higher education because researchers (Kuh, 2003; Kuh et al., 2007) have found that engaged students persist at higher rates than non-engaged students. Student dropout can negatively affect students, the institution, the government, and society. Because of high attrition rates and low graduation rates, it has become increasingly important for school officials in higher education to search for ways to improve retention. Students drop out of college during the freshman year more than in any other year of college (Digest of Education Statistics, 2011). First-year seminars and living learning communities are programs that university administrators implement to promote freshman retention.

Facebook is an online social network site that college students highly utilize (Ellison et al., 2006; Jenness, 2011; Junco, 2012b). Students use Facebook to communicate, meet new people, interact with others, organize groups and events, and search for and disseminate information. Researchers (Ellison, 2010; Jenness, 2011; Junco, 2012b; Selwyn, 2009) have also found that Facebook is an academic tool in addition to a social one. If students are using Facebook to engage in social and academic activities related to college, Facebook use could influence or contribute to overall student engagement.

In this review of the literature, college student dropout, specifically freshman dropout and the negative issues associated with dropout, are explored as well as issues related to assessment of dropout. The influence of freshmen retention programming on student engagement is also addressed. The retention programs reviewed include living learning communities and first-year seminars. Lastly, the social network site Facebook is presented as a tool used by college students to interact.

## College Student Dropout

In 2011, an estimated 24.6 million students were enrolled in post-secondary institutions in the United States (Digest of Education Statistics, 2011). Unfortunately, according to the researchers at the National Center of Educational Statistics (Digest of Education Statistics, 2011), only 34% of students who began a bachelor's degree in 2004 had completed a bachelor's degree within four years and only 58.3% had completed a bachelor's degree within six years.

There are pre-college enrollment and post-college enrollment factors that may contribute to attrition. According to Bean (1990, 2003), pre-college enrollment factors include student background variables; organizational factors; academic factors; social factors; environmental factors; and attitudes, intentions, and psychological processes that may influence a student's decision to drop out. Once enrolled in school, additional factors including financial constraints (Cabrera, Castenada, Nora, & Hengstler, 1992; Cabrera, Stampen, & Hansen, 1990), homesickness, personal and/or family issues, campus fit, and lack of student engagement are among the top reasons for student dropout (Astin, 1975; Cabrera et al., 1990; McInnis, 2001; Pascarella & Terenzini, 2005; St. John, Alberto, Nora, Asker, 2000; Swail, 2004; Tinto, 1975, 1993).

**Freshmen.** The highest percentage of college student dropout, an average of one in three students, occurs before the sophomore year (ACT, 2010, Astin & Oseguera, 2002; Carey, 2004; Horn & Carroll, 1998; U. S. News & World Report, 2010; U.S. News College Compass, 2012; Tinto, 1993). The freshman year can be one of the most exciting and distressing times for college students. During the freshman year, students have the opportunity to meet new people, experience new things, and develop learning and skills which can impact the rest of their lives, but the transition from high school and home to college can be difficult.

In the United States, more than 70% of high school graduates enroll for college, but researchers at the ACT (2010) report that only 67.6% of all freshmen college students re-enrolled for their sophomore year at the institution in which they began. Members of the ACT have collected data on freshman persistence to the sophomore year since 1983 and reported that 68% re-enrollment was about the average for the previous 20 years. Attrition and graduation rates have become areas of concern because student dropout can result in consequences for the institution, the student, the government, and the community.

**Attrition.** Attrition is the reduction in the student population at a college or university as a result of drop outs. A dropout represents a student who is currently enrolled at an institution, but does not re-enroll for classes the following academic year (Arnold, 1999). Some students, described as transfers, drop out of one college and attend another college. Other students, described as stop-outs, drop out of school and return to the same college semesters or years later (Horn & Carroll, 1998). There are also students who drop out and do not return to college at all.

Attrition rates consist of the number of students in a year that neither graduate nor continue taking classes at the same institution in the following year. Attrition rates are submitted to state officials and are used as an indicator of student outcomes and a measurement of the performance of an institution. The effects of attrition on students, institutions, the government, and community are presented by the researcher in the following paragraphs.

***Effects of attrition on students.*** Students who withdraw from college can experience psychological and financial issues. Students who drop out because of poor academic success can experience lower self-confidence than students who do not drop out (McInnis, 2001). Dropouts lose invested time and money and possibly future scholarships and financial aid. College dropouts can also face high debt and a poor credit score if they cannot repay student loans.

If a student drops out of college and does not complete a degree, the student may also sacrifice future career opportunities and earning potential. According to the United States Census Bureau (2010), an individual with a bachelor's degree earns an average of \$78,290 per year while an individual with a high school diploma earns \$39,962 per year. Unemployment rates are also 2% higher for individuals without college degrees (U.S. Census Bureau, 2010). According to Schneider and Lin (2011), the United States college dropout rate for the class of 2002 resulted in \$3.8 billion in lost earnings in 2010 for the students who dropped out.

***Effects of attrition on institutions.*** For the institution, attrition means loss of invested funds, future ancillary revenue, state and federal funding, and reputation. Institutions of higher education make money to support the institution from student registration, housing, meal plans, textbook sales, and alumni funds. To bring in new students, institutions spend resources on recruitment. Universities also spend money on programs designed to retain students once the students enroll. For each student who drops out of school, the institution loses the money invested for recruitment and retention and also the future tuition revenue for that student.

In an example of negative institutional effects from attrition, if an institution spends \$500,000 a year in recruitment and enrollment and 30% of the freshmen fail to re-enroll for the sophomore year, the institution loses \$150,000 each year in lost investments (Swail, 2004). In another illustration from Swail (2004), if tuition is \$5,000 per year, one freshman dropout means a loss of \$5,000 per year and over the next three years or the time it takes to obtain a degree, one student dropout means \$15,000 in lost future tuition. This estimate includes only the potential loss in tuition and not losses in textbook sales, housing, and additional ancillary funds.

Institutional personnel report graduation and attrition rates to the state and federal governments because institutions receive state funding for students who are full-time enrolled

(FTE). When students withdraw from an institution, the institution loses FTE funding for each student who is not retained. Unless the student is replaced, there is loss in government-based institutional funding for the following academic year (Swail, 2004).

Attrition also affects the reputation of an institution. Graduation is the example of a successful student, and graduation rates are a measure of institutional performance and accountability (Astin & Oseguera, 2002). When students do not graduate, the institution has failed to fulfill its mission. Graduation and persistence rates are published yearly in media such as the *U.S. News and World Report*. Parents and students considering attending an institution often refer to retention rates in the published reports when deciding on a school to attend.

***Effects of attrition on government.*** The portion of tuition and fees that students pay covers about 25% of the total cost of college (Swail, 2004). State and federal governments supplement the remaining cost. In a study on freshmen college students, researchers at the American Institutes of Research (Schneider, 2010), found from 2003 through 2008, state governments contributed over \$6 billion to college and university budgets to supplement freshmen who did not persist to the sophomore year. The federal government also provides subsidized Pell Grants and loans for additional support for students who qualify. If students drop out and do not obtain a degree, the state and federal subsidized investments are lost. Schneider (2010) reports that between 2003 and 2008, state and federal governments provided \$2.9 billion in financial aid dollars to freshmen who did not persist to the sophomore year.

College dropout also has an effect on federal and state taxes. According to the Schneider and Lin (2011), the U.S. college dropout rate for the class of 2002 resulted in \$566 million in lost federal income taxes and \$164 million in lost state income taxes in 2010. In 2010, the State of

California, alone, lost \$386 million dollars in lost income and \$57 million in lost federal taxes to college dropouts. The State of Florida lost \$132 million in income and 19 million in lost Federal taxes. Schneider and Lin (2011) only examined the students who entered college in 2002, so the numbers for all college dropouts are much higher.

*Effects of attrition on society.* One in three Americans in his or her mid-twenties is a college dropout (U.S. Census Bureau, 2010). Members of the Institute for Higher Education Policy (IHEP, 1998) have found that college graduates establish a more skilled workforce and are more likely to participate in governance of the community, use fewer public services, commit fewer crimes, earn more money and contribute more to tax revenues to support the growth of the economy than college dropouts. Researchers at the Commission on Health (2009) have discovered that college graduates are in better general health and have longer life expectancies than non-graduates. Higher education benefits also include higher voter participation, greater ability to adapt to technology, and more charitable giving (IHEP, 1998).

### **Assessment**

There is a growing emphasis on assessment, accountability, and transparency in higher education because of the negative effect that attrition has on students, the institution, the state and federal government, and society. State and federal government representatives and officials are especially concerned with assessment and graduation rates because the state subsidizes public universities. In a time of financial distress, institutions must prove their worth in order to maintain funding.

Some state legislatures in the United States have changed to, or are considering, tying institution funding to the percentage of students who graduate instead of enrollment-based funding. In 2011, policy makers in New York, Pennsylvania, Tennessee, and Virginia made the

decision to base institutional financing on persistence and graduation instead of enrollment (Marklein, 2009; National Conference of State Legislatures, 2012). This shift in funding will force institutional personnel to find ways to retain students through degree attainment to sustain institutional funding.

Since the 1960s, the assessments of higher education have focused primarily on persistence and graduation rates. In 2006, members of the Commission on the Future of Higher Education determined that engagement is a measure of student and institutional success (Kuh, 2003). Members of the Commission suggested that institutions can influence student engagement by providing and encouraging students to participate in activities empirically proven to influence persistence (Kuh, 2001, 2003; Kuh et al., 1991; Kuh et al., 2005). The educational activities proven to be effective in promoting retention include academic and social interactions with faculty and peers and involvement in campus activities (Kuh, 2007).

### **Engagement**

Astin (1984) introduced student engagement in relation to his theory of student involvement. Astin describes student engagement as “the amount of physical and psychological energy that the student devotes to the academic experience” (p. 297). In time, the theory of student engagement progressed to include “the time and effort students invest in educational activities that are empirically linked to desired college outcomes” (p. 297). Astin (1985, 1993, 1999), Kuh (2001), Pascarella and Terenzini (1983, 1991, 2005), and Tinto (1987, 1993) state that college freshmen are more likely to persist if the students engage academically and socially. Academic engagement includes interaction with peers, faculty, and staff for academic issues. Academic engagement may occur inside and outside of the classroom (Pascarella, Terenzini, & Blimling, 1994b). Participation in classroom activities and discussions, use of academic support

services, and participation in study groups are a few academic engagement activities (Kuh et al., 2005). Social engagement activities include taking part in student organizations, attending social and recreational events, and interacting with peers, faculty, and staff for non-academic reasons (Kuh et al., 2005).

To reap the most benefits, college students must engage in both academic and social connections in a balanced way (Astin, 1975; Tinto, 1975, 1993; Wilcox, Winn, & Fyvie-Gauld, 2005). A student may be academically engaged and not socially engaged or vice-versa. When a student is overly engaged in one area, the other area may be negatively affected. For instance, students overly engaged socially may suffer academically because of the time and energy spent in social activities. Correspondingly, students only engaged in academic activities may not acquire the social support that is so important in the decision to remain in school (Tinto, 1993).

In 1979, Pascarella and Terenzini identified lack of engagement in the college community as one of the most significant predictors of student attrition. Years later, in 2005, Pascarella and Terenzini reviewed 20 years of research on how college affects students and found that in the majority of those studies, student engagement was linked to academic performance and persistence. From their extensive review of research, Pascarella and Terenzini (2005) conclude that a college student who is engaged will earn better grades and persist to degree attainment at a higher rate than a non-engaged student. Kuh et al. (2007) studied 11,000 students from 18 institutions, and after analyzing students' NSSE scores the researchers found that engagement had positive, statistically significant effects on the grades and persistence of freshmen.

### **National Survey of Student Engagement**

The NSSE is a survey used by higher education administrators to assess engagement by measuring the degree to which students participate in activities found to promote persistence



(Chickering & Gamson, 1987; Kuh, 2001, 2003). Student engagement is used as a variable to assess and define effective institutions of higher education. According to Kinzie and Kuh (2004), researchers use student engagement to identify quality in education because “engagement has been shown to be the best predictor of student success, after controlling for past academic performance and preparation” (p.4). According to administrators on the NSSE (2013) website, the NSSE is not designed to assess student learning directly, but survey results are used to determine areas where institutions are engaging students and performing well and areas that could be improved. The NSSE survey items are based on empirically established practices in education that are associated with positive student outcomes like GPA and persistence (NSSE, 2013). In 2011, 761 institutions participated in NSSE, and 1,493 institutions have participated since 2000 (NSSE, 2013).

The NSSE consists of five benchmarks, including level of academic challenge, active and collaborative learning, student-faculty interaction, enriching educational experiences, and supportive campus environment. When students engage in these areas, the students are more likely to persist than students who do not participate (Kuh, 2003).

### **Freshman Year Retention Programming**

No other time is it more important to impact student retention than during the freshman year (Astin, 1993; Carey, 2004; Pascarella & Terenzini, 1991; Tinto, 1987). Many institutions implement freshman year experience programs aimed specifically at freshmen retention. Freshman year experience programs can include, but are not limited to, freshman orientation, academic advising, early warning systems, learning communities, and first-year seminar courses. Researchers (Chickering & Gamson, 1991; Pascarella & Terenzini, 2005; Porter & Swing, 2006) have found that all of these programs are successful in promoting freshman retention to the

sophomore year. According to researchers (Brownell & Swaner, 2010; Kuh and the Association of American Colleges and Universities [AAC&U], 2008), learning communities and first-year seminar courses are considered high-impact practices. For this research, learning communities and/or first-year seminar courses will be the focus because participation in the learning community and first-year seminar is optional for freshmen at the UWF, as where orientation, advising, and early warnings are required.

Results from the 2005 NSSE results (Kuh et al., 2005), show that students who participate in first-year seminars and learning communities are more academically challenged, experience more active and collaborative learning activities, interact more with faculty, and use campus resources at a higher rate than do non-participants. Students who participate in learning communities and/or first-year seminars also persist at higher rates than non-participants (Barefoot, 2005; Blowers, 2005; Henscheid, 2004; House, 2005; Hunter & Linder, 2005; Knight, 2003; Pascarella & Terenzini, 2005).

**Learning communities.** A college based learning community is a group of students who learn and interact together through co-curricular, academic, and social activities inside and outside of the classroom. Barefoot, Griffin, & Koch (2012) found that 33% of American colleges and universities offered a learning community component for freshmen. Shapiro and Levine (1999) state that learning communities may vary, but share several basic characteristics. A common component in learning community programming is that students take one or more class together so that students find consistency in what they are learning while increasing interaction with faculty and students (Barefoot et al., 2012; Brower & Detting, 1998). Most learning communities consist of small groups of students and faculty, and curriculum is typically integrated across multiple courses that students take together. The premise of learning

communities is to assist students in the establishment of academic and social support networks (Shapiro & Levine, 1999).

Learning community participants receive higher grades (Knight, 2003), have higher GPAs (Blimling & Hample, 1979; Taylor et al., 2003), and are retained at higher rates (Matthews, 1993; Pike, 1999; Pike, Kuh, McCormick, 2008; Pike et al., 1997; Tinto, 1998; Tinto & Love, 1995; Zhao & Kuh, 2003) than non-participants. Learning community members also have higher graduation rates than non-members (Beckett & Rosser, 2007; Knight, 2003; Shapiro & Levine, 1999; Tinto & Goodsell, 1993). Tinto and Goodsell (1993) found that freshmen who participated in learning communities had higher grades, were more actively involved in the classroom, and were more likely to persist when compared with peers who did not participate in learning communities. Shapiro and Levine (1999) reported that students participating in learning communities were more engaged overall, had higher persistence rates, and showed greater gains in intellectual and social development compared with non-participants.

Students participating in learning communities also acquire social gains. Tinto, Russo, and Kadel (1994) found that students who were involved in learning communities were able to create supportive peer groups that extend beyond the classroom. Learning community participants were also more involved in educationally purposeful activities in and out of class than non-participants (Tinto et al., 1994). Students participating in learning communities also showed gains in diversity, social tolerance, and personal and interpersonal development when compared to non-participants (Pascarella, Edison, Whitt, Nora, Hagedorn, & Terenzini, 1996; Slavin, 1996; Whitt, Edison, Pascarella, Terenzini, & Nora, 2001).

***Living learning communities.*** Some learning communities have a residential component. In a residential or living learning community students are enrolled in specific courses together

and reside in a dedicated living space (Laufgraben & Shapiro, 2004). The important aspect of a living learning community is that students have multiple opportunities for interaction both in class and in their residence. Living learning communities often have full-time staff, residential assistants, and advisors who live or have offices in the dorm to assist students and provide co-curricular activities.

Living on campus is linked to persistence and student success because individuals who live on campus spend an increased amount of time with other students and have better access to campus resources including faculty and other resources than do students who lived off campus (Astin, 1993; Chickering & Gamson, 1991). In a living learning community, living together while taking classes together allows participants to form relationships and support each other in a social environment while also focusing on academics (Zhou & Kuh, 2004). Students who live together and take the same classes have more opportunities and time for academic and social engagement than do students in learning communities without residential components.

Wawrzynski and Jessup-Anger (2010) found that living learning community participants had significantly more peer interactions than non-participants. Researchers have found that participation in living learning communities is linked to increased engagement in educational activities and academic performance (Nesheim, Guentzel, Kellogg, & McDonald, 2007; Zhao & Kuh, 2004). Pascarella, Terenzini, and Blemling (1994a) found that students who participated in living learning communities had even higher academic achievements and higher persistence than participants in non-residential learning communities. When compared to traditional residence halls, Pike (1999) found that living learning community participants had significantly higher levels of involvement, interaction, and learning than students in residence halls without a learning community component.

***Engagement in learning communities.*** Learning communities are designed to engage students in an academic environment as well as to encourage them to engage socially. Blimling (1993) and Pascarella et al. (1994a) determined that learning community participants have greater social interaction with peers and participate in more campus activities than non- participants. Inkelas, Vogt, Longerbeam, Owen, and Johnson (2006) found that living learning community participants in particular were more engaged than students in traditional residence halls. Students who enroll in multiple classes and live together engage more because they are together more often than students enrolled in only one class together or just residing in the same dorm.

***NSSE and learning communities.*** Using the NSSE, Zhao and Kuh (2004) studied 365 institutions with learning communities and found that the students who participated in learning communities had higher engagement scores than did non-participants. In addition to being more engaged than non-participants, learning community participants spent more time engaged in educationally purposeful activities like studying, participating in leisure and recreational activities, attending events, utilizing support services, and interacting with others (Tinto et al., 1994).

Kinzie and Kuh (2004) conducted research on institutions that rank highest in NSSE averages nation-wide to determine what those institutions are doing that other institutions with lower NSSE scores are not. The researchers found that the institutions with highest engagement scores have a learning community component. Kinzie and Kuh label learning communities as an effective education practice based on NSSE results.

***Delphi.*** At the UWF, a residential living learning community is employed for freshmen. The UWF living learning community, Delphi, was implemented during the Fall 2008 semester. Freshmen at the UWF who wish to participate in Delphi reside in a specific dorm and have the

option to enroll in courses designated for students in the living learning community. Delphi students meet with residential assistants and peer mentors on a regular basis and have the opportunity to attend academic success workshops in the dorm and social events on campus (UWF Office of Housing, personal communication, March 10, 2012). During the Spring 2012 semester, there were 269 freshmen participating in Delphi (UWF Office of Housing, personal communication, March 10, 2012). Students who participate in Delphi have higher retention rates than do students not participating in Delphi (Bailey, 2011, December).

**First-year seminars.** Barefoot et al. (2012) found that 96.2% of American colleges and universities offered some kind of first-year seminar course. First-year seminars are implemented by institutions to enhance integration of freshmen (Barefoot et al., 2012) and increase freshmen persistence (Barefoot et al., 2012; Pascarella & Terenzini, 2005; Schnell & Doetkott, 2002; Sparks, 2005; Starke, Harth, & Sirianni, 2001). In 2009, 87.3% of American colleges and universities offer some kind a first-year seminar (National Survey of First-Year Seminars, 2009). According to researchers from the National Survey of First-Year Seminars (2009), first-year seminar courses are designed to help students acquire academic skills, develop a connection with the institution, provide orientation to campus resources and services, promote personal development, and create a common first-year experience for freshmen. In the UWF first-year seminar, freshmen are taught study skills, critical thinking, and time management to help them perform well in their other courses. UWF freshmen enrolled in first-year seminars are also informed of campus resources and taught about relationships, communication, and diversity.

In the most in-depth study on college success, Pascarella and Terenzini (1991) reviewed more than 2,500 studies on successful college programs and concluded that first-year seminar courses are positively linked to freshman-to-sophomore persistence and degree completion.

According to Hunter and Linder (2005), “first-year seminar research has shown that these courses positively affect retention, GPA, number of credit hours attempted and completed, graduation rates, student involvement in campus activities, and student attitudes and perceptions of higher education” (p. 288). Researchers also found that the majority of seminar participants studied were in good academic standing after his or her first semester (VerDuin, 2005), second year (Soldner, 1998; Strumpf & Hunt, 1993), and third year (Wilkie & Kucknuck, 1989). In another meta-analysis, Pascarella and Terenzini (2005) reviewed of 40 institutions and discovered that freshmen who participate in first-year seminar courses are 7-13% percent more likely to return for the sophomore year and 5-15% more likely to graduate in four years than are non-participants. Blowers (2005) and Schnell, Louis, and Doetkott (2003) also found that students enrolled in first-semester seminars had higher rates of degree completion than did their peers who did not take the course.

*Engagement in first-year seminars.* The curriculum within first-year seminar courses is designed by instructors to provide skills and resources and promote events and opportunities for students to engage. After exploring 20 years’ worth of retention research, Pascarella and Terenzini (1998) found a positive relationship with engagement and retention. Pascarella and Terenzini (2005) found that first-year seminar participants experience more frequent and meaningful interactions with students and faculty and are more engaged on campus than non-participants. Barefoot and Fidler (1996) found that students enrolled in first-year seminar courses show high use of student services on campus and high levels of participation in college life. Goldsweig (1998) also discovered that first-year seminar students engaged in use of tutoring labs, learning centers, and other campus resources at a much higher rate than non-first-year seminar students.

*NSSE and first-year seminars.* There is not a lot of research on NSSE and first-year seminars. An issue with using the NSSE to evaluate first-year seminars is that the NSSE does not have a specific question for first-year seminar participation. The lack of first-seminar question means that in any study where the NSSE was used to assess first-year seminars, an additional question was added to the survey or the survey results were tied to specific students after the data were collected. There is a question on the NSSE concerning participation in learning communities, so there is more NSSE-related research in the area of learning communities.

Most research on NSSE and first-year seminars is conducted by college or university personnel. Institution administrators can build NSSE engagement indicators into first-year seminar program curriculum and then assess participant engagement based on those indicators. For instance, there is a question on the NSSE concerning participation in a service learning project as part of a class, so UWF administrators added a service learning component to the first-year seminar. In their research, Kinzie and Kuh (2004) found the institution with the highest engagement scores have a first-year seminar course. Kinzie and Kuh label first-year- seminar courses as an effective educational practice in higher education based on NSSE related data.

*Academic Foundations Seminar.* The UWF version of the first-year seminar is called the Academic Foundations Seminar. The purpose of the Academic Foundations Seminar is to assist freshmen in their transition from high school and home to college. The course is not a required course, but freshmen may take the course as a three semester hour elective. Freshmen who participate in the Academic Foundations Seminar are introduced to topics including study skills, communication, critical thinking, academic integrity, teamwork skills, problem solving, diversity, public speaking, and information and technology literacy. Freshmen who participate in the Academic Foundations Seminar courses have higher retention rates and GPAs than freshmen



who do not participate in Academic Foundations Seminar (Ford & Westcott, 2006). In 2005, UWF freshmen who participated in the Academic Foundations Seminar showed a first-semester retention rate of 91% versus 88% for non-participants. UWF freshmen who participated in the Academic Foundations Seminar in 2005 also had a first-semester GPA of 2.90 versus the non-Academic Foundations Seminar students GPA of 2.78 (Ford & Westcott, 2006).

**Freshmen retention program combination.** At institutions that link learning communities with first-year seminars, students who participate in both programs seem to engage at even higher levels than those in non-linked seminars (Swing, 2002). There were 17 first-year seminar sections offered at the UWF during the Fall 2011 semester, and seven of those sections were reserved for living learning community students. The first-year seminar class serves as one of the block scheduling courses available to living learning community students. The sections have the same curriculum and syllabus as non-living learning community sections, but the information is also mirrored in workshops in the dorm creating a co-curricular learning experience. Swing (2002) suggests that the combination of first-year seminar and living learning community should produce students with even better persistence indicators than students in either program alone.

### **Non-institution Based Student Engagement**

College students engage in academic and social activities inside and outside of the classroom. Institutional administrators develop retention programs like first-year seminars and learning communities to encourage student engagement, but college students naturally interact on their own outside institution-based programming. One instance of student interaction and engagement outside of institutional programming is students' use of the social network site Facebook.

## **Facebook**

Facebook, founded in 2004 (Facebook Newsroom, 2013), is an online social network that a majority of college students in the U.S. use to communicate, receive and pass on information, create and organize groups, and express themselves. By 2005, 86% of college students had Facebook accounts (Mastrodicasa & Kepic, 2006). In their research conducted in 2006 at Michigan State University (MSU), Ellison et al. (2006) found that 95% of the undergraduate students at MSU were members of Facebook.com. Then in 2010, researchers from ECAR examined 36,950 students from 127 universities and found that 95% of students used at least one social networking site. Researchers (Martin, 2009; Smith & Curuso, 2010) have also shown that 96% to 97% of college students reported using Facebook and the majority used the website on a daily basis.

Facebook is a company with no association to institutions of higher education except for the networks associated with colleges and universities on the website. To join a specific college network on Facebook, users must have an email address associated with that college. To join the UWF Facebook network, a member must have a valid email address with @uwf.edu in it. All UWF students, staff, and faculty receive an @uwf.edu email address. Each user is assigned to the network associated with the institution's email address. Only individuals who attend a college may become members of the Facebook network associated with that college.

Once an individual joins Facebook, he or she creates a profile page that serves as the home page with sections that list friends, personal information, photos, messages, groups, and news. Users may browse profiles and updates from friends and businesses; join groups; create and invite others to events; use applications and games within the website to interact with others; and communicate through updates, instant messages, and messages. When members want to

announce information to friends, they post comments, pictures, and videos to the Update section, and the information is posted on owner's profile page and in friends' News Feeds.

**College student Facebook use.** Researchers show that Facebook use increases communication (Heiberger & Harper, 2008); enhances access to information, resources, and support (Ellison et al., 2006); promotes integration (Morris et al., 2010); impacts interaction on campus (Karpinski & Duberstein, 2009; Martin, 2009); and positively influences persistence (Morris et al., 2010) among college students. In a study of college student posts on Facebook, Selwyn (2007) found that college students use Facebook as “micromanagement of their social lives” (p. 4). In a later study of Wall posts, Selwyn (2009) discovered that in addition to interacting socially, students were using Facebook to exchange academic information. Selwyn (2009) found that students recounted and reflected on their university experience, exchanged practical and academic information, displayed emotions about academic performance, and posted banter about classes, studying, or college life. Through Facebook student profile examination, Ellison (2010) also found that students used Facebook to organize study groups and class projects and seek help for coursework.

Positive and negative effects have been found when researchers examined the effect of Facebook use on academics. Rockler-Gladen (2010) referred to Facebook as a study distraction along with other high use technologies such as video games and Internet use. Karpinski and Duberstein (2009) and Kirschner and Karpinski (2010) found that college students who used Facebook studied less, had significantly lower GPAs, and spent less time studying than low users and non-Facebook users. Karpinski and Duberstein found that Facebook users spent from one to five hours per week studying, while non-user students studied 11 to 15 hours per week. In a contradicting study, Martin (2009) found no relationship between grades and the time students

spent using social media. Hargittai and Hsieh (2010) also conducted studies on college students and social network site use and found that time spent on social network sites had no effect on academic performance.

Junco (2012a) surveyed 1,839 college undergraduates at a four-year public university and found that the average college student spends 106 minutes in a day on Facebook and visits the website on average six times per week. When the participants' GPAs were obtained from the school, Junco found that the time students spent on Facebook negatively predicted GPA, but that the impact was small. The GPAs of students in the study dropped a small amount depending on the time spent on Facebook: .12 points for every 93 minutes above the average 106 minutes per day they spent on Facebook. The loss in GPA was not significant unless students used Facebook for more than six hours per day. The average GPA for students who spent 100 minutes on Facebook daily was 3.0 while students who spent 400 minutes on Facebook daily had an average GPA of 2.5. In a related study, HERI (2007) researchers found that 94% of freshman used social network websites weekly, but spent no significantly less time studying than those students who did not use social network websites weekly.

**Freshmen Facebook use.** Incoming and current freshmen use Facebook to investigate the campus culture and find information about campus life, groups, people, and services and build the connections that make students feel as if they belong and are accepted within the campus community (Madge et al., 2009). Many freshmen become members of their university's Facebook network before their first day of classes (Madge et al., 2009). Madge et al. (2009) looked at how freshman college students engage with Facebook before attending their first classes and after their first semester begins. Before attending the first course at the institution, 54% of first-semester students were already members of the institution network on Facebook. Of

the students surveyed, 75% said that his or her Facebook use increased after starting college. Half of the students surveyed claimed they used Facebook during this time to make friends. New students had an average of five Facebook friends at the institution before attending his or her first class. After classes began, the students had an average of 30 Facebook friends who were students from their institution.

Madge et al. (2009) also found that once on campus, first semester freshmen used Facebook to communicate, connect to other students, and “settle into university life” (p. 147). Madge et al. (2009) described Facebook as part of the “social glue” (p. 148) within the campus because freshmen used Facebook to make friends and become a part of the campus community. Seventy-three percent of the students surveyed responded that Facebook had been important to very important in helping them meet new people and make friends. Morris et al. (2010) support the study by Madge et al. (2009) and found that when students used Facebook, the students reportedly found it easier to locate and make friends on campus. According to Morris et al. (2009) in addition to meeting new people, students developed deeper friendships when students met someone on Facebook first and then later meet him or her on campus because the students read about each other’s interests and commonalities before meeting face-to-face.

Researchers have also studied the relationship between Facebook use, number of Facebook friends, and persistence to the sophomore year. Morris et al. (2010) followed the Facebook profiles of 375 first-semester freshmen for nine months to examine how Facebook activity predicted students’ likelihood to persist. The researchers found that freshmen who returned to school for the sophomore year had statistically significantly more friends on Facebook and interacted on the social network site more often than did freshmen who dropped out.

**Intensity of Facebook use.** There is not extensive research on Facebook use and how it affects college students. Of the research that has been conducted, the common variables include frequency and duration of Facebook use. Frequency and duration of social network use have been included as a variable in research on social capital (Ellison et al., 2006), grades and GPA (Hargittai & Hsieh, 2010; Karpinski & Duberstein, 2009; Morris et al., 2010), involvement in student activities (Heiberger & Harper, 2008; HERI, 2007; Karpinski & Duberstein, 2009; Martin, 2009; Morris et al., 2010), time spent studying (Junco, 2012a) and persistence (Morris et al., 2010).

Ellison et al. (2006) developed the Facebook Intensity Scale to measure social capital among college students who use Facebook. The Facebook Intensity Scale incorporates questions on frequency and duration of Facebook use, number of Facebook friends, how students feel about using Facebook, and the extent to which each student is actively engaged in Facebook use. Researchers including Burke, Marlow, and Lento (2010), and Pasamehmetoglu and Atakan-Duman (2011), and Yoder and Stutzman (2011) have used the Facebook Intensity Scale to assess Facebook intensity of use. The Facebook Intensity Scale was used as part of the survey instrument for this research.

**Engagement and Facebook use.** Some researchers have found that technology use may prevent students from engaging in activities (Reisberg, 2000) while others showed that technology was associated with participation in activities (Oblinger & Maruyama, 1996) and could increase communication among students (Wingard, 2004). Nelson-Laird (2004) and Nelson-Laird and Kuh (2005) found a strong positive relationship between engagement and student use of technology for educational purposes and suggest that technology use increases the opportunities for student engagement. In the limited research that has been conducted on

Facebook, researchers have found that students who use social network sites are more engaged in social activities on campus (Karpinsky & Duberstein, 2009), participate more in student organizations, interact more with friends (Heiberger & Harper, 2008), and participate in more co-curricular activities (Junco, 2012a) than non-users.

In 2007, researchers from HERI (2007) analyzed the social network use from 114 colleges and universities including a total of 31,500 students and found that high-intensity users of social network sites were students who spent more than six hours on social networking sites and that low-intensity users were students who spent less than six hours per week on social networking sites. Eighty-four percent of high-intensity users reported that they interacted daily with close friends while 69% of low-intensity users reported interacting daily with close friends. High-intensity users also spent 15% of their time involved in student organizations versus 7% of time spent by low-intensity users.

In a similar study specifically on the social network site Facebook, Heiberger and Harper (2008) studied 375 students at a university and found that 92% of the students surveyed used Facebook on a daily basis. Sixty-nine percent of students who spent less than one hour per week on Facebook reported that they interacted daily with close friends. High-intensity users participated in student groups more often than low-intensity users. Of the students who spent more than an hour a day on Facebook, 92% reported that they felt more connection to friends versus 73% of students who spent less than one hour per day on Facebook.

**Facebook at the UWF.** Facebook is not specifically a part of freshman retention programming at the UWF, but many departments and student groups use Facebook to connect and communicate with students. There is an official UWF Facebook page and a number of departments and students groups and organizations on campus have department Facebook pages.

Some of the departments that utilize Facebook at the UWF include the Student Government Association, Campus Activities Board, Student Activities, Housing and Residence Life, Career Services, Athletics, African American Student Association, the school newspaper, Student Affairs, and Orientation.

Each of the five dormitories has a Facebook page so that students who live in the dorm can connect before school starts and after school starts. A Facebook page is created for each entering freshman class at the beginning of orientation so incoming freshmen can connect and remain connected until they graduate. The Student Government Association posts updates about meetings and events. The tutoring lab Facebook website is used to post tutor schedules and promote study groups. Most of the UWF Facebook pages are linked together so that when an important event is posted on one page, the event is automatically posted on other department pages. If a student “likes” one of the UWF Facebook pages, that student can receive information about multiple UWF events quickly.

### **Chapter Summary**

Retention is a primary concern for administrators of institutions of higher education (Barefoot, 2004). College students have the greatest chance of dropout during his or her freshman year (Horn & Carroll, 1998; Tinto, 1993). Student attrition negatively affects the student, the institution, the state and federal governments, and society. Institutions develop freshman retention programs such as learning communities and first-year seminars to engage freshmen in the college community by introducing them to other members of the community, promoting interaction through social activities, and providing resources.

Facebook is a social network site that the majority of college students use to communicate, make friends, find and disseminate information, and organize groups. There is



limited research on Facebook and the benefits it may have for college students. Facebook is a tool for engagement, and there seems to be a connection to the social and academic areas of college life. The purpose of this research is to explore whether Facebook could possibly influence student engagement when compared to freshman retention programs that have been empirically shown to promote engagement.

## CHAPTER III

### METHOD

The purpose of this research was to explore variables of Facebook use, participation in university retention programs, and the engagement of college freshmen. In this chapter, the research design and methodology used in this study are presented. The chapter is divided into the following sections: research design, research questions, participants, instrument, procedure, data collection, data analysis, analysis of research questions, limitations and assumptions, and researcher bias.

#### **Research Design**

This study consisted of a causal-comparative design in which the variables compared were already present in the population of freshmen studied (Agresti & Finlay, 2009). Researchers use causal-comparative research to explore the cause of or reason for differences in behavior or status between groups or individuals (Agresti & Finlay, 2009). In a causal-comparative study, the variables are known and no manipulation of variables occurs. In a causal-comparative study the differences in variables are investigated to determine which of the variables seem(s) to be affecting the subjects. In this study, the level of engagement was the dependent variable, and the independent variables were intensity of Facebook use and participation in a living learning community and/or a first-year seminar course. Causal-comparative design was appropriate for this research because all of the variables were already present in the participants. A web-based survey was used to measure the variables.

#### **Research Questions**

This research was conducted as an exploration of the effects the intensity of Facebook use and participation in freshmen retention programs have on student engagement. Based on the

conceptual framework and statement of the problem, the generated research questions were the following:

1. How does intensity of use of social networks such as Facebook influence college freshmen engagement?
2. How do institution-based retention programs such as learning communities and first-year seminar courses influence freshman engagement?
3. How do institution-based retention programs such as learning communities and first-year seminar courses influence freshman engagement when combined with intensity of Facebook use?

## **Participants**

The participants for this research consisted of freshmen enrolled at the UWF during the Spring 2012 semester; the UWF is a mid-sized four year public institution in Northwest Florida. The total enrollment at the UWF during the Spring 2012 semester was approximately 12,450 students (UWF Common Data Set, 2012).

**Population.** The freshman class consisted of 1,290 students (UWF Common Data Set, 2012). The freshman class student characteristics were 60% female, 40% male, and 44% of the students in the freshman class were students of color (Table 1). The mean age of a UWF freshman during the 2010-2011 year was 18. Approximately 269 freshmen participated in the living learning community at the time of this study. There were 345 freshmen enrolled in first-year seminar classes during the Fall 2011 semester. The first-year seminar was only offered in the fall semester, so students surveyed in this study took the course one semester before if they participated in the survey. Of the 345 students who enrolled in the first-year seminar course, 100 of those students participated in the living learning community.

Table 1

*UWF Freshmen Demographics*

Demographic	Item	<i>n</i>	%
Gender	Male	554	44
	Female	696	56
Ethnicity	White	891	71
	African American or Black	143	11
	Hispanic	104	8
	Asian	40	3
	More than one race	50	4
	Other	22	2
First-year seminar	Yes	345	28
	No	945	72
Living learning community	Yes	269	22
	No	1,021	88

**Sample.** The sample for this research consisted of 141 freshmen at the UWF during the Spring 2012 semester. A convenience sample was used in this research. First, all of the students of a large psychology class were emailed the survey. Of the 250 students in the class, 132 responded to the survey. Of the 132 respondents, 90 were freshmen. As a result of the low number of freshmen responses, the researcher asked the Dean of Students for approval to email the survey to the whole UWF freshmen population. The request was denied because administrators within the Office of Student Affairs were collecting data from the freshmen class at that time. The researcher was given permission to survey 600 freshmen who belonged to a university retention program for first-generation, low-income, and minority students. The survey was emailed the additional 600 freshmen. There were 51 responses from the second distribution of the survey.

## **Procedure**

The researcher submitted the research proposal to the UWF Institutional Review Board (IRB) and the proposal was approved. The IRB is listed in Appendix B. A pilot test was conducted using seven student tutors who voluntarily took the survey and provided feedback on length of the survey and clarity of the survey questions. Data provided also allowed the researcher to practice the data analysis process.

The researcher visited the psychology class during the scheduled class period and discussed the study, the survey, the consent form, and the survey process. The survey was hosted on SurveyMonkey.com, an online survey-hosting website. The survey link was emailed to the students enrolled in the class. The students in the class received extra credit for completing the survey. After a low response rate from freshmen in the psychology class, the researcher asked for approval to email the survey to the UWF freshmen population. The request was denied because institution personnel were collecting similar data from the freshmen class at that time. The researcher was approved to survey 600 freshmen from a university retention program for first-generation, low-income, and minority students. The survey was emailed to an additional 600 freshmen. The research submitted an extension to the IRB and was approved. The IRB extension letter is listed in Appendix C. Once the data were collected, the data were transferred from the SurveyMonkey database to SPSS for analysis.

## **Instrument**

The researcher used a survey that contained measures related to demographics, Facebook use, and engagement to collect the data. Demographic and descriptive questions were established from the NSSE and included gender, race/ethnicity, residence, GPA, and enrollment status. Student characteristic items were included in the survey because characteristics such as

gender, race, socio-economic status, and parental education are often influential in student outcomes (Pascarella & Terenzini, 2005). Survey questions also included information concerning participation in the UWF living learning community and first-year seminar. The remaining questions on the survey were taken from the Facebook Intensity Scale (Ellison et al., 2006) and the NSSE.

**Facebook Intensity Scale.** The researcher utilized the Facebook Intensity Scale (Ellison et al., 2006) to measure Facebook use frequency, duration of use, and the extent to which each student was actively engaged in Facebook usage. The Facebook Intensity Scale may be used without permission as long as the scale is referenced (Appendix D). The score from the Facebook Intensity Scale was computed for each participant by first standardizing the individual items into  $z$  scores due to differing item scale ranges and then averaging the  $z$  scores (Ellison et al., 2006).

Cronbach's alpha, a measure of internal consistency and reliability, is a sign of how closely the items in a group match when measuring different aspects of the same variable (Litwin, 2003). Ellison et al. (2006) calculated a Cronbach's alpha of .83 for the Facebook Intensity Scale. Values closer to 1.0 indicate a higher internal consistency. The .83 alpha for the Facebook Intensity Scale met an acceptable level (Litwin, 2003; McMillan and Schumacher, 2001).

There are eight questions on the Facebook Intensity Scale. The scale includes six Likert-type questions and two range questions.

1. Approximately how many total Facebook friends do you have?
2. In the past week, on average, approximately how many minutes per day have you spent of Facebook?

3. Facebook is part of my everyday activity.
4. I am proud to tell people I'm on Facebook.
5. Facebook has become part of my daily routine.
6. I feel out of touch when I haven't logged onto Facebook for a while.
7. I feel I am part of the Facebook community.
8. I would be sorry if Facebook shut down.

**National Survey of Student Engagement.** The NSSE is used to measure student engagement in activities that have been found to promote persistence in college students. NSSE results are used by researchers and administrators to show what activities students engage in and which areas need improvement. NSSE results are used to provide an overall picture of the quality of education provided at each institution and nationally. The NSSE results are used to supply information about student engagement that administrators can use to improve the experience of students who attend their institutions (Kuh, 2003).

The NSSE data are typically used by institution administrators and researchers to compare freshmen and senior cohorts to previous cohorts at the same university and to national NSSE means. Instead of comparing freshmen and seniors across multiple years, in this study the researcher analyzed only freshmen at one university during the same semester. The full NSSE instrument consists of 84 questions. For this research, 23 questions from the NSSE were used to assess student engagement and were chosen because the questions concern student behavior including time spent engaging in academic, social, and co-curricular activities. The questions from the NSSE that were not used in this research include questions that concern the institution. Permission was obtained from NSSE administrators to use the NSSE questions for this research (Appendix E).

The reliability of the NSSE is generally computed for each of the five NSSE benchmarks instead of all the survey questions together (NSSE, 2010). The questions for this research came from the Student-Faculty Interaction, Active and Collaborative Learning, and Enriching Educational Experience benchmarks. Questions from the Level of Academic Challenge and Supportive Campus Environment benchmark were not used. In 2010, the Cronbach's alpha for NSSE benchmarks for first-year students was .72 for Student-Faculty Interaction, .64 for Active and Collaborative Learning, and .54 for Enriching Educational Experiences. The Cronbach's alpha of .72 for the Student-Faculty Interaction benchmark is acceptable internal consistency, while the .64 for Active and Collaborative Learning benchmark falls in a range that is considered questionable. The Cronbach's alpha of .54 for the Enriching Educational Experiences falls in a range that is considered poor internal consistency.

Of the 23 NSSE questions used in this study, 20 were Likert-type. The 20 Likert-type questions were used to calculate the NSSE mean for each student. The three questions not used in the NSSE score were range questions and pertained to the amount of time a student spent preparing for class, socializing, and participating in co-curricular activities. Those three questions were added to the survey to help connect the results of this study to previous research. The three questions are discussed in Chapter IV after the research questions results are presented.

### **Data Analysis**

Once the data were collected, the data were exported from SurveyMonkey into an SPSS database to be analyzed. Analysis of the data involved ANOVA, MANOVA, Tukey HSD post-hoc, Kruskal-Wallis test, *t*-test, and regression analysis (Creswell, 2010). The participants were compared on demographic measures, intensity of Facebook use, participation in the first-year seminar and/or living learning community, and engagement (as measured by the NSSE).



**Demographic characteristics.** The researcher analyzed the demographic data from the sample with descriptive statistics and used the results to describe, group, and compare the survey respondents. The demographic characteristics section of the survey was used to provide the student characteristics of the sample. Descriptive statistics were used to describe the participant characteristics including gender, race, GPA, residence, living learning community participation, first-year seminar participation, and Facebook membership. All but three questions in the demographics section were taken from the NSSE. The three questions added written by the researcher were used to group students based on participation in retention programs and Facebook use. The three questions were:

- Do you now or have you lived in Martin Hall as part of the living learning community?
- Did you take the SLS1119 Academic Foundations Seminar during your freshman year?
- Do you use Facebook.com?

**Analysis of research questions.** After analyzing the descriptive and demographic data the NSSE score and Facebook intensity score were calculated for each student. To answer the research questions, the NSSE score, Facebook intensity score, and participation in retention programs were used to group subject participants. The Facebook Intensity Scale items were standardized because the items differ in scale ranges (Ellison et al., 2006). For each of the research questions, the mean and the standard deviation of the NSSE questions and the Facebook Intensity Scale were calculated. Once the students were placed in groups based on intensity of Facebook use and program participation, the NSSE scores of the groups were compared using an ANOVA, MANOVA, Kruskal-Wallis test, and *t-test* to see if there was a significant difference in

the means of the groups. A regression analysis was also performed on the NSSE and Facebook Intensity Scale data to see if a causal relationship was found.

**Research question 1.** For Research Question 1, after the Facebook Intensity Scale items were standardized into  $z$  scores, the average score of the eight questions were calculated for each student. The Facebook intensity scores were then used to categorize students as low-intensity, medium low-intensity, or medium high-intensity, and high-intensity Facebook users. There was also a fifth group of non-Facebook users. After separating the participants into groups based on intensity, the groups were compared on NSSE means using an ANOVA statistic to determine if there were significant differences in NSSE means based on intensity of Facebook use.

When conducting an ANOVA, a group size of at least 20 is preferred (Tabachnick & Fidell, 2012). When the group size is less than 20 the reliability of the ANOVA is lowered (Kraemer & Thiemann, 1987). According to Kraemer & Thiemann (1987), the number of participants is directly related to power, where power is the ability to detect reliability of the differences. In this study, the non-Facebook user group consisted of 12 participants so in addition to the ANOVA statistic, a Kruskal-Wallis test was conducted to compare the NSSE group means. The Kruskal-Wallis results were used to increase the reliability of the results. For further exploration the intensity groups were combined into above average and below average groups and compared using a  $t$ -test. In addition to the comparison of NSSE means between Facebook intensity groups, a regression analysis was performed to analyze the causal relationship between students' NSSE means and Facebook Intensity Scale means.

**Research question 2.** Research question 2 was explored by separating the participants into groups based on responses to involvement in retention programs. The groups included first-year seminar, living learning community, combined first-year seminar and living learning

community, and non-participants. The groups were compared on the NSSE means using an ANOVA statistic to determine if there are significant differences in engagement based on retention program participation. A Tukey HSD post-hoc was used if/when significance was found in the ANOVA results. When a group that consisted of less than 20 participants was compared, a Kruskal-Wallis test was conducted to analyze the difference in group NSSE means and add reliability to the results found.

**Research question 3.** Research Question 3 was addressed by separating the participants into groups based on intensity of Facebook use and participation in retention programs. First, the participants were separated into groups based on Facebook intensity. The survey participants were further broken down into subgroups based on participation in the living learning community, first-year seminar, both programs, and neither program. Once the groups were separated into intensity and program participation some of the groups were too small to analyze. One of the groups consisted of only one participant.

To increase group size for analysis, the intensity of Facebook use groups were combined into above average and below average Facebook users. The groups were then separated into subgroups by program participation. The mean and standard deviation of the NSSE for each subgroup were compared using a MANOVA statistic to determine if there were significant differences in engagement between combined groups based on retention program participation and intensity of Facebook use. If/when a group contained fewer than 20 participants a Kruskal-Wallis test was conducted to increase the reliability of the results.

**Additional findings.** In addition to the research questions, parental education and ethnicity were also compared based on engagement scores. These variables were included in the research because the students added to the sample after the low return rate from the psychology

class came from a program that served first-generation and minority students. Residence was also compared in order to assess if living on campus or residing in the living learning community dorm affected engagement. The results from the analysis of these additional variables were used to increase the reliability of findings from the research questions.

### **Validity**

The use of the NSSE to measure student engagement in this study assisted in establishing face and construct validity. The NSSE is widely accepted and utilized by institutions of higher education to assess engagement of freshmen. In an effort to enhance the validity of the instrument, a small pilot study was conducted on student volunteers. The students took the survey and provided feedback on length of the survey and clarity of the survey questions.

In an effort to increase internal validity, in addition to Facebook intensity, the variables of participation in a living learning community and first-year seminar course were added. These retention programs have been found to increase engagement in college freshmen (Kinzie, 2010; Kinzie & Kuh, 2004). The program variables provided a basis for comparison of the lesser researched Facebook use and engagement results to the results of living learning community and first-year seminar program participation which have been found to effect student engagement.

The participants surveyed in this research consisted of a convenience sample of students who possessed the constructs to be studied. All of the students had an equal opportunity to use Facebook and participate in the living learning community and enroll in the first-year seminar. The intact sample helped address external validity.

### **Limitations**

There are a number of limitations in the present study that are important to consider when interpreting the findings. Limitations for this study include: the participants were from the same

university, the instrument used was a self-report survey, some of the group sizes consisted of less than 20 participants, and additional or unknown influences on attrition exist. Despite these limitations, this study adds to the growing body of knowledge of Facebook use and engagement.

The subjects of this research were all students at the same university. The UWF is a mid-size, public university located in the southern United States. Participants from universities of different sizes and/or private institutions may provide alternative data than the data collected in this research. This disparity could be a limitation when generalizing research outcomes to college freshman as a whole.

The data were gathered using a self-report survey. A common problem found in self-report surveys is the respondents' inability to provide accurate information to questions (Wentland & Smith, 1993). Self-report survey respondents may also provide superficial or untruthful answers (Gonyea, 2005). Self-report survey respondents may also be prone to the halo effect, which means an individual may exaggerate on answers he or she believes to be a good quality. For example, students may inflate their grades, GPA, engagement in activities, and number of friends.

The sample consisted of 141 participants, but when participants were separated into groups, some groups consisted of less than 20 participants. Small group size can reduce reliability (Kraemer & Thiemann, 1987; Tabachnick & Fidell, 2012). The Facebook non-user group consisted of 12 participants so each analysis of that group required a non-parametric statistic to increase reliability. The Kruskal-Wallis test was used to analyze any group with less than 20 participants. The combined program participation group of living learning community and first-year seminar participants also consisted of less than 20 individuals so a Kruskal-Wallis test was used to analyze the data in addition to an ANOVA statistic.

Additional influences on attrition are also a limitation of this study. There are many influences on student attrition, and one cannot account for all of the possible influences. Student characteristics before college, issues in personal and family life, and unforeseen events are all possible influences on attrition.

### **Assumptions**

The assumptions for this study included normal distribution of the population and equal variance of the population. When an assumption was not met during the analysis phase of this research, the procedure was not attempted. Analysis of groups consisting of less than 20 participants is not as reliable as groups larger than 20 participants according to Kraemer and Thiemann (1987) and Tabachnick and Fidell (2012). To address the issue of small cell size, when an ANOVA, MANOVA, or *t*-test was used in this study and when a group consisted of less than 20 participants, a non-parametric statistic was also conducted to increase the reliability of the findings. A Kruskal-Wallis test was used when three or more groups were compared and a Whitney-Mann U test was used when two groups were compared.

### **Researcher Bias**

The purpose of this research was to investigate the effects of intensity of Facebook use and compare the effects of Facebook use with retention program participation on the engagement of college freshmen. The research design was causal-comparative, and all of the variables were present within the sample. The researcher did not manipulate any of the variables. The researcher was most interested in intensity of Facebook use and engagement, but to add reliability to the results the variables of participation in the living learning community and first-year seminar were added because these programs are proven to influence student engagement (Cuseo, 2012; Zhao & Kuh, 2004).

The researcher is involved in multiple areas of freshman retention at the UWF, an involvement that could lead to researcher bias. The researcher serves as a freshman academic advisor, teaches an Academic Foundations Seminar course, and works with students in the living learning community. All of these areas of retention are examined in the survey instrument.

As an academic advisor for the department that serves the 600 first-generation and minority college students added to the survey after low-response rate from the psychology class, the researcher analyzed parental education and race to address possible researcher bias. The additional analysis of race and parental education were added to see if there were significant differences in engagement means based on those variables and to confirm original findings.

### **Chapter Summary**

The purpose of this research was to investigate the effects of intensity of Facebook use and retention program participation on the engagement of college freshmen. The study was set at the UWF. This study was a causal-comparative survey design. The survey instrument contained descriptive measures, Facebook use and intensity measures, and measures from the NSSE. Participants were compared on intensity of Facebook use, engagement, and participation in two UWF freshman retention programs to assess the impact the variables may have on freshmen engagement.

## CHAPTER IV

### RESULTS

The main focus of this study was to compare student engagement and intensity of Facebook use by college freshmen. Participation in university retention programs including a first-year seminar course and living learning community, were also incorporated. This chapter begins with an overview of the results of this study and progresses through a presentation of the results obtained from each of the research questions. Additional findings are disclosed after the research question data is presented.

#### **Overview of Results**

The purpose of this study was to determine how intensity of Facebook use influences college freshmen engagement, how retention programs such as learning communities and first-year seminar courses influence freshman engagement, and how the combination of retention programs and intensity of Facebook use influence freshmen engagement. The findings in this chapter were based on the responses of freshmen to the NSSE, Facebook Intensity Scale, and demographic questions. Comparison groups were based on intensity of Facebook use and program participation. The data were analyzed through ANOVA, MANOVA, Kruskal-Wallis test, *t*-test, and regression analysis statistics. When applicable, a post-hoc test was conducted to further understand statistically significant results.

As a result of data analysis, no significant difference in NSSE means was found between intensity of Facebook user groups. No significant causal relationship was found between individual Facebook Intensity Scale scores and NSSE scores. A significant difference in NSSE means was found between participants in the living learning community and non-participants. No significant difference in NSSE group means was found between participants and non-



participants in the first-year seminar. No significant difference in NSSE means was found between the combination of intensity of Facebook use and program participation groups.

To further explore the data, the individual NSSE questions, GPA, residence, ethnicity, and parental education were analyzed. Individual NSSE questions were analyzed based on Facebook use, participation in the living learning community, and participation in the first-year seminar. The results indicated that Facebook users participated in co-curricular activities significantly more than non-Facebook users; living learning community participants were significantly more engaged (as measured by the NSSE) in social, leisure, and co-curricular activities than non-participants; and first-year seminar participants were more likely to participate in co-curricular activities.

Participant GPAs were analyzed based on Facebook use, participation in the living learning community, and participation in the first-year seminar. Participants and non-participants of each of the groups were compared based on NSSE means using a *t*-test. The results indicated that Facebook users had significantly higher self-reported GPAs than non-users. There was no statistical significance between the self-reported GPAs of living learning community participants and non-participants. There was also no statistically significant difference in self-report GPAs of first-year seminar participants and non-participants.

After a significant difference in NSSE group means was found between living learning community participants and non-participants the researcher analyzed residence as a variable. In previous research, living on campus has been found to influence engagement. To determine if living on campus was the cause of higher engagement, the group NSSE means of the living learning community participants were compared with student living on campus and students living off campus using an ANOVA statistic. Living learning community participants were

significantly more engaged than students who lived off campus indicating that participation in the living learning community influenced significant engagement.

To determine if parental education was influential on engagement scores, the NSSE group means based on parental education were compared using an ANOVA statistic. No significant difference was found between parental education groups, indicating that parental education did not have a significant impact on engagement. To determine if ethnicity was influential on engagement scores, the NSSE means of the ethnicity groups were compared using an ANOVA statistic. No significant difference was found between ethnicity groups, indicating that ethnicity did not significantly impact engagement. The results of parental education and ethnicity indicate that the additional students added to the survey did not influence the results.

### **Data Collection and Return Rate**

The sample for this study was composed of freshmen from the UWF. This research was conducted during the Spring semester of 2012. The survey instrument was first emailed to all of the students in a psychology class consisting of 250 students. Of the 250 students, 132 returned the survey, and 90 of the respondents were freshmen.

Because of the overall low response rate from freshmen in the psychology class, the survey was emailed to an additional 600 freshmen who participated in a program for first-generation and/or minority students. Another 51 freshmen responded to the second dissemination of the survey. A total of 141 surveys were returned. The sample in this study represented 12% of the freshmen student population at the UWF and a 16% return rate.

### **Descriptive Statistics**

Only the freshmen respondents were analyzed for this research. The first step in data analysis was to examine the demographic data, which included a descriptive and frequency

analysis (Table 2). Of the 141 freshmen who completed the survey, more females (66%) than males (44%) participated. The ethnic breakdown of the sample was 57% white students (n = 80) and 43% minority students (n = 61). Over half of the participants lived on campus (54%) and 46% lived off campus.

The participants in this study self-reported GPAs. Of the participants, 12% reported GPAs between 4.0-3.6, 28% reported between 3.5-3.1, 36% reported between 3.0-2.6, 14% reported between 2.5-2.1, and 9% reported a GPA below 2.0. In the parental education category, 40% of the freshmen had parents with a high school diploma or less, 15% had an associate’s degree, 20% had a bachelor’s degree, and 24% had more than a bachelor’s degree. The majority of the freshmen surveyed were Facebook members (92%). Approximately one-fourth of the freshmen took the first-year seminar (25%) and/or participated in the living learning community (27%).

Table 2

*Sample Demographic Data*

	<i>n</i>	%
Gender		
Male	48	34
Female	93	66
Ethnicity		
White	80	57
African American / Black	21	15
Hispanic	21	15
Multicultural	13	9
Asian	6	4
GPA		
4.0-3.6	17	12
3.5-3.1	40	28
3.0-2.6	50	36
2.5-2.1		20

(Table 2 continues)

*Sample Demographic Data (continued)*

	<i>n</i>	%
Below 2.0	13	9
Residence		
On campus	76	54
Within walking distance	6	4
Within driving distance	59	42
Parental Education		
Did not finish high school	3	2
High school	34	24
Attended college	19	14
Associates degree	21	15
Bachelors degree	29	20
Masters degree	27	19
Doctorate degree	7	5
Facebook members	129	92
Program Participation		
First-year seminar	35	25
Living learning community	38	27
Non-participants	68	48

*Note.* Sample demographics ( $n = 141$ ).

### **Facebook Intensity Scale**

Of the survey participants, 129 were Facebook users and completed the Facebook Intensity Scale (Table 3). The freshmen participants averaged between 201-250 Facebook friends and on average spent between 31-60 minutes per day on the social network website. The majority of participants also agreed that Facebook was a part of their everyday activity.

The responses on the Facebook Intensity Scale were standardized due to differing item scale ranges (Ellison et al., 2006). The  $z$  scores for the eight Facebook Intensity Scale questions were combined and averaged for each participant to determine individual Facebook Intensity Scale scores. In the administration of the Facebook Intensity Scale the reliability of the scores was acceptable. The Cronbach's alpha of the Facebook Intensity Scale was .845 for this study (Litwin, 2003; McMillan & Schumacher, 2001).

Table 3

*Facebook Intensity Scale Individual Item and Scale*

Survey Questions	<i>M</i>	<i>SD</i>
1. About how many total Facebook friends do you have at the UWF or elsewhere? <sup>a</sup>	5.30	3.14
2. In the past week, on average, approximately how many minutes per day have you spent on Facebook? <sup>b</sup>	2.88	.79
3. Facebook is part of my everyday activity. <sup>c</sup>	3.13	1.47
4. I am proud to tell people I'm on Facebook.	2.98	1.29
5. Facebook has become part of my daily routine.	3.04	1.50
6. I feel out of touch when I haven't logged onto Facebook for a while.	2.33	1.32
7. I feel I am part of the Facebook community.	2.83	1.30
8. I would be sorry if Facebook shut down.	2.60	1.49

*Note.* <sup>a</sup> Response categories for question 1 included: 0 = 10 or less, 1 = 11-50, 2 = 51-100, 3 = 101-150, 4 = 151-200, 5 = 201-250, 6 = 251-300, 7 = 301-400, 8 = more than 400

<sup>b</sup> Response categories for question 2 included: 0 = less than 10, 1 = 10-30, 2 = 31-60, 3 = 1-2 hours, 4 = 2-3 hours, 5 = more than 3 hours.

<sup>c</sup> Response categories for questions 3-8 ranged from 4 = Agree, 3 = Slightly Agree, 2 = Slightly Disagree, 1 = Disagree

For all but one question on the Facebook Intensity Scale, the standard deviation for each question ranged from .791 to 1.502 of the mean, indicating that the scores for each question were close to the mean. The question, "About how many total Facebook friends do you have at the UWF or elsewhere?" had a standard deviation of 3.146, meaning the scores for this question were spread out from the mean. These results indicate that there was a greater variance in the numbers of friends individual participants had on Facebook.

**NSSE**

The NSSE questions used in this study had a 4-point Likert type response that ranged from Very Often to Never. First, the means from all of the NSSE questions were calculated (Table 4). The Cronbach's alpha of the NSSE Likert type questions was calculated to be .787, an

acceptable measure (Litwin, 2003; McMillan & Schumacher, 2001). Next, the individual NSSE scores were calculated by taking the average of the questions from the NSSE. When the participants were separated into groups based on Facebook intensity and program participation, the average of the group participants' NSSE scores were used as the point of comparison.

Table 4

*NSSE Individual Items*

Survey Questions	<i>M</i>	<i>SD</i>
Asked questions in class or contributed to a class discussion.	2.53	.79
Made a class presentation.	2.33	.79
Came to class without homework.	2.99	.67
Worked with other students on projects during class.	2.31	.73
Worked with classmates outside of class.	2.39	.80
Tutored or taught other students (paid or voluntary).	1.50	.72
Participated in service learning or community based project.	1.60	.79
Emailed instructor.	3.19	.73
Discussed grades or assignments with an instructor.	2.51	.87
Talked about career plans with an advisor, staff, or faculty member.	2.34	.88
Discussed ideas from classes with faculty members outside of class.	1.68	.71
Worked with faculty members on activities other than coursework.	1.56	.83
Discussed ideas from your classes with others outside of class.	2.43	.83
Had serious conversations with students of a different ethnicity.	2.80	1.04
Had a serious conversation with students who are very different from you in terms of their religious beliefs, political views, or personal values.	2.75	1.03
Attended an art exhibit, play, musical, or other performance.	2.31	.91
Attended a social event.	2.75	.93
Attended an athletic team event.	2.04	.99
Exercised or participated in physical activities.	2.89	1.01
Done something to increase spirituality.	2.12	1.13

## Data Analysis

Data were reviewed and analyzed to answer each question. Each question is addressed individually. The questions were:

1. How does intensity of use of social networks such as Facebook influence college freshmen engagement?
2. How do institution-based retention programs such as learning communities and first-year seminar courses influence freshman engagement?
3. How do institution-based retention programs such as learning communities and first-year seminar courses influence freshman engagement when combined with intensity of Facebook use?

**Research question 1.** For research question 1, the individual items of the Facebook Intensity Scale were standardized because the items differed in scale ranges (Ellison et al., 2006). After the Facebook Intensity Scale items were standardized, the  $z$  score means were calculated for each participant. The freshmen were placed in groups based on intensity of Facebook use so the groups could be compared on NSSE group means using an ANOVA statistic. Some of the intensity of Facebook use groups consisted of less than 20 participants so the groups were also compared using a Kruskal-Wallis test. For further analysis, the intensity groups were combined into above average and below average intensity and compared on group NSSE means using a  $t$ -test. As a final analysis, the participants' NSSE means and Facebook Intensity Scale means were analyzed through a regression analysis.

***Intensity of Facebook use and NSSE.*** The individual item data of the Facebook Intensity Scale were standardized into  $z$  scores because of differences in item scale ranges. The average of the  $z$  scores was then taken to obtain Facebook intensity scores for each student (Ellison et al.,

2006). The  $z$  scores were then placed into a frequency distribution, and intensity groups were determined by the position of the score on the Facebook Intensity Scale. The  $z$  scores ranged from -1.50 to 1.50 with the 0.0 marker representing the mean of the sample.

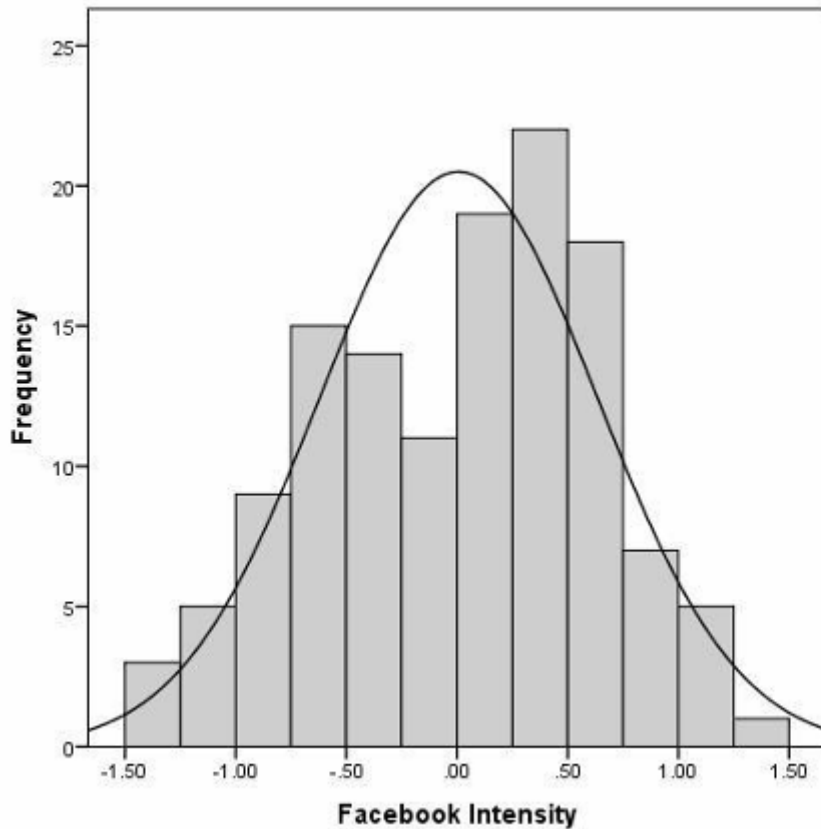


Figure 2. Facebook Intensity Scale  $z$  score frequency distribution for sample.

So the groups could be compared based on intensity of Facebook use, the  $z$  score range was first separated into halves with scores above the mean and scores below. The  $z$  scores above the mean were separated at the .50 mark, or one standard deviation from the mean. The  $z$  scores below the mean were separated at the -.50 mark, one standard deviation from the mean. Low-intensity users fell into the -1.50 to -.49 range. Mid low-intensity users fell into the -.50 to -.01 range. Mid high-intensity users fell into the 0 to .49 range. High-intensity users fell into the .50 to 1.50 range. There was also a fifth group of participants representing non-Facebook users. The



participants were placed into Facebook intensity groups based on their Facebook Intensity Scale scores. The Facebook Intensity Scale means were then calculated for each group (Table 5).

Table 5

*NSSE Mean and Standard Deviation Based on Intensity of Facebook Use*

Intensity	<i>n</i>	<i>M</i>	<i>SD</i>
High-intensity	32	2.32	.456
Mid high-intensity	41	2.38	.373
Mid low-intensity	25	2.40	.351
Low-intensity	31	2.29	.347
Non-users	12	2.35	.432
Overall	129	2.35	.383

An ANOVA was conducted to determine if there were significant differences between the NSSE means of the groups based on Facebook intensity. No statistical significance was found using the ANOVA. The non-Facebook user group consisted of 12 participants so in addition to the ANOVA statistic a Kruskal-Wallis test was used to compare the difference in group NSSE means. The Kruskal-Wallis test was appropriate because the test is a non-parametric test used for comparing the difference in means of small samples. According to Kraemer and Thiemann (1987) and Tabachnick and Fidell (2012), groups with less than 20 members may yield inaccurate results and cause results to be less reliable. Using the Kruskal-Wallis test, no significant difference in NSSE means was found between the NSSE means of the groups based on Facebook intensity. The Kruskal-Wallis results correspond with the ANOVA statistic results. For this sample, Facebook intensity did not have a significant impact on student engagement.

For further exploration, the Facebook intensity groups were combined into above average and below average Facebook intensity users. Placement in these combined intensity groups were based on where the individual Facebook Intensity Scale *z* score fell above or below the mean. No

statistical significance was found when comparing the combined intensity of Facebook use groups based on NSSE means through a *t*-test.

***Facebook Intensity Scale and NSSE.*** The data from the individual freshman Facebook Intensity Scale scores and NSSE scores were analyzed through a regression analysis to explore the causal relationship between NSSE scores and Facebook intensity scores. A Pearson Product-Moment Correlation was performed ( $r = .053$ ) and a low degree of correlation was indicated. The regression analysis was not conducted because the low degree of correlation failed to meet the assumption for regression analysis.

***Summary of research question 1.*** The Facebook Intensity Scale scores were used to group the freshmen based on intensity of Facebook use. The intensity of Facebook use groups were then compared by group NSSE means using an ANOVA statistic and Kruskal-Wallis test. No statistical significance was found between intensity of Facebook use and student engagement.

The freshmen were then compared on Facebook Intensity Scale scores and NSSE scores using a Pearson Correlation statistic. The Pearson Correlation was performed as an assumption for regression analysis (Agresti & Finlay, 2009). The assumption for regression analysis was not met, so a regression analysis was not performed. The results indicated there was no causal relationship between participant Facebook Intensity Scale scores and NSSE scores in this study.

***Research question 2.*** Research question 2 was answered first by separating respondents into groups based participation in the living learning community or non-participation and participation in the first-year seminar or non-participation. The NSSE means of participants and non-participants of each retention program were compared using a *t*-test. Next, the participants were analyzed based on participation in one, both, or neither program. The freshmen were placed into groups based on participation in the living learning community, first-year seminar, living

learning community and first-year seminar, or neither program. An ANOVA statistic was performed to compare the program participation groups based on NSSE means, and a Tukey HSD post-hoc test was performed when significance in the ANOVA was found. As a result of the small size of the combined living learning community and first-year seminar group, the NSSE means were also analyzed using a Kruskal-Wallis test.

***Living learning community participation.*** Of the 141 freshmen surveyed, 35 participated in the living learning community. The NSSE means of the living learning community group and non-participant group were compared (Table 6). The freshmen who participated in the learning community had higher average NSSE scores than non-participants. Those subjects who participated in the living learning community had a NSSE group mean of 2.52. Those subjects who did not participate had a NSSE group mean of 2.29. Using a *t*-test statistic, a significant difference ( $p < .05$ ) in NSSE means was found between living learning participants and non-participants.

Table 6

*NSSE Means and Participation in Living Learning Community*

Living Learning Community	<i>n</i>	<i>M</i>	<i>SD</i>
Yes	35	2.52	.40
No	106	2.29	.36
Overall	141	2.35	.38

***First-year seminar participation.*** Of the 141 freshmen surveyed, 38 of the respondents participated in the first-year seminar. The NSSE means of the first-year seminar group were compared with the means of the non-participant group using a *t*-test. The freshmen who participated in the first-year seminar course had slightly higher average NSSE scores than freshmen who did not participate. First-year seminar participants had a NSSE group mean of

2.43, while non-participants had a NSSE group mean of 2.32 (Table 7). Although the NSSE group means of the first-year seminar participant group was higher than the non-participant group, the difference in NSSE means was not significant.

Table 7

*NSSE Means and Participation in First-Year Seminar*

First-Year Seminar	<i>n</i>	<i>M</i>	<i>SD</i>
Yes	38	2.43	.32
No	103	2.32	.40
Overall	141	2.35	.38

***Program participation groups and engagement.*** Because some of the freshmen in this study participated in the both the first-year seminar and the living learning community, the individual program groups were separated into groups of students who participated in the first-year seminar, the living learning community, combined first-year seminar and the living learning community, and non-participants. The groups were then compared based on NSSE means (Table 8). Overall, the program participant groups had higher NSSE means than did the non-participant group. The living learning community participants had the highest NSSE means (2.54), followed by the living learning community and first-year seminar combined participants (2.49), first-year seminar participants (2.39), and then non-participants (2.26).

Table 8

*NSSE Means for Program Participation*

Program	<i>n</i>	<i>M</i>	<i>SD</i>
LLC	21	2.54	.48
First-year seminar	24	2.39	.35

(Table 8 continues)

*NSSE Means for Program Participation (continued)*

Program	<i>n</i>	<i>M</i>	<i>SD</i>
LLC & First-year seminar	14	2.49	.28
Non-participants	82	2.26	.36
Overall	141	2.35	.38

*Note.* LLC = living learning community

An ANOVA statistic was conducted to determine if there was a significant difference in NSSE means between the program groups (Table 9). A statistically significant difference in the means was found between groups,  $F(3,140) = 4.003, p < .05$ . A post-hoc test was performed to further explore the differences. Using a Tukey HSD a significant difference was found in NSSE means between the living learning community group and the non-participant group,  $p < .05$  (Table 10).

The results of the Tukey HSD indicated that the living learning community participants were significantly more engaged (as measured by the NSSE) than non-participants. The results also indicated that the first-year seminar participants were not significantly more engaged than non-participants or other groups. The combined living learning community and first-year seminar participant group was also not significantly more engaged than non-participants or the other groups.

Table 9

*ANOVA for NSSE Means and Program Participation*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Between Groups	1.683	3	.561	4.003	.009*
Within Groups	19.204	137	.140		
Overall	20.888	140			

*Note.* \* $p < .05$

Table 10

*Tukey HSD for NSSE Means and Program Participation*

Program	Program	<i>MD</i>	<i>SE</i>	<i>p</i>
LLC	Seminar & LLC	.047	.129	.983
	Neither	.275	.092	.017 *
	Seminar	.145	.112	.568

*Note.* LLC = living learning community. \* $p < .05$

The combined living learning community and first year seminar group had 14 participants. When conducting an ANOVA it is preferred to have groups that consist of at least 20 or the results are less reliable (Kraemer & Thiemann, 1987; Tabachnick & Fidell, 2012). Because of small group size, a Kruskal-Wallis test was performed. Using a Kruskal-Wallis test, a significant difference in NSSE means was found based on participation in the living learning community and non-participants, but no significance was found for the other participation groups. This finding confirms the findings of the ANOVA statistic.

**Summary of research question 2.** When comparing the NSSE means of participants in the living learning community, first-year seminar, and non-participants, the participants in the programs had higher NSSE scores than non-participants. Using an ANOVA statistic, a significant difference was found between the NSSE means when compared based on program participation. Using a Tukey HSD post-hoc, a significant difference in NSSE means was found between the learning community group and non-participant group.

**Research question 3.** Research Question 3 was first addressed by separating participants into groups based on Facebook intensity and then separating those groups into subgroups based on involvement in retention programs. When the groups were broken down, several cells were too small for reliable comparison; one of the groups consisted of one participant. To increase

group size for further comparison, the Facebook intensity groups were combined into above average and below average intensity based the distribution of Facebook Intensity Scale  $z$  scores. High intensity and mid-high intensity users were coded as above average intensity users because the scores of these groups fell above zero, which is the mean, on the distribution of the Facebook Intensity Scale. Low intensity, mid-low intensity, and non-users were coded as below average intensity users because the scores of these groups fell below zero on the distribution of the Facebook Intensity Scale.

The above average intensity and below average intensity groups were then separated into subgroups based on program participation (Table 11). The groups were then compared based on the NSSE mean using a MANOVA statistic. A MANOVA was used because the statistic is an extension of an ANOVA which was used to first compare the NSSE means of Facebook intensity groups and then the NSSE means of the participation groups. A MANOVA statistic allows for comparison of groups based on Facebook intensity and participation at the same time. Because some of the groups consisted of less than 20 participants the group NSSE means were also analyzed using a Kruskal-Wallis test to add reliability to the MANOVA results (Kraemer & Thiemann, 1987; Tabachnick & Fidell, 2012).

***Facebook intensity and program participation.*** The tests between subject effects from the MANOVA yielded a significant main effect for program participation,  $F(3,140) = 3.947, p < .05$  (Table 12). The main effect of Facebook intensity was not significant. The interaction effect between program participation and Facebook intensity was not significant. No significant difference was found between the NSSE means and intensity of Facebook use. These results indicate that for this data set, intensity of Facebook use does not have a significant effect on engagement, but program participation, specifically the living learning community participation

does significantly affect engagement. The results found for research question 3 correspond to the results found for research question 1 and research question 2.

Table 11

*Descriptive Data of Facebook Intensity and Program Participation*

Intensity	Program	<i>n</i>	<i>M</i>	<i>SD</i>
Above average LLC		13	2.52	.52
	First-year seminar & LLC	7	2.41	.24
	Neither	41	2.24	.38
	First-year seminar	12	2.50	.33
	Overall	73	2.35	.41
Below average LLC		8	2.56	.42
	First-year seminar & LLC	7	2.56	.31
	Neither	41	2.28	.34
	First-year seminar	12	2.28	.34
	Overall	68	2.34	.36

*Note.* LLC = living learning community

Table 12

*MANOVA Results of Program Participation and Facebook Intensity Combination*

Source	Type III SS	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Corrected Model	2.091a	7	.299	2.114	.046
Intercept	533.295	1	533.295	3773.490	.000
Intensity	1.224E-5	1	1.224E-5	.000	.993
Program	1.674	3	.558	3.947	.001*
Intensity * Program	.407	3	.136	.961	.413
Error	18.796	133	.141		
Overall	797.518	141			
Corrected Total	20.888				

*Note.* <sup>a</sup>  $r^2 = .100$  (Adjusted  $r^2 = .053$ ). <sup>b</sup> \* $p < .05$



*Summary research question 3.* Once broken down by Facebook intensity and program participation, some of the groups were too small for comparison. To analyze the data, the intensity of Facebook use groups were combined into above average users and below average users and then broken down further by program participation. The groups were analyzed using a MANOVA. No significant relationship was found in the combination of program participation and intensity of Facebook use. Because some of the groups consisted of fewer than 20 participants, the NSSE group means were also compared using a Kruskal-Wallis test. No significant difference was found using the Kruskal-Wallis test. Reaffirming the results found in research question 1, no significant difference was found between intensity of Facebook use groups based on NSSE means, but a significant difference was found between participants in the living learning community and non-participants. These findings support the findings of research questions 1 and 2.

**Additional findings.** To further explore the data, the individual NSSE questions, GPA, residence, ethnicity, and parental education were analyzed. Individual NSSE questions and GPA were analyzed based on Facebook use, participation in the living learning community, and participation in the first-year seminar.

Typically, individual NSSE questions are analyzed by researchers and institution administrators to determine specific areas that students engage in and areas that need improvement. After analyzing the individual NSSE questions based on Facebook use, it was determined that Facebook users in this study participated in co-curricular activities significantly more than non-Facebook users. Living learning community participants were significantly more engaged in social, leisure, and co-curricular activities than non-participants. First-year seminar participants were also significantly more likely to participate in co-curricular activities.

GPA is often used by researchers as a student outcome associated with persistence. Facebook users had significantly higher self-reported GPAs than non-users. There was no a statistical significance between the self-reported GPAs of living learning community participants and non-participants. There was also no statistically significant difference in self-report GPAs of first-year seminar participants and non-participants.

Residence, ethnicity, and parental education were compared on NSSE scores using an ANOVA statistic to see if any of these variables contributed to engagement. Residence was analyzed to see if residing on campus or residing in the living learning community dorm was the cause of significantly higher engagement scores. Living learning community participants were significantly more engaged than students who lived off campus. Parental education and ethnicity were analyzed because the participants who were added to the study after low response rate from the psychology class consisted of first-generation and minority students. Parental education and ethnicity had no statistical significance on engagement scores.

*Group comparisons based on NSSE questions.* The results of the NSSE are typically presented based on participant characteristics and comparisons of groups based on benchmarks and individual NSSE questions. For additional exploration, the individual NSSE questions were compared through an ANOVA statistic or *t*-test to see if any of the questions were statistically significant for any group. The comparison groups included Facebook users and non-Facebook users, Facebook intensity groups, and program participation groups.

The three range questions from the NSSE were analyzed for the sample (Table 13). For the participants, the average hours per week spent preparing for class was between 6-10 hours, while the average hours per week relaxing and socializing was between 11-15 hours, and the average hours per week spent participating in co-curricular activities was between 1-5 hours.

Table 13

*NSSE Participation Hours for Sample*

NSSE Question	<i>M</i>	<i>SD</i>
Hours per week spent preparing for class.	3.57	1.24
Hours per week relaxing and socializing.	4.49	1.49
Hours per week spent participating in co-curricular activities.	2.05	1.47

***NSSE questions and Facebook intensity.*** Using a *t*-test a significant difference ( $p < .05$ ) in average hours per week participating in co-curricular activities was found between above average Facebook intensity users and below average Facebook intensity users (Table 14). The results indicate that above average Facebook users participated in co-curricular activities significantly more than below average Facebook users.

Table 14

*NSSE Questions and Facebook Intensity*

NSSE Question	Intensity		<i>p</i>
	Above average	Below average	
Hours spent weekly participating in co-curricular activities.			
<i>M</i>	2.33	1.75	.018*

Note. \* $p < .05$

***NSSE questions and living learning community participation.*** The means of the NSSE questions of living learning community participants and non-participants were evaluated using a *t*-test to see if any of the question means were significantly different based on participation (Table 15). For this data set, the living learning community participants were significantly more likely to tutor or teach their peers outside of class than the non-participant group. Living learning community participants were significantly more likely to go to art or musical performance, social event, athletic team event, and participate in physical activities than non-participants. Living

learning community participants also spent significantly more time participating in co-curricular activities than non-participants. The results indicate that living learning community participants were significantly more engaged in social, leisure, and co-curricular activities than non-participants. The results from these questions may account for the significant difference in NSSE group means found between living learning community participants and the other groups.

Table 15

*NSSE Questions and Living Learning Community Participation*

NSSE Question	Yes	No	<i>p</i>
	<i>M</i>	<i>M</i>	
Tutored or taught other students.	1.80	1.40	.005*
Attended an art exhibit, play, musical, or other performance.	2.68	2.18	.005*
Attended a social event.	3.05	2.66	.029*
Attended an athletic team event.	2.71	1.82	.000*
Exercised or participated in physical activities.	3.22	2.78	.024*
Hours per week participating in co-curricular activities.	2.71	1.84	.040*

*Note.* \* $p < .05$

***NSSE questions and first-year seminar participation.*** Using a *t*-test the first-year seminar participants and non-participants were compared based individual NSSE questions to see if any of the question means were significantly different based on participation. In this data set, the first-year seminar participants were significantly more likely to work with other students on projects during class and participate in a service learning project than the non-participant group (Table 16). The first-year seminar participants were also significantly more likely to participate in co-curricular activities than non-participants.

While the first-year seminar participants were not significantly more engaged overall, these results show that participants were significantly more engaged in the areas of in class

projects, service learning, and co-curricular activities than non-participants. This data could be used to identify the areas the first-year seminar is most engaging and areas that need improvement.

Table 16

*NSSE Questions and First-Year Seminar Participation*

NSSE Questions	Yes	No	<i>p</i>
	<i>M</i>	<i>M</i>	
Worked with other students during class.	2.52	2.24	.040*
Participated in a service learning project.	1.84	1.52	.034*
Hours spent in co-curricular activities.	2.66	1.80	.003*

*Note.* \* $p < .05$

**GPA.** Learning communities and first-year seminars are often assessed based on GPA so program participation was included for this query. For an added level of exploration the participants’ self-reported GPA group means were compared through an ANOVA to determine first-year seminar impact on GPA. The groups included Facebook users and non-users, Facebook intensity groups, and program participation groups. GPA is a student outcome often reported in research that is associated with retention.

*GPA and Facebook use.* The self-reported GPAs of Facebook users and non-Facebook users were compared using an ANOVA statistics to determine if Facebook use had an impact on GPA. Facebook users had a significantly higher self-reported group GPA averages than non-users (Table 17). There was a statistically significant difference in the means between groups,  $F(1,139) = 8.268, p < .05$  (Table 18). This means that Facebook users had significantly higher self-reported GPAs than non-users. Because the non-Facebook user group consisted of less than 20 participants a Mann-Whitney U Test was also conducted. The Mann-Whitney was appropriate for this analysis because the Mann-Whitney is used to analyze small groups with two groups.

The results of the Mann-Whitney U Test indicated a significant difference in GPA based on Facebook use. The results of the Mann-Whitney U Test reflect the findings of the *t*-test. For this data set, Facebook users had significantly higher self-reported GPAs than non-Facebook users.

Table 17

*GPA and Facebook Use Means*

Facebook Use	<i>M</i>	<i>n</i>	<i>SD</i>
Yes	3.28	128	1.05
No	2.33	12	1.43
Overall	3.20	140	1.12

Table 18

*ANOVA of GPA and Facebook Use*

	<i>SS</i>	<i>df</i>	<i>M2</i>	<i>F</i>	<i>p</i>
Between Groups (Combined)	9.858	1	9.858	8.268	.005*
Within Groups	164.542	138	1.192		
Total	174.400	139			

*Note.* \* $p < .05$

*GPA and program participation.* GPA is one of the most common student outcomes assessed in learning communities and first-year seminar research. To determine if program participation was influential on GPA, the program groups were compared on GPA using an ANOVA. The groups consisted of living learning community participants, first-year seminar participants, living learning and first-year seminar participants, and non-participants.

First-year seminar participants had the highest self-reported GPAs, followed by the combination group, living learning community group, and non-participants. Although first-year seminar participants had self-reported higher GPAs than living learning community participants,

freshmen who participated in both the living learning community and first-year experience, and freshmen who did not participate in either program (Table 19) were not statistically significant.

Table 19

*GPA and Program Participation Means*

Program	<i>M</i>	<i>n</i>	<i>SD</i>
Seminar	3.50	24	1.06
Seminar & LLC	3.46	13	.77
LLC	3.33	21	1.01
Neither	3.03	82	1.19
Overall	3.20	140	1.12

*Note.* LLC = living learning community.

**Residence.** Researchers (Astin, 1993; Chickering & Gamson, 1991) have found that students who live on campus have higher engagement scores than students who live off campus. Because the living learning community participants had the highest NSSE means and there was a statistical significance between the NSSE group means, residence became a variable of interest. Participants were coded into groups based on residents who lived and participated in the living learning community dorm, residents who lived in a non-learning community dorm, and students who lived off campus (Table 22). Using an ANOVA statistic, a statistically significant difference in the NSSE means was found between residence groups,  $F(3,138) = 3.063, p < .05$  (Table 23). A post-hoc Tukey HSD showed that students who lived in the living learning community dorm and students who lived off campus differed significantly on NSSE group means (Table 24).

The results indicate that the living learning community participants were significantly more engaged than students who lived off campus. The results also indicate that students, who lived on campus but not in the learning community dorm, were not statistically more engaged than student who lived off campus. These data suggest that the engagement scores of the living

learning community participants may have been significant based on participation in the program, rather than and not because the freshmen resided on campus.

Table 20

*NSSE Means Between Residence Groups*

	<i>n</i>	<i>M</i>	<i>SD</i>
LLC Dorm	34	2.53	.41
Other Dorm	37	2.36	.36
Off Campus	68	2.24	.36
Overall	139	2.35	.38

*Note.* LLC = Living learning community.

Table 21

*ANOVA of NSSE Between Residence Groups*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P</i>
Between Groups	1.740	4	.435	3.063	.019*
Within Groups	19.026	134	.142		
Overall	20.765	138			

*Note.* \* $p < .05$

Table 22

*Tukey HSD of NSSE and Residence Groups*

Residence	Residence	<i>MD</i>	<i>SE</i>	<i>P</i>
LLC Dorm	Other Dorm	.161	.090	.376
	Off Campus	.283	.082	.006*

*Note.* \* $p < .05$

***Parental education and ethnicity.*** To determine if ethnicity was influential on engagement scores, the NSSE group means based on ethnicity were compared using an ANOVA statistic. No significant difference was found between ethnicity groups indicating that ethnicity



had no effect on engagement. The results of parental education and ethnicity indicate that the additional students added to the survey from the first-generation and minority student program did not influence the results.

### **Chapter Summary**

The purpose of this research was to investigate the effects of intensity of Facebook use and compare the effects of Facebook use with retention program participation on the engagement of college freshmen. To address the influence of intensity of Facebook use on engagement, the freshmen were grouped based on their Facebook Intensity Scale and compared by NSSE means using an ANOVA. No statistical significance was found between intensity of Facebook use and student engagement. Due to small numbers in some of the intensity of Facebook use groups, the groups were compared using a Kruskal-Wallis test and no significance was found. The intensity groups were then combined into above average intensity users and below average intensity users and compared using a *t*-test. No significance was found between intensity of Facebook use and engagement indicating that Facebook intensity does not have an effect on engagement for this set of freshmen. The participants' Facebook Intensity Scale scores and NSSE scores were to be compared using a regression analysis, but the assumption for regression analysis was not met.

To address the influence of participation in retention programs on student engagement, the freshmen were grouped based on participation in the first-year seminar, living learning community, both programs, and neither program. Using an ANOVA it was determined that there was a significant difference between the NSSE means when compared based on program participation. After a Tukey HSD post-hoc was performed, it was revealed that there was a significant difference in NSSE scores between the learning community group and non-participant group.

To address the possible influence of the combination of intensity of Facebook use and participation in retention programs, the freshmen were grouped based on intensity of Facebook use and program participation. The combined groups were small, some consisting of one student. The intensity of Facebook use groups were combined into above average users and below average users based on the Facebook Intensity Scale distribution of means to increase group size. The intensity of Facebook use groups were then broken down by participation in programs and compared on NSSE means using a MANOVA statistic. Some of the combined groups consisted of less than 20 participants so a Kruskal-Wallis test was used to compare the NSSE means. No statistical significance was found using the Kruskal-Wallis test. No statistically significant relationship was found between the combination of program participation and intensity of Facebook use.

Individual NSSE questions, GPA, residence, ethnicity, and parental education were also analyzed in this study as exploratory areas. In analysis of the individual NSSE questions, the researcher found that both learning community and first-year seminar participants spent significantly more time participating in co-curricular activities. Facebook users had significantly higher self-reported GPAs than non-Facebook users. Living learning community participants were significantly more engaged than students who lived off campus. Ethnicity and parental education had no significant effect on engagement.

## CHAPTER V

### DISCUSSION AND IMPLICATIONS

Student engagement is an important factor in higher education because it has been shown to promote retention (Kuh, 2007). Previous researchers indicate that retention programs, including learning communities and first-year seminar courses, are effective in increasing student engagement in freshmen and, in turn, increasing retention and persistence (Kuh, 2007; Pascarella & Terenzini, 2005). Facebook.com is a social network site that is highly used by college students for communication, information seeking, information sharing, and group organization (Boyd, 2004, 2007; Boyd & Heer, 2006; Donath & Boyd, 2004). A handful of researchers have also studied the impact of Facebook on engagement (Heiberger & Harper, 2008; HERI, 2007; Junco, 2012a, 2012b, Karpinsky & Duberstein, 2009; Martin, 2009; Morris et al., 2010).

The purpose of this research was to investigate the effects of intensity of Facebook use and compare the effects of Facebook use with retention program participation on the engagement of college freshmen. The sample consisted of college freshmen at the University of West Florida. The participants were surveyed using components of the NSSE and the Facebook Intensity Scale. Freshmen were compared on engagement, intensity of Facebook use, and participation in a first-year seminar, living learning community, both programs, and neither program. The data were analyzed through an ANOVA, MANOVA, Kruskal-Wallis test, *t-test*, and regression analysis statistics.

#### **Previous Research**

Learning communities and first-year seminars are considered leading practices in higher education because of the significant impact those programs have on engagement and persistence (Brownell & Swaner, 2010; Kuh, 2007; Kuh & AAC&U, 2008; Leskes & Miller, 2006).

Previous researchers show that students who participate in learning communities and/or first-year seminars are more engaged than students who do not participate (Kuh, 2007; Shapiro & Levine, 1999). Although these programs are widely accepted as effective practices in higher education research, it is still important to look for new ways to engage students.

Because most college students are high users of technology (ECAR, 2010), the effect of technology on education has become an area of interest for researchers. Some researchers have found that technology use prevents students from engaging in activities (Reisberg, 2000), while other researchers have found that technology was associated with increased engagement in activities (Oblinger & Maruyama, 1996). Nelson-Laird (2004) and Nelson-Laird and Kuh (2005) found a strong positive relationship between student engagement and use of technology for educational purposes and suggest that using technology increases the opportunities for student engagement. Researchers investigating online social networks and student engagement, found that students who use Facebook are more engaged in social activities on campus (Karpinsky & Duberstein, 2009), participate more in student organizations, interact more with friends (Heiberger & Harper, 2008), and participate in more co-curricular activities (Junco, 2012a) than non-users.

## **Research Findings**

Conclusions, discussion, and alignment with prior research are presented for each of the research questions. A short summary of the findings for each of the research questions is included.

**Research question 1.** Research question 1 concerned intensity of Facebook use and student engagement. Research question 1 was answered using an ANOVA, Kruskal-Wallis test, *t*-test, and regression analysis statistics.

**Findings.** The majority of freshmen who participated in this study (92%) were Facebook users. The majority of the Facebook members used the website at least one time per day for an average of 31-60 minutes. The individual Facebook Intensity Scale scores were used to place participants into intensity groups. The groups consisted of high-intensity users, mid-high-intensity users, mid-low-intensity users, low-intensity users, and non-users. No statistical significance was found when comparing the intensity of Facebook use groups based on NSSE means through an ANOVA statistic. For this study, Facebook intensity had no significant effect on student engagement.

Because of the small number of individuals in the non-Facebook users group the groups were also compared using a Kruskal-Wallis test. No significance was found between Facebook intensity and NSSE means. For further exploration, the Facebook intensity groups were also combined into above average and below average Facebook intensity users. Placement in these combined intensity groups were based on where the individual Facebook Intensity Scale  $z$  score fell above or below the mean. No statistical significance was found when comparing the combined intensity of Facebook use groups based on NSSE means through a *t-test*. Again, Facebook intensity had no significant effect on the freshmen in this study.

The individual Facebook Intensity Scale scores and NSSE scores were meant to be analyzed through a regression analysis to see if there was a significant relationship between Facebook intensity and engagement. The regression analysis could not be performed because the assumptions were not met. This failure to meet the assumption suggests there was no significant causal relationship between Facebook intensity scores and student engagement scores.

**Discussion.** Intensity of Facebook use does not have a statistically significant impact on student engagement for this group of freshmen. Previous researchers (Junco, 2012a; Karpinski &

Duberstein, 2009; Heiberger & Harper, 2008; HERI, 2007; Nelson-Laird, 2004) on Facebook and student engagement have found that Facebook use promotes engagement. Researchers have found that students who use Facebook are more engaged in social (Karpinski & Duberstein, 2009) and co-curricular activities (Junco, 2012a), participate more often in student organizations, and interact more with friends (Heiberger & Harper, 2008) than non-users. The instrumentation used in this study modeled strategies used by Junco (2012a) and Heiberger and Harper (2008) who used questions from the NSSE and found that Facebook users were more involved in co-curricular activities and student organizations than non-users.

Researchers have shown that the majority of college students use Facebook; between 90%-95% (ECAR, 2010; Ellison et al., 2006) of the undergraduate students who have been surveyed in previous research are members of Facebook.com. In previous research, 95%-96% of Facebook members logged-in to the website daily (Martin, 2009; Smith & Curuso, 2010). Junco (2012b) found that the average college student spends 106 minutes a day on Facebook and visits the website on average six times per week. The results of this research were similar to previous research in that 92% of the freshmen surveyed were Facebook members and used Facebook between 31-60 minutes daily.

**Conclusions.** One possible reason for lack of significant relationship between Facebook and engagement may lie in the diffusion of technology. In 2012, Facebook has become a part of college students' everyday life. Most freshmen college students are digital natives and as such, have used social media since their early teens. Facebook was created in 2004 and opened to individuals other than college students in 2007 when most of the participants in this study were in the 8th grade. Facebook has become another form of communication and similarly to email it has become a seamless and fast way of communication among college students.

**Research question 2.** Research question 2 concerned the effects of student participation in a living learning community and/or first-year seminar on student engagement. Research question 2 was answered using an ANOVA statistic and a post-hoc Tukey HSD test.

*Findings.* The freshmen in this study, who participated in either the living learning community and/or the first-year seminar, had higher NSSE means than freshmen who did not participate in either program. In other words, learning community and first-year seminar participants showed highest levels of engagement.

A statistically significant difference was found when comparing the program participants based on NSSE means through an ANOVA statistic. The groups consisted of students who participated in the living learning community, those who participated in the first-year seminar, those who participated in both programs, and those who did not participate in either program. To determine how each program affected NSSE means, a Tukey HSD post-hoc test was performed. There were significant differences between NSSE mean scores for students who participated in the living learning community and those who did not participate in any program. Although participants in the first-year seminar had higher NSSE mean scores than non-participants, there was not a statistically significant difference in NSSE means between participants and non-participants. For this set of freshmen, living learning community participants were significantly more engaged than non-participants while first-year seminar participants were not significantly more engaged than non-participants.

In addition to engagement, both learning community and first-year seminar participants spent significantly more time participating in co-curricular activities and had higher self-reported group GPA averages than non-participants. Although not statistically significant, the participants in the first-year seminar had the highest self-reported group GPA means of any of the groups.

*Discussion.* First-year seminars and learning communities are considered best practices in higher education because of the impact that those programs have on engagement and persistence (Brownell & Swaner, 2010; Kuh, 2007; Leskes & Miller, 2006). Previous researchers have found that students who participate in learning communities and/or first-year seminars are more engaged than students who do not participate (Pascarella & Terenzini, 2005; Shapiro & Levine, 1999). Students who participate in learning communities and/or first-year seminars are also persist at higher rates than non-participants (Barefoot, 1993, 2002, 2004, 2005; Blowers, 2005; Henscheid, 2004; House, 2005; Hunter & Linder, 2005; Knight, 2003; Lenning & Ebers, 1999; Pascarella & Terenzini, 2005).

The results from participation in the first-year seminar did not align with previous research on first-year seminars. Pascarella and Terenzini (2005) found a positive relationship between freshmen who participated in first-year seminars and engagement. Barefoot and Fidler (1996) found that students enrolled in first-year seminar courses also showed higher participation in college life than those not enrolled. The majority of research on first-year seminars focuses on student outcomes that include GPA and persistence to the sophomore year instead of engagement. The freshmen who participated in the first-year seminar at the UWF are not currently assessed by administrators on engagement, but on GPA and persistence to the sophomore year instead. UWF administrators (Ford & Westcott, 2006) found that freshmen who participate in the first-year seminar courses had higher retention rates and GPAs than freshmen who did not participate in first-year seminar courses.

The findings in this study related to the living learning communities align with previous research on learning communities. In previous research, learning community participants spent significantly more time in campus activities (Blimling, 1993; Pascarella et al., 1994a), assisted



classmates outside of the classroom (Tinto, 2003), had higher engagement scores (Zhao & Kuh, 2004), and had higher GPAs (Tinto, 2003) than did non-participants. Similar results were found in this study. Learning community participants had significantly higher overall NSSE means than the other participants. Living learning community participants were also significantly more likely to engage in social and co-curricular activities and were significantly more likely to attend art exhibits, musical performances, social events, athletic team events, and participate in physical activities than non-learning community participants.

The results from the self-reported GPAs and individual NSSE questions in this research are similar to findings in previous first-year seminar research and the UWF institutional reports. Participants in this research who were enrolled in the first-year seminar had a higher group GPA averages than learning community and non-participants. In addition to higher average GPAs, Academic Foundation Seminar participants were also statistically more likely to participate in co-curricular activities than non-participants.

**Conclusions.** For the freshmen participants in this study, participation in the learning community had a significant effect on freshmen engagement while participation in the first-year seminar did not have an effect on engagement. Participation in the first-year seminar was not shown to have an effect on student engagement, but first-year seminar participants had higher self-reported GPAs than non-participants. GPA is a student outcome used to predict persistence.

**Research question 3.** Research question 3 concerned the effect of intensity of Facebook use combined with program participation on student engagement. Research question 3 was answered using a MANOVA statistic and Kruskal-Wallis test.

**Findings.** No statistical significance was found when comparing the intensity of Facebook use combined with program participation groups based on NSSE means through a

MANOVA. As in research question 1, a statistical significance was found when comparing the NSSE group means of living learning community participants and non-participants and there was no significant difference in NSSE group means between first-year seminar participants and non-participants. Because some of the groups consisted of less than 20 participants, a Kruskal-Wallis test was used. A significant difference in NSSE means was found between the living learning community participant group and non – participants group. No significance was found between other groups.

***Discussion.*** Facebook has been shown to influence engagement in some studies while inhibiting engagement in others. The results from the learning community participants align with previous research on engagement (Zhao & Kuh, 2004). The lack of a significant interaction between Facebook intensity and learning community participation further shows that Facebook is a widely accepted form of communication for freshmen and did not influence or inhibit freshmen engagement for the freshmen in this sample.

***Conclusions.*** Intensity of Facebook use combined with program participation did not have an effect on freshmen engagement while participation in the living learning community did have an effect on freshmen engagement for this sample. Although there was no significant interaction between the variables of Facebook intensity and program participation, the results of research question 3, confirmed findings of research questions 1 and 2 which examined each construct individually.

### **Implications for Stakeholders**

In higher education, engagement has been found to influence the retention and persistence of freshmen college students (Kuh, 2007). In this study on engagement, freshmen retention program participation, and intensity of Facebook use, recommendations based on findings can

provide insights to institution administrators, advisors, and students on what activities serve as evidence of best practice for enhancing student engagement.

The intensity of Facebook use and program participation for stakeholders has implications for freshmen, advisors, faculty, and institution administrators. Freshmen are stakeholders in this study because engagement has been shown to promote persistence in college. Academic advisors are stakeholders because they work closely with freshmen and often give advice and direct students toward courses, resources, and benefits. Academic advisors also guide freshmen to choose programs and activities that are shown to increase engagement. Faculty are stakeholders because they work with freshmen on a weekly if not daily basis. Institution administrators are stakeholders because they make decisions and provide funding based on programs that promote persistence.

The goals for institution of freshmen, advisors, faculty, and higher education administrators are retention and persistence of college students. Advice on meeting those goals through Facebook, learning community participation, and participation in the first-year seminar for each of the stakeholders will be addressed next. Implications for stakeholders can be organized in categories of Facebook learning communities and first-year seminar.

**Facebook.** Facebook is a part of everyday college life (Martin, 2009; Smith & Curuso, 2010). The majority of college students use Facebook to communicate, meet people, post and look for information, create and organize groups, and express themselves (Boyd, 2004, 2007; Boyd & Heer, 2006; Donath & Boyd, 2004). In this study, intensity of Facebook use did not have an effect on student engagement. The majority freshmen in this study were Facebook users and used daily. From this study and previous research, individuals can conclude that the majority of college students use Facebook and most use the website on a regular basis.

**Freshmen.** The majority of freshmen in previous studies and in this study were Facebook users and logged on at least once per day. The knowledge that freshmen use Facebook to help make friends, meet new people, network, access information on campus, and form groups makes Facebook a tempting tool for institutions of higher education personnel. Freshmen must voice their comfort level with the use of Facebook by administrators, faculty, and staff if Facebook is to be used as a tool in higher education. Freshmen could also offer advice to institution personnel on how the website could be better used for academic and social engagement purposes.

Freshmen and other college students could use Facebook for academic purposes in addition to social purposes. Facebook could be used to organize and communicate with study groups and student organizations. Students can use Facebook as a marketing tool to represent themselves for future employers. New freshmen could also use Facebook during the summer to meet new people and explore the campus community and resources before they officially begin classes. New students can use Facebook to search for the other students in their classes, dorms, or majors. Students can also search for students who have similar hobbies and interests.

In addition to the benefits of Facebook use, freshmen must also be aware of the problems that can arise from Facebook use. Posting information or pictures of illegal or compromising behavior can result in punishment by the institution and by law enforcement. Facebook sites are often looked at by current and potential employers. Negative postings by the student or others on the students' Facebook page can give the wrong impression of the student to employers as well as other students, friends, and family.

**Advisors and faculty.** Although intensity of Facebook use and engagement was not significant in this study, access to the large number of freshmen users could be beneficial to staff and faculty. Students often receive Facebook messages on their phones or check Facebook daily.

Staff and faculty could use Facebook as a communication tool to remind students of important dates, promote events, and provide information using department related pages on Facebook. Faculty could use Facebook to provide resources, events, and deadlines as well as provide a platform to help students in their class get to know each other, organize study groups, and manage out of class assignments.

Facebook could be used by multiple departments like admissions, registrar, cashiers office, orientation, advising, tutoring services, housing, and career services to promote events, introduce staff, and provide resources. Individual degree departments could also create Facebook pages to help build community for students with the same major.

Facebook could be used as part of freshmen orientation to reach incoming freshmen during the summer and help create community before the students move on to campus or attend their first class. Orientation leaders could create Facebook groups based on which orientation the student attended. The relationships that begin during orientation could be sustained on Facebook until school starts. Orientation leaders and staff could post information which incoming freshmen should know like what to bring when you move in, where to buy textbooks, and opportunities to engage academically and socially once on campus.

There are precautions to consider with institution based Facebook use. Facebook should not be used as a communication tool alone, but in conjunction with other communication means. For important dates, a Facebook message could be sent to remind students to check their email for the course withdrawal deadline or other important dates. The option to join an institution based page should be left up to the student. It would be advisable to ask freshmen and other students how they would feel about receiving and accessing information from advisors and faculty through Facebook before implementing communication procedures. Students should be

provided with the option to join a class or advisor page with the premise that the site will be used for communication and information sharing only. Students should be able to choose which updates they receive on Facebook. Facebook use by faculty and staff should be evaluated each year to evaluate what works best for the students.

*Administrators.* Facebook is not specifically a part of freshman retention programming at institutions of higher education, but many departments and student groups use Facebook to connect and communicate with students. Students use Facebook for communication and organization of groups and events. Administrators could take advantage of the high number of students who use Facebook to communicate, market, and share information through institution-based Facebook sites.

Facebook could be used to highlight programs that are shown to promote retention and engagement. Administrators may encourage departments and programs, like the living learning community and first-year seminar, to create Facebook pages that combine engaging institutional programs with a tool like Facebook that college students have been shown to use at least once if not multiple times daily.

Before implementing Facebook as an institutional tool, it is important for administrators to understand the goals of Facebook use from the student perspective. Institution administrators should ask students what kind of information students want to see on Facebook, what kinds of communication would be acceptable, and how students want to interact with the website. Administrators should also ask students how the site could be used academically and socially from the students' point of view. Students should be a part of the Facebook policy creation process for institution based Facebook use and should know the policies and how those policies can affect them as students.

If Facebook is to be used as a retention tool for an institution, it is advisable to let students choose which department updates they receive so that students are not bombarded with messages from multiple departments. Facebook use should be evaluated each year to determine best practices for the students. Best practices and procedures for Facebook use by staff, faculty, and student workers should be available and implemented institution wide.

**Living learning communities.** Participants in the living learning community in this study were significantly more engaged than non-participants. Learning community participants in this study spent significantly more time participating in social events and co-curricular activities than non-participants. Learning community participants also had higher average self-reported GPAs than non-participants. The findings in this study on engagement, social and co-curricular involvement, and GPA are student outcomes found to promote retention.

**Freshmen.** Freshmen who live on campus should choose to participate in a living learning community because researchers have shown that participation promotes engagement. Freshmen who do not live in the learning community dorm or live off campus should purposely engage in academic and social activities provided on campus to reap the benefits that living learning community participants are reaping.

**Advisors and faculty.** Admissions counselors should discuss the benefits of participating in the living learning community and encourage potential freshmen to sign up for housing in the living learning community dorm. During freshmen orientation advisors should discuss the benefits of participation in the living learning community with freshmen who plan to live on campus. To help even the engagement playing field faculty, advisors, and institutional personnel should promote other forms of engagement in similar learning community events for those freshmen who reside off campus.

**Administrators.** Because of the effectiveness of learning communities on engagement administrators should consider offering more living learning community opportunities for freshmen and other students. Administrators should look at expanding the living learning curriculum into other dorms on campus by replicating the programming found within the living learning community. Living learning communities could also be developed for sophomores, juniors, seniors, and special populations including adult learners and military personnel.

**First-year seminars.** Participation in the first-year seminar was not found to be statistically significant with engagement in this study. This finding did not align with previous research on first-year seminars and engagement. Freshmen who enroll in first-year seminars at the UWF have higher GPAs than non-participants (Ford & Westcott, 2006). Participants in this study who enrolled in the first-year seminar had the highest self-reported GPAs of any group, but the difference was not statistically significant. When individual NSSE questions were analyzed, first-year seminar participants engaged significantly more often in co-curricular activities than non-participants. Participation in co-curricular activities is a student outcome that is shown to promote retention which is the goal for all stakeholders in higher education.

**Freshmen.** Although participation in the living learning community was shown to be most beneficial for student engagement, the first-year seminar could be beneficial in other forms of student outcomes including GPA and persistence. Freshmen who do not live on campus should consider enrolling in the first-year seminar based on the benefits of increased GPAs.

**Advisors and faculty.** Advisors should promote enrollment in the first-year seminar based on GPA and persistence-based research. Additional research should be conducted with combined outcomes including engagement, GPA, and persistence in the assessment process. Interviews and focus groups should be conducted to assess the participant view of the benefits they received



from enrollment in the first-year seminars compared with non-participants. To increase engagement, faculty could work with administration to implement more of the NSSE best practices into first-year experience course curriculum. Because of the benefits for GPA and persistence, first-year seminar courses should be required for all freshmen. Administrators could also build first-year seminar-like models for other at-risk populations including transfer students, adult learners, military personnel, and online learners.

*Administrators.* Although participation in the first-year seminar was not statistically significant when compared based on engagement, previous researchers found a connection between engagement, higher GPAs, and persistence among freshmen who participated in a first-year seminar. Administrators should continue to study the effects of first-year seminars on engagement as well as GPA and persistence. All of the outcomes should be taken into consideration when developing first-year seminar courses. Administrators should look at ways to incorporate engagement activities into the first-year seminar curriculum. Administrators from the learning community and first-year seminars should work closely together to see how the two programs can complement each other.

### **Limitations**

The limitations of this study include small sample size, a self-report survey, and limited previous research for comparison. The survey was also a convenience sample conducted at one institution so the results may not be as applicable to other institutions. All of these issues can affect research results.

Sample size became an issue when the participants were broken down into Facebook intensity groups because some of the groups consisted of fewer than 20 participants. When using an ANOVA or MANOVA statistics, groups with fewer than 20 participants are less reliable than

larger groups. To increase the reliability of results, small groups were combined for statistical analysis purposes. After analysis was performed on groups with fewer than 20 participants, a non-parametric statistic was used to further analyze the data and add greater reliability to the findings. When an ANOVA or MANOVA was conducted with a group that consisted of fewer than 20 participants, a Kruskal-Wallis test was performed. When a *t*-test was performed, a Whitney-Mann U test was performed.

The sample was based on a convenience sample and all of the participants attended the same institution. Participants from universities of different sizes, community colleges, and/or private institutions may provide alternative perspectives than the subjects in this study. This disparity could be a limitation when generalizing research outcomes to college freshman nationwide.

The data were gathered using a self-report survey. A common problem in self report surveys is that the respondents may provide superficial or untruthful answers (Gonyea, 2005). Self-report survey respondents may also be prone to the halo effects such as inflating information on GPA, participation in academic or social events, and time spent studying which were survey questions in this study.

At the time of this study, three studies had been conducted on the effect of Facebook use on student engagement. The limited prior research and the limited use of the instrumentation used in this study made it difficult for the researcher to compare and contrast the findings in this study to prior research.

### **Recommendations for Future Research**

Further research is needed on Facebook use in higher education and freshmen retention programming. Additional research is needed before implications for students can be made

concerning Facebook and engagement and retention. Data should be collected on how students are using Facebook in addition to the intensity of use.

Student input is also important for future research. If Facebook is to be used in higher education as an engagement or retention tool, research should be conducted on how students feel about the use of the website by administrators, faculty, and staff. Research should include how students feel about using Facebook for academic purposes and associated with classes. In a study by Moran, Seaman, and Tinti-Kane (2012), found that 33% of faculty surveyed use Facebook in their classes. Future research could include how faculty use Facebook and what works and what does not work. A best practices model for Facebook use in higher education could be formed based on assessment of how instructors and students are utilizing Facebook and how use of the site for those individuals is beneficial for stakeholders.

In addition to Facebook use in higher education, future research in freshmen retention should continue constructing and adding to a best practices model for freshmen retention. Institution administrators, faculty, academic advisors, and other staff should work together to construct a model for their individual institutions. A best practices model for freshmen retention should incorporate a freshmen-year seminar, a living learning community, and campus wide opportunities to engage in the academic and social activities found to promote persistence.

Assessment of campus wide freshmen year retention programs should also be implemented. Assessments should be used to evaluate programs by analyzing the effect of combination of programs on multiple student outcomes. There are several student outcomes other than engagement that could be considered including retention to the sophomore year and GPA. Activities including program participation, Facebook use, utilization of tutoring services, and relationships with academic advisors could provide a more in depth picture of the most and

least engaged students. To improve freshmen retention programming it is also important to understand why freshmen leave and why freshmen remain. A survey designed for freshmen who do not return should also be incorporated into the assessment process so administrators can evaluate and then address the reasons why students did not return.

## **Chapter Summary**

Retention is a primary concern for administrators of institutions of higher education (Barefoot, 2004). College students have the greatest chance of dropout during his or her freshman year (Horn & Carroll, 1998; Tinto, 1993). Institutions develop freshman retention programs such as learning communities and first-year seminars to engage freshmen in the college community by introducing them to other members of the community, promoting interaction through social activities, and providing information.

In this study, freshmen who participated in the living learning community were significantly more engaged (as measured by the NSSE) than freshmen who did not participate in the program. Learning community participants also had higher self-report group GPA averages than non-participants. First-year seminar participants were not found to be significantly more engaged (as measured by the NSSE) than non-participants. However, like learning community participants, first-year seminar participants had higher GPAs than non-participants. Participants in the living learning community and the first-year seminar also reported spending significantly more time in co-curricular activities than freshmen who did not participate in either of the programs.

Facebook is a social network site that the majority of college students use to communicate, make friends, explore the campus culture, find and disseminate information, and organize groups. There is limited and mixed research on Facebook. Some researchers found that

Facebook use can inhibit student engagement while other researchers found that Facebook can serve as a tool of engagement. In this study, Facebook use did not have a statistically significant effect on freshmen engagement, but similar to previous research on Facebook and college students, the majority of the survey participants were Facebook members and used the social network site daily.

Despite lack of significant finding on engagement, Facebook is highly used by college freshmen and could be a tool used to communicate and share information with them.

Conceptually, it is important for colleges and universities to maintain perspective on students' needs for those communication strategies. Facebook could be used by stakeholders including freshmen, administrators, faculty, and staff as a part of the university communication system, but additional research and a best practices model is needed before implementation of Facebook as a tool for engagement and retention.

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