READY FOR COLLEGE:
ASSESSING THE INFLUENCE OF STUDENT ENGAGEMENT ON
STUDENT ACADEMIC MOTIVATION IN A FIRST-YEAR EXPERIENCE PROGRAM

Keyana Chamere Ellis

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Eric K. Kaufman, Chair
Rick D. Rudd
Antoine J. Alston
Karen Eley Sanders

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ABSTRACT

The Virginia Tech Summer Academy (VTSA) Program, developed by a collaborative partnership between faculty, administrators and staff concerned by attrition among first year students, was introduced in summer 2012 as a campus initiative to assist first-year college students transition and acclimate to the academic and social systems of the campus environment. VTSA is a six-week intensive residential summer-bridge program that provides academic preparation, highly individualized advising, learning communities, and the personal attention of faculty and peer mentorship through both academic engagement and structured activities. Although based on a substantive body of research concerning student retention, little is known about the empirical and influential value of this program.

A two-phase, sequential explanatory mixed-methods (QUAN→QUAL) study was developed to assess the value of student academic engagement in a first-year experience program. Specifically, this research investigated the outcomes of participation on cognitive, behavioral, and affective factors of motivation, taking into account demographic and academic performance variables. In the initial quantitative phase, data from 89 students were analyzed to assess engagement and academic motivation. Data from the Scale of Educationally Purposeful Activities (SEPA) were used to determine levels of student engagement among VTSA students,
while the Motivation Subscale of the Learning and Study Strategies Inventory (LASSI) was used to investigate the change in student academic motivation before and after participation in VTSA. In the subsequent qualitative phase, 16 students participated in focus groups designed to explore student perceptions of engagement in the VTSA program and their connections to academic motivation. Both qualitative and quantitative data were assessed to provide an in-depth evaluation used to interpret and explain significant factors of student engagement that provide for internal and external academic motivators for students to become ready for college.
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“It’s impossible,” said Pride. “It’s risky,” said Experience. “It’s pointless,” said Reason. “It can’t be done,” said Doubt. “It CAN be done,” prayed Faith. Thy will be done! I thank God for the many opportunities that have been afforded to me as a student at Virginia Tech. Out of the many things that I have shared with my students is to acknowledge those shoulders upon which they stand, to make sure that they develop relationships with a diversity of people and to also make sure to thank others for their service. It is especially fitting that I use this opportunity to thank God and to acknowledge the many people who have proved to be instrumental in assisting me with the completion of my Doctor of Philosophy degree in Agricultural Education.

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To close, this dissertation is dedicated to the memory of the many family members that went home to be with God during my graduate study, especially little Miss Jayla Denise Epps and my Uncles Ricky and Alvin Ellis. Finally, every word should read like a memoir dedicated in memory of my father Mr. Carlo Alonzo Jones, who I hope is proud of me and the things that I have done. Your teaching will live on in me forever and I still consider myself a Daddy’s girl. And finally, to my Grandmother Vernice Lafayette Bonner Ellis, who was the first person I called after I defended because I knew you were waiting by the phone: I thank you for always being my biggest champion and supporter, for always having the black eyed peas ready when I came home, and for showing me how to love unconditionally and to serve others. You held on like you said you would to the very end and I know that I am so special and so blessed to have had you as my grandmother.

I cannot fathom trying to name everyone, so to anyone that has encouraged and inspired me to reach this milestone, and anyone reading this: Thank You!
DEDICATION

“I'm going to work and do everything that I can do to see that you get a good education. I don't ever want you to forget that there are millions of God's children who will not and cannot get a good education, and I don't want you feeling that you are better than they are. For you will never be what you ought to be until they are what they ought to be.” – Martin Luther King, Jr.

On behalf of all of the family and friends who supported me in this endeavor, this dissertation represents my dedication to doing everything that I can do to see that our students get a good education and that they are what they ought to be. - Key

* For Vernice Lafayette Ellis*
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PREFACE

Despite the prevailing wisdom that a college degree gives the recipient an advantage in the job market and facilitates diverse career choices, there are some persuasive success stories to the contrary. One need only consider the careers of Shawn “Jay-Z” Carter, Bill Gates, Mary Kay Ash, and Steve Jobs as examples of individuals who amassed fortune and fame without having completed an undergraduate degree. This is not to say that these individuals’ hard work and effort is not of importance—most will attribute their successes to the University of Hard Knocks. The accomplishments of these few, however, do little to disparage the utility of a college education. Rapper Kanye West discussed the irony of his success as a college dropout on his debut LP, “The College Dropout,” by saying: “It was drummed into my head that college is the ticket to a good life... but some career goals don't require college.” In short, the value of a college degree is not without convincing evidence that “success” is attainable without a diploma. The flip side is that the likelihood of being successful is more challenging without that post-secondary degree. Most have to rely on academic and professional skills, knowledge, and abilities acquired in college to attain career opportunities and the finances necessary to maneuver life’s many responsibilities and wants.

January 2012 marked the first year that we celebrated Martin Luther King, Jr.’s Birthday adjacent to the long-overdue physical monument dedicated to his memory. Located in the nation’s capital, the MLK National Memorial is, in part, a testament to the strength and power that can prevail through dedication, diligence, moral courage, and the grace of God. On January 21, 2013, we celebrated Martin Luther King Day with the 2\textsuperscript{nd} inauguration of Barack Obama, an African-American, some 400 yards from the sparking pool where Dr. King gave his heartfelt “I
Have a Dream” speech. The momentous occasion represented our continued striving to reach the
dream of which Dr. King spoke.

Dr. King is known for many accomplishments—most notably as an advocate for justice
and peace, and as a fearless champion of the disadvantaged. His legacy, however, is also an
enduring reminder of how innate abilities and natural talents can be enhanced through a sound
education. This is why the quotes of Dr. King serve to guide each chapter of this dissertation—
his thoughts provide the philosophical foundation for using education as a stepping-stone to
success. Dr. King recognized that without an education he would be inherently disadvantaged.
He wanted all people, but especially Blacks, to be educated, which is elucidated in the following
quote:

I said to my children, ‘I'm going to work and do everything that I can do to see that you
get a good education. I don't ever want you to forget that there are millions of God's
children who will not and cannot get a good education, and I don't want you feeling that
you are better than they are. For you will never be what you ought to be until they are
what they ought to be.’ ("Martin Luther King, Jr. > Quotes > Quotable Quotes," 2011, p.
¶ 1)

Through time, we have all gained so much through the access to education, but the road
to get here has been a long one. Specifically, while the access of all students to higher education
has generally increased on college campuses across the country, what remains problematic is the
ability of our students to exit those campuses with a degree in hand—and I will argue that this is
tied to their first-year experience. Thus, despite “success-story evidence” to the contrary, Dr.
King’s legacy reinforces my belief in the importance of a college degree, which is linked to
student retention and the need to assist students to conquer the first-year experience. King’s
example also drives me to conduct this research to better the avenue toward a “good education” for all students. This is why you will see his words as a springboard for each chapter of this dissertation.

In summary, I believe that until we, as educators, can provide the necessary educational experiences and opportunities to students that will see them beyond their first year of college to degree completion and beyond, we have failed. Because that first year is characterized by significant individual change and growth, special attention must be paid to ensure that the freshman experience is successful. In the end, we seek for our students to graduate from college so that they can serve as productive leaders of society.
CHAPTER ONE:
STUDY OVERVIEW

“I have the audacity to believe that peoples everywhere can have three meals a day for their bodies, education and culture for their minds, and dignity and equality and freedom for their spirits.” – Martin Luther King, Jr.

The topic of higher education in the United States has received considerable attention of late—most prominently in connection with staggering student debt levels and high unemployment among recent college graduates. Thus, the overall role of higher education has been called into question. This recent scrutiny has called for stakeholders to weigh increasing tuition levels and uncertain job prospects for those who do graduate against the growing technological, economic, and security needs of the nation (Hill, Hoffman, & Rex, 2005). In short, American higher education is at a crossroads of necessary change and transformation. If the aims of the current higher education system is to meet the challenges associated with increased costs, demographic changes, and limited job growth and high unemployment rates—not to mention larger societal issues such as global competitiveness, educational decline, technological advancements, and financial insecurity, among other social and economic issues (Hill et al., 2005; Scott, 2006; Weerts, 2007)—it must be able to achieve some broad, yet essential, goals. Educational scholars argue that the role of higher education is to develop scholars to function in a skilled workforce and to develop engaged adults with the certain shared fundamental skills to serve communities, promote citizenship, and lead organizations as change agents (J. M. Braxton, Milem, & Sullivan, 2000; Oblinger & EDUCAUSE, 2006; Tinto, 1997; Upcraft, Gardner, Barefoot, Angelo, & Cross, 2008).
However, current opportunities and challenges in higher education are forcing educators to question how to evaluate existing strengths in order to ensure that the institution is able to address the needs of its students, while still preserving the essence of traditional teaching and learning. To do so, educators must first determine the best approaches for maximizing and leveraging educational investments to increase learning productivity, thereby augmenting the value of a college degree.

The Importance of a College Degree

The multifaceted benefits of an advanced degree have been widely discussed, as evidenced in a recent quote from Baum, Ma, and Payea (2010):

Students who attend institutions of higher education obtain a wide range of personal, financial, and other lifelong benefits; likewise, taxpayers and society as a whole derive a multitude of direct and indirect benefits when citizens have access to postsecondary education. (p. 4)

Similarly, Dohm and Wyatt (2002) reported: “On average, college graduates enjoy advantages – ranging from more job opportunities to better salaries – over their non-college-educated counterparts” (p. 3). In their study of educational reform, Carnevale and Desrochers (2003) found that six out of every ten jobs (i.e., 60%) require advanced skills acquired through postsecondary education/training to fully complete job tasks and requirements. The question is, are American college and universities keeping up with need for an educated workforce?

According to the February 2012 Current Population Survey report from the United States Census Bureau, 69.2% percent of those employed in 2009, 25 years or older, had some type of college training, while 30.9% had a bachelor’s degree or higher (Ryan & Siebens, 2012). Conversely,
Ryan and Siebens (2012) also noted that “High school graduates were more likely to be unemployed than bachelor’s degree holders within each month of this period” (p. 14).

A recent study by the Current Population Survey’s Annual Social and Economic Supplement of the United States Department of Commerce (2010) highlighted the persistent correlation of higher educational attainment with higher income levels. Consider, for example, the following average earnings in 2010 for year-round workers aged 25-64: the median salary for high-school graduates was $35,035; those with an associate’s degree earned on average $42,419; and college graduates with a bachelor’s degree earned approximately $55,864.

In fact, over a lifetime, an adult with a bachelor’s degree will earn about $2.1 million—roughly one-third more than an adult who starts but does not complete college and nearly twice as much as one who has only a high school diploma. (Brock, 2010, p. 110)

Beyond the economic benefits of having graduated from college, researchers have also investigated how higher education impacts other spheres of life. As described in the report Education Pays 2010, college graduates tend to enjoy a greater variety of both monetary and non-monetary benefits in comparison to non-college graduates (Baum et al., 2010). Some of these indicators include lower smoking and incarceration rates, increased voting levels, greater volunteering and civic engagement (e.g., higher blood donation rates), lower levels of poverty and unemployment—and by association reduced enrollment in government subsidy programs and greater local/state/national tax revenues. Finally, college graduates generally have greater access to health insurance and pension plans, and also have improved health perceptions (Baum et al., 2010). The benefits of a college degree have also been documented to have positive generational impacts. As reported by Baum and Payea (2004), the children of college graduates tend to exhibit “higher levels of school readiness indicators than children of non-college
graduates” (p.8), as well as higher levels of college enrollment after graduating high school. The acquisition of a college degree also benefits society in wider ways through the destruction of many prejudices and stereotypes as a result of the diverse cultural relationships that college students tend to enjoy (Hill et al., 2005).

In short, college pays. The multitude of benefits far outweighs shorter-term financial sacrifices, as well as the time commitment of attending college. While the arguments for attending college are many and persuasive, not everyone agrees on the mechanisms by which the American system of higher education should go about educating our young adults. Indeed, this is a long standing debate with no clear-cut answers.

**Higher Education in the U.S.**

Fifty years ago, Rudolph and Thelin (1962) described how American institutions of higher education have had to continually transform themselves to meet the needs of the nation. Whether subtly or dynamically, colleges and universities have had to change based on fiscal, demographic, social, and political forces that have shaped, and continue to shape, the mission of higher education institutions. As argued by Bonnen (1998), higher education has also played a role in shaping social development in momentous ways.

Not surprisingly, early colleges in this country were based on a stratified system of education already in place in England. Thus, the structures, systems of governance, and exclusivity of colleges such as Oxford and Cambridge were later replicated in the new America colleges (Rudolph & Thelin, 1962). “At the beginning, higher education in America would be governed less by accident than by certain purpose, less by impulse than by design” (Rudolph & Thelin, 1962). Colleges such as Harvard (founded 1636), William and Mary (1693), Yale (1701), and Dartmouth (1769) were reserved for the aristocratic few and access was highly exclusive.
(McDowell, 2003; Veysey, 1970). In essence, learning and scholarship were available only to the male, White children of the rich and elite. When more inclusive colleges began to appear in the Colonies, some were outraged since these institutions threatened the preserved sanctity and exclusivity of being educated. In 1770, one South Carolina newspaperman wrote: “Learning [with the creation of these colleges] would become cheap and too common, and every man would be for giving his son an education” (Rudolph & Thelin, 1962, p. 20).

In contrast, public institutions, including Land-Grant institutions, ascended from a different tradition of purpose and thinking. “Both by virtue of the character of their scholarship and whom they would serve, the Land-Grant universities were established as people’s universities” (McDowell, 2003, p. 33). The introduction of the public institution transformed the university from one serving the privileged few to one educating the common man (Bonnen, 1998).

The land-grant university in its mature form was devoted to science and education in the service of society by: 1. Educating and training the professional cadres of an industrial, increasingly urban, society; 2. Providing broad access to higher education, irrespective of wealth or social status; and 3. Working to improve the welfare and social status of the largest, then most disadvantaged, groups in society—farmer and industrial workers, the latter called "mechanics" in the 19th century. (Bonnen, 1998, para. 18)

The typical environment in higher education today is branded by the need to satisfy the public’s demand for an educated workforce, while “changes in federal policy, coupled with big changes in public attitudes and expectations, opened up higher education as never before” (Brock, 2010, p. 111). Thus, an increasing number of colleges and universities are educating an ever-growing population of students (McDowell, 2003). According to a Council for Higher
Education Accreditation (2010) report, there are over 7,400 public and private nonprofit and for-profit accredited schools, colleges, and universities in the U.S., including four-year undergraduate colleges, research universities, community colleges, vocational schools, among others.

Over the past 40 years, however, increases in college student enrollments, coupled with decreased public/private funding, increasing college attendance costs, and a stall in the educational competitiveness of the US workforce and other challenges, have heightened the need for educational reform (Brock, 2010). Thirty years ago, the National Commission on Excellence in Education’s report, entitled A Nation at Risk, highlighted the eroding ability of public institutions to produce scientifically- and technologically-literate graduates (Gardner, 1983). Although the report stressed the importance of supporting higher education with reform and renewed commitment, the public’s trust in and commitment to these institutions plummeted with publication of the report, which also documented the rapid rise of remedial undergraduate courses, damaging high dropout rates and even lower graduation rates, as well as startling evidence of academic underachievement.

Public discourse and disapproval of higher education continued throughout the 1990s and well into the 21st century. For example, the 2008 report, Measuring Up, The National Report Card on Higher Education, noted: “Whatever lead we enjoyed over other countries in the last half of the 20th century has been lost, as both our participation and completion rates have declined relative to other advanced nations” (Callan, 2008, p. 25).

Accreditation and Public Funding

One mechanism for addressing the public’s demand to reinvigorate higher education via educational reform is through the accreditation process, which is a “periodic, standards-based,
evidence-based, judgment-based, peer-based process” (Eaton, 2011, p. 4). Although its main purpose is to strengthen educational outcomes, accreditation is inevitably tied to public funding and continues the national dialogue on the emphasis and attainment of a quality college degree. Eaton argued that when a university achieves accreditation, it “assures quality, provides access to federal funds, engenders public confidence in higher education and eases transfer of credit” (p. 5). It should be noted, however, that the tedious and daunting process associated with reaching accreditation does not always result in augmented public funding. Actually, since 1968, state appropriations and investments in higher education have drastically declined, “leaving public research universities in a purgatory of insufficient resources and declining competitiveness (Yudof, 2002, p. B24).

Weerts (2007) asserted that America’s universities are being asked to develop educational efficiency and effectiveness in the face of growing expenditures. Michael Crow, president of Arizona State University, said the impact of lower public funding and a university’s inability to attract funds is unfortunately transferred to students and their families. “What is missing [from higher education] at present are…pathways for more students to achieve higher levels of educational attainment while graduating at the lowest possible cost” (Crow, 2002, p. 2). High educational costs and low productivity and quality in higher education often discourage students from enrolling in higher education or cause them make early withdrawal decisions. Additionally, research correlates accreditation and the acquisition of public funding most highly with an institution’s ability to retain students from their first year of matriculation to graduation (Eaton, 2011).
Retention in Higher Education

It is not surprising that one of the most highly researched variables, and one that continues to challenge educational stakeholders, is student retention (Seidman, 2005). Retention is a term that is used to describe student persistence, which is defined as the successful completion of an academic year and the continuance to the next year of study (Hagedorn, 2005). In contrast, the term “attrition” corresponds to a student leaving the institution before acquiring a degree—regardless of his or her intention to return, or whether the withdrawal was voluntary or involuntary (e.g., behavioral issues) (Tinto, 1993).

Lotkowski, Robbins, and Noeth (2004) stressed the importance of student retention and the value of a college degree by asserting: “To maintain the nation’s competitive economic edge, our workforce must have education and training beyond high school, and postsecondary institutions must attract and retain a growing number of students” (p. 1). Unfortunately, research correlates accreditation and public funding most highly with an institution’s ability, or often times inability, to retain students from their first year of matriculation to graduation (Eaton, 2011). On the other hand, measuring the quality of a college education is directly related to college completion and retention rates. Continually plummeting retention rates create a grim picture for our current generation, which may be the first in American history to be less literate than the preceding generation (Tinto, 2006).

The retention of college students is a complex issue, representing an interplay of personal, institutional, and societal factors (Brunsden, Davies, Shevlin, & Bracken, 2000) that attribute to student difficulty and dropout. The ACT substantiates through longitudinal analyses that over half of all freshman are at-risk of experiencing academic difficulty and not persisting to the sophomore year of study—with 30% of students dropping out of college. The literature
signals student success, simply defined as a student’s ability to acquire a degree, as determinant upon and heavily influenced by a student’s first year in college (Kuh, 2005; Tinto, 1993; Upcraft, Gardner, & Barefoot, 2004).

On a personal level, a student’s early departure can represent humiliating failure to accomplish educational goals, which can diminish self-esteem and self-concept, future goal setting, and the ability to contribute to society. Moreover, the lack of a college degree can equate to employment and advancement barriers, reduced economic rewards, and increased chances for unemployment.

From the institutional standpoint, student attrition is a waste of limited university financial resources and a loss of university revenues from student tuition dollars. “Each student that leaves before degree completion costs the college or university thousands of dollars in unrealized tuition, fees, and alumni contributions” (DeBerard, Spielmans, & Julka, 2004, p. 66). Early student withdrawal also represents a failure for the university to serve its educational mission—which as noted earlier can lead to accreditation barriers and loss of funding.

Finally, from a broader social perspective, student attrition represents a stumbling block for societal advancement.

Nothing influences a state’s prosperity more than the education of its people—not oil, coal, gas, or any other natural resource. The South was poor for most of the 20th century because it lacked enough educated citizens, not because it lacked natural resources. (Southern Regional Education Board, 2002, p. 2)

For over 40 years, researchers have analyzed student retention in higher education from a variety of perspectives in an attempt to understand the many confounding variables that influence a student’s ability to graduate and retention has been of high concern and attention
(Tinto, 2006). Despite the fact that retention has been a research priority, students continue to dropout at unacceptable rates (Upcraft et al., 2004).

Notwithstanding the emphasis placed on student retention, decades of research, and countless institutional initiatives, slightly over half of students who begin a bachelor’s degree program at a four-year college or university will complete their degree at that same institution within six years. (Reason, 2009, p. 661)

Through a vast body of literature, social psychologists and theorists have emphasized the intricate nature of moving students towards graduation through investigating the relationship of student experience and learning and student retention.

Even with heightened research and attention, a question, however, continually emerges: Why are today’s students still withdrawing from college? With their increased access to resources, electronic and technological capabilities—as well as the known short- and long-term advantages of earning a college degree—retention remains a challenge on college campuses (Erickson, Peters, & Strommer, 2006). In short, gains in research and understanding of student retention have not translated into increased student retention and graduation rates (Tinto & Pusser, 2006).

While contemporary research on student retention has resulted in some specific recommendations for increasing graduation rates, educators still struggle to identify effective retention programming to address new student demographics, student needs and expectations, and the changing job market (Tinto, 2006). Specifically, large gaps still exist between the retention and graduation rates of underrepresented students, low-income students, first-generation students, and students in science, technology, engineering, and math (Tinto, 2006). However, Gold and Albert (2006, March) argued that just measuring student retention and
graduation rates misses the big picture regarding the many challenges facing higher education. The researchers indicated that just measuring retention

…can serve to obscure the factors that have been shown to be the most important in student persistence—such as finances, family obligations and academic preparation—and to absolve policymakers from recognizing that serious expenditures of public money are necessary to attack these deeper problems. (Gold & Albert, 2006, March, p. 102)

Gold and Albert also suggested that graduation rates serve as a preliminary measure for deeper problems associated with learning and dropout by saying “[institutions] must look into the core problems of retention and persistence for all students and address those concerns” (p. 102).

For this study, the core areas of concern with respect to student learning and retention are twofold: student engagement and academic motivation. Further research is necessary to gauge the influence of these constructs on students learning and retention.

**Student Engagement and Academic Motivation**

“Some studies show that students who leave college prematurely are less engaged than their counterparts who persist” (Kuh, Cruce, Shoup, Kinzie, & Gonyea, 2008, p. 542).

According to Merriam-Webster (2003), one of the definitions of engagement is: *A promise or agreement to be at a particular place at a particular time; the condition of being in gear.* For this study, the term “student engagement” represents the level of student interaction in educational activities that promote lifelong, meaningful learning, as well as those that serve to academically and socially integrate students into the fabric of the university (Kuh, 2001, 2005; Tinto, 2006). Student engagement corresponds to both the time and energy students invest in educationally purposeful activities, and the efforts institutions devote to using effective educational practices (Kuh, 2001). Student engagement, then, embodies a university’s goal of
providing educationally-purposeful activities and practices that facilitate the ability of students to develop essential life skills to serve in a knowledge-based economy (Kuh et al., 2008).

While engagement activities differ from campus to campus, they share a specific overarching goal: to promote student success by providing educational services that assist a diversified student population. Researchers have defined the term in various sways. Kuh et al. (2008) proposed that “student success be defined broadly to include academic achievement, engagement in educationally purposeful activities, satisfaction, acquisition of desired knowledge, skills and competencies, persistence, attainment of educational objectives, and post-college performance” (p. 541). Bryson, Hardy, and Hand (2009) cautioned, however, that engagement is more involved than just learning:

We would argue that engagement is both a pre-requisite for learning to occur and a binding agent that allows learning to continue to keep occurring. Engagement encompasses the perceptions, expectations and experience of being a student and the construction of being a student in higher education, a rather broader notion than student motivation, commitment to study or orientation to learning. (p. 5)

Kuh, Kinzie, Buckley, Bridges, and Hayek (2006) described engagement as:

The amount of time and effort students put into their studies and other educationally purposeful activities [as well as] how the institution deploys its resources and organizes the curriculum and other learning opportunities to get students to participate in activities that lead to the experiences and desired outcomes such as persistence, satisfaction, learning, and graduation. (p. 44)

Despite the relative straightforwardness of these definitions, Laird, Smallwood, Niskodé-Dossett, and Garver (2009) spoke of greater complexity: “Perhaps the most deceptive aspect of
the student engagement argument is that it makes things seem so straightforward, as if students need only to flip on the engagement switch and the educational light bulb will glow. However, getting students to engage at appropriate levels is not as easy as flipping a switch (p. 73).”

The National Survey of Student Engagement (NSSE) suggests that superior levels of student engagement can result in higher grades, feelings of satisfaction, increased self-esteem, teamwork and collaboration, and responsibility and accountability in learning (Kuh, 2001). Developed through an analysis of student persistence theory, NSSE characterizes engagement according to the following five benchmarks:

- levels of academic challenge,
- active and collaborative learning,
- student and faculty interaction,
- supportive campus environment,
- enriching educational experiences (Kuh, 2003).

Thus, understanding the fundamentals of quality student engagement is essential for promoting retention and persistence, the scholarship of and approaches to teaching and learning, educational success, cognitive development, and social relationships and community within the university (Tinto, 2006). The NSSE’s *The College Student Report* describes the Scale of Educationally Purposeful Activities (SEPA) as “a summative scale of 19 NSSE items measuring student interaction with faculty, their experiences with diverse others, and their involvement in opportunities for active and collaborative learning” (Kuh et al., 2008, p. 558).

“Engagement has been associated with both achievement and motivation” (Schweinle, Reisetter, & Stokes, 2009, p. 774). Other linkages have also been described. Skinner and
Belmont (1993) described an intersection in the educational and psychological literatures designating a relationship between how students achieve and teacher pedagogical techniques.

In this approach, research about classroom practices proceeds deductively from a strong theoretical and empirical position about the specific intrapsychic influence on student motivation to an analysis of the variety of classroom practices that have been found to influence student attitudes and beliefs. (p. 572)

Researchers have acknowledged that student learning and achievement is highly dependent upon a student’s degree of motivation for the task, but add that motivation is a difficult construct to define and understand (Ormrod, 2009; Pintrich, 2004). Ormrod defined motivation as “an inner state that energizes, directs and sustains behavior” (184). The research connects engagement, motivation, and retention together like a spider web. Students who are engaged in positive educational activities are more likely to be motivated toward exerting time and energy to learn; students who spend more time engaged in learning activities are more likely to persist in such behaviors—and therefore more likely to graduate (Duncan & McKeachie, 2005; Pintrich, 2004).

“Generally speaking, motivation is an internal stimulus that incites an individual to action; it is based on such factors as initial subjective probability of success, success or failure feedback, the nature of the task-at-hand, external factors, and the person’s level of intelligence” (Allen, 199, p. 463). Therefore, motivation is most directly observable in the level of energy in an individual’s behaviors. Motivation is the process whereby goal-directed activity is instigated and sustained (Pintrich & Schunk, 2002). It should be stressed, however, that motivation is variable—and with respect to college is easily influenced by the various psychological, cognitive, physical, social-cultural, and economic influences on students, especially during the
Pertinent to this study is a significant body of research that links a student’s ability to earn a degree with that individual’s experience in the first year of college (Kuh, 2005; Tinto, 1993; Upcraft et al., 2004). The exploration of motivational theories is important to understanding the ways in which students are motivated and what factors of the classroom and the university that motivates them towards achieving certain academic goals— including engagement in academic activities. For the purposes of this study, therefore, academic motivation is simply defined as the desire to finish college, which is heavily reliant on a student’s engagement in educationally purposeful activities during their first year of college, namely those that augment both their academic learning and study skills. Academic motivation is operationally defined by the motivation subscale of the will construct of the Learning and Study Strategies Inventory (LASSI), and discussed through the lens of self-determination theory and self-regulated learning. Flowers, Bridges, and Moore III (2012) explained that “of the most recent instruments developed in the past 25 years, the (LASSI) has been used extensively in educational settings” (p. 2) to assess students’ perceptions of learning and use of study strategies.

**The First-Year Experience**

Researchers refer to the crucial time period when students enter a postsecondary institution as the “First-Year Experience.” This is when “[millions of] students do something that they have never done before: walk onto a college campus and enroll” (Upcraft & Gardner, 1989, p. 1). A student’s first year is a period of transition and adjustment to the social and academic demands of college—but it also a period when the likelihood of dropping out is the greatest (Tinto, 1993). As such, the freshman year represents an ideal time to engage students in
meaningful learning opportunities to counteract student dropout, as well as to foster positive attitudes, behaviors, and perspectives toward the college environment and their role as a student.

Researchers have known for some time that there are many challenges that can affect a first-year student’s higher education experience. Tinto (1993) described a longitudinal adjustment process, starting when they separate from high school or community college and continuing as they transitioning to the multifaceted collegiate environment, where students must work to align and integrate into college norms, roles, and expectations. Away from their homes, family and friends—often living in a new physical environment and faced with increasing and largely unfamiliar academic, social, personal and cognitive responsibilities—many first-year students experience anxiety and frustration (Erickson et al., 2006). In a study conducted by Levitz, Noel, and Richter (1999), first-year students who dropped out cited the following reasons for leaving: personal and internal struggles, social alienation and lack of connection, inability to meet academic challenges, inability to handle life and financial demands, and finally, problems with institutional structures and services, among other issues.

First-Year Experience Programs

In response to these challenges, many institutions allocate significant resources to first-year experience programs in an effort to improve student outcomes. Jamelske (2009) reported that 95% of four-year colleges in the U.S. utilize some type of first-year program designed to reduce student dropout decisions and increase student retention. Institutional efforts to combat student attrition, like first-year experience programming, work to tackle the problem at the student level through structure engagement activities.

The National Resource Center for the First-Year Experience and Students in Transition produced a manuscript entitled, Exploring the Evidence: Initiatives in the First Year of College,
which identified the following focus areas as being critical for student adjustment in their first year: civic engagement, early identification and intervention, first-year advising, linked learning communities, organization and assessment of multi-layered programs, first-year seminars, problem-based learning, and student/faculty interactions (Troxel & Cutright, 2008). Although varied in structure, organization, focus, and delivery, these first-year programs have led to increased persistence to the sophomore year, stronger peer connections, increased institutional satisfaction, increased use of campus services, and increased out-of-class faculty/student interactions (Troxel & Cutright, 2008). Such institutional interventions are designed to foster student success and encourage both academic and social integration. They address a wide variety of student issues, such as homesickness, time management, managing finances and developing relationships—as well as more consequential issues (e.g., binge drinking). A significant body of research has investigated differences between participators and non-participators; results show considerable gains for participation, including enhanced persistence rates, feelings of social integration, increased academic motivation, institutional satisfaction, and increased academic engagement for first-year students (Allen, 1999; French & Oakes, 2003; Kuh, 2005; Kuh et al., 2008; Tinto & Pusser, 2006; Troxel & Cutright, 2008).

Other gains from first-year experience programming include increased financial benefits for the university (Barefoot, 2000), the development of concerned citizens, higher mean grade point averages (Lang, 2007), increased positive relationships (Keup & Barefoot, 2005), confidence and self-efficacy, and greater persistence/graduation rates (Lang, 2007; Miller, Janz, & Chen, 2007). The Association of American Colleges and Universities (2007) (AACU) also conducted a study of first-year experience programming, with a focus on mandatory first-year seminars. Their results confirmed that such programs help students in seven significant ways: 1)
connect to the university, 2) build self-awareness and self-efficacy, 3) identify a sense of purpose, 4) participate in cross-cultural experiences, 5) engage in learning, 6) strengthen social integration, and finally, 7) enhance critical and reflective thinking.

This is not to say that first-year experience programs are without problems. For example, although Barefoot (2000) supported the creation and use of first-year experience programming—reporting student, institutional, and societal gains resulting from both proactive and reactive services—her analysis indicated structural quandaries associated with first-year services due to a “continuous battle for status within the academy” (p. 4), the uncertain likelihood of it becoming a “central, sustainable part of the institution's fabric” (p. 4), lack of financial support, and the lack of support and participation of faculty. Additionally, Barefoot (2000) also noted that although first-year experience programs are increasing in numbers, institutions have been slow to develop, implement, and finance robust programs of this nature. Understandably, first-year programs have garnered increased research focus, funding, and policy development efforts since educators have recognized that they are integral to accreditation plans as benchmarks for student engagement, accountability in higher education, and as tools to increase retention rates.

**Virginia Tech First-Year Experience**

Virginia Tech (VT), a public land-grant, Research I university with an undergraduate enrollment of nearly 24,000, has made a significant commitment to providing a comprehensive selection of programs and initiatives for its first-year students. Specifically, it is focusing on enhancing the educational environment through its Quality Enhancement Plan (QEP), which was developed to meet the Southern Association of Colleges and School-Commission on Colleges (SACS-COC) accreditation requirements, focuses on augmenting student first-year experience. The plan was developed to address retention data in 2010, which showed continuation rates for
first-year VT freshman at 87.5% in 2002 and 91.1% in 2007. Retention rates remained stagnant at 91% from 2007-2012, with a small increase to 92.6% in 2011 (Virginia Tech Office of Institutional Research and Effectiveness, 2012). Although the retention rate is well above the national average, VT remains committed to creating effective learning environments that improve the first-year experience for Virginia Tech’s freshmen and transfer students.

Unveiled in 2010, Virginia Tech’s plan creates pathways for “the creation of academically grounded first-year experiences organized around common intellectual experiences and shared learning outcomes” (Steger & Wubah, 2010, p. 4). The plan highlights Virginia Tech’s vision for improved academic experiences of lifelong learning, advanced research and inquiry skills, as well as the value of intercultural relationships as markers for transformed, quality undergraduates. Goals of the plan are to engage all first-year students, both freshman and transfer students, in a QEP outcomes-based first-year experience program by 2015 through problem solving, inquiry, and integration of ideas ("Quality Enhancement Plan: Pathways to Success," 2010). In light of this commitment, Virginia Tech has dedicated $3,155,000 in funding to implement this plan from 2010-2015.

**Virginia Tech Summer Academy Program**

As yet another extension of Virginia Tech’s commitment to the first-year experience, the Virginia Tech Summer Academy (VTSA) program was introduced in 2012 in order to help first-year students to transition smoothly into the academic and social systems of Virginia Tech. VTSA is a six-week, intensive, residential summer bridge program that provides academic preparation, highly-individualized advising, and the personal attention of faculty and peer mentors. Through structured and integrated activities, the program assists students in improving academic skills, developing peer support group networks, and integrating into academic and
social communities. The program uses peer mentoring as a cornerstone of academic engagement, as well as structured activities in basic skills, tutoring, academic advice, and financial aid literacy. Students are also exposed to the beauty and fun of the surrounding area, including weekend recreational activities for social bonding. VTSA features coursework in specific disciplines through “tracks,” as well as workshops and activities on study strategies, time management skills, and the expectations of being a college student. It is important to note that all entering first-year students are eligible to participate in the program.

Created through collaboration between Virginia Tech faculty, staff, and administrators, the program serves as an innovative method to motivate students to devote their time and energy to be involved in the learning process (Virginia Tech Summer Academy, 2012). From their website,

“The VTSA [was] designed to ease [a student’s] transition from high school to college by coupling required course work with opportunities to become familiar with university expectations, making new friends, and finding [one’s] way around campus and the Blacksburg community.” (Virginia Tech Summer Academy, 2012, para 2)

According to the Director of Summer Sessions, Dr. Michael Hernon, Virginia Tech initially invested $41,000 to create the program as a commitment to the first-year experience. These funds were used for stipends, room and board costs of peer mentors, resources and materials, and other operational costs. The University allocated another $97,000 to cover faculty salaries during the summer program. Students are invited to choose from 13 different learning tracks associating two courses for a specific discipline for college credit in a small class environment (M. Herndon, personal communication, December 5, 2012). The 2012 VTSA program tracks were: The Art of Thinking and Speaking, The Role of Europe in the Evolution of the Modern World, Architecture
Problem Statement

Increasingly, four-year colleges in the U.S. are enrolling students in first-year experience programs to combat low retention rates (Jamelske, 2009), particularly among higher risk populations such as first-generation, minority, and academically unprepared college students. In fact, researchers have concluded that billions of dollars have been earmarked to support the creation and implementation of these first-year experience programs as a component of university accreditation plans to improve academic achievement and performance (Brock, 2010; Lotkowski et al., 2004). Among the variables to assess in examining student retention and the effectiveness of student retention programs is student motivation, which Allen (1999) linked strongly to academic achievement, student satisfaction, and student persistence.

Students that are highly motivated to learn and excel in the classroom are more goal-directed, expend more effort toward their academics, and make better use of cognitive strategies; in short, motivated students are more inclined to persist beyond their first year and earn a diploma (Allen, 1999; French & Oakes, 2003; Lynch, 2006; Skinner & Belmont, 1993; Stefanou & Salisbury-Glennon, 2002; Watson, McSorley, Foxcroft, & Watson, 2004). Allen linked academic motivation as a form of goal commitment in student retention, and suggested that an
important contribution in understanding the determinants of student persistence behavior might
be to investigate the consequence of motivation.

Stefanou and Salisbury-Glennon (2002) stated that the ways in which a learning
environment is structured and presented can encourage motivation, while Kuh (2001) explained
that these learning environments should engage students in educationally-purposeful activities.
Earlier, Strumpf and Hunt (1993) argued that many retention intervention studies have not
correctly accounted for the influence of motivation. Allen (1999) reiterated this finding, stating
that evidence of the impact of such interventions, especially their impact on student academic
motivation, was lacking. In addition, it is not clear to what extent student engagement and other
measures of effective educational practice contribute to motivation, achievement and persistence.
The same is true at Virginia Tech. Despite tremendous investment in their Summer Academy
Program, too little is known about the relationship of participation and student engagement in
educationally purposeful activities in the VTSA and student academic motivation.

Purpose and Objective of the Study

The purpose of this study was to examine the influence of student engagement in the
Virginia Tech Summer Academy (VTSA) first-year experience program on the academic
motivation of students. Specifically, the following research objectives guided the study:

1. Describe the sample of student participants of the VTSA program.

2. Determine VTSA students’ academic motivation before and after the program through
pre and post measurement.

3. Determine VTSA students’ level of student engagement in the program’s educationally-
purposeful activities.
4. Explain the change in academic motivation in relation to VTSA student engagement and demographic variables.

5. Explore student perceptions of student engagement in the VTSA program and connections to academic motivation.

6. Interpret and explain significant factors of student engagement influencing changes in academic motivation among VTSA students.

**Overview of Methodology**

Using a two-phase, sequential explanatory mixed-methods design (QUAN→QUAL) (Creswell, 2009; Creswell & Plano-Clark, 2011), this study investigated the empirical relationship between participation in the Virginia Tech Summer Academy first-year experience program and academic motivation through both qualitative and quantitative data. Creswell and Plano-Clark explained that explanatory sequential design is completed in two phases: a quantitative data collection phase, following by qualitative interpretation. Through a mixed-methods design, this research study design takes advantage of the strengths of both quantitative and qualitative approaches through interpretation garnered from breadth and depth analysis (Ivankova, Creswell, & Stick, 2006).

The initial quantitative phase of the study measured changes, if any, of first-year learners’ academic motivation through the Learning and Study Strategies Inventory (LASSI). A second quantitative phase measured the level of student engagement in the Virginia Tech Summer Academy Program using the SEPA. The scale consists of three separate measures from the National Survey of Student Engagement (NSSE): time spent studying, time spent in co-curricular activities, and a global measure of engagement (Kuh et al., 2008). In the qualitative phase, focus
groups explored the results from the statistical tests, as well as student perceptions regarding their engagement in the VTSA program and their academic motivation during their first year.

**Significance of the Study**

Identifying academic approaches in first-year experience programs that facilitate increased student academic motivation has important implications for encouraging student retention. Tinto (1993, 1997) explained that student success in the first year of college, which corresponds to academic and social integration, is highly correlated with student retention and reduced dropout decisions. Generally speaking, the more students are engaged in an educational environment that provides satisfactory learning and social development, the more motivated they are to continue to pursue a college degree. Therefore, understanding the influence of first-year experience programming on student educational outcomes is of utmost importance as institutions look to develop and actualize interventions that encourage student retention.

The current demand for educational reform—coupled with increasing college costs, decreased public funding, and the known advantages a college degree—create formidable challenges for universities to recruit, educate, and retain students. In other words, college campuses are compelled to develop and implement programs that result in improved, demonstrable educational outcomes while keeping costs down. This research, therefore, provided an in-depth analysis of the most effective educational approaches for student engagement and learning in the first year of matriculation.

This study was intended to elucidate the value of the first-year experience program at Virginia Tech, and whether continued programmatic efforts and funding were justified. Specifically, this study was designed to answer the following three questions: (1) *Should we continue to support the Virginia Tech Summer Academy Program?* (2) *What are student
perceptions of the benefits of participation in this program? (3) Which specific programmatic approaches provide maximum benefit with respect to academic motivation and student retention?

This study adds to the body of knowledge concerning academic motivation in first-year experience programs. According to Stefanou and Salisbury-Glennon (2002), “Little is known about how motivation and cognitive strategies can be facilitated by the undergraduate learning context” (p. 80). Using both the self-regulated learning and social-cognitive theoretical lenses, this study continues the conversation that motivation and cognition are intertwined in the educational development of students.

Finally, this research analyzed Virginia Tech’s commitment to quality higher education through an in-depth evaluation of student engagement and academic motivation in the Virginia Tech Summer Academy program, which as described earlier was created to increase postsecondary persistence and graduation rates by introducing first-year students to college life via an academic support system during the summer. Thus, results of this research may provide valuable recommendations for revision of the program so that VTSA can serve as an effective tool for improving the overall academic experience of students and increasing retention rates.

Limitations

Although efforts have been taken to reduce research bias and maintain confirmable, dependable, and credible standards of quality mixed-methods research (Creswell, 2009), this study featured important limitations that must be noted.

1. The focus of this study was the Virginia Tech Summer Academy model. No other first-year experience programs were assessed in this study. Thus, the findings are limited to the study participants at Virginia Tech and should not be generalized to
other populations, including the Virginia Tech first-year population, other first-year experience programs, and institutions not assessed in this study.

2. This study was limited to first-year program student participants who took part in the 2012 Virginia Tech Summer Academy program, completed the pre- and post-test of the LASSI, and took part in qualitative questioning in focus groups. The results that are described herein should be considered unique to this group of students.

3. The Virginia Tech Summer Academy model is in its infancy. Although the program is a result of years of planning, as well as an assessment review from 2010-2011, this study targeted outcomes of the program during its first year. Additional evaluations of the program will need to occur as the program matures.

4. Study findings are based on self-reported data and must be viewed as such. Self-reported data can contain several potential sources of bias that could limit wider generalizations. These include selective memory, or the act of remembering or not remembering experiences or events that occurred in the past; attribution, or the act of attributing positive actions to one’s behavior and negative outcomes to external forces; and exaggeration, or the act of misrepresenting or overstating events as more significant.

5. Study findings are based on student perceptions of their experiences and not on actual observations. Thus, subjective information was used to shed light on what academic motivation in a first-year experience program might be and the meaning and relevance of the overall experience in the program (Polkinghorne, 2005).

6. Focus groups and survey questionnaires were administered at the end of their experience in the first-year program. Thus, the time lag between the actual experience
and the recollection of that experience could be suspect. “As a means for gaining access to the meaning experiences of participants, researchers often ask participants to explore and give accounts of past experiences, not of those they are presently having” (Polkinghorne, 2005, p. 144).

**Definitions of Terms**

The following section provides definitions and descriptions of key terms that were used throughout the study.

**First-year Experience.** The first-year experience represents the first full year of academic exposure when a student arrives on a college campus either as a freshman or transfer student. This period is critical since a student’s first year is a period of transition and adjustment to the social and academic demands of college; it is also a time when the likelihood of dropping out is greatest (Tinto, 1993).

**First-year Experience Program.** A first-year experience program is a university-specific intervention strategy designed to give students a leg-up in acculturating and acclimating to campus life. First-year experiences help students transition to the intellectual, social, and cultural community of a college through integrated offerings of curricular and co-curricular opportunities.

**Motivation.** Motivation is the process whereby goal-directed activity is instigated and sustained (Pintrich & Schunk, 2002).

**Student Attrition.** Attrition is defined as a student leaving the institution before acquiring a degree, regardless of his or her intention to return, or whether the withdrawal is voluntary or involuntary (Tinto, 1993).
**Student Engagement.** Student engagement refers to the energy, time, and effort that a student devotes to learning, as well as to his or her “perceptions, expectations and experience of being a student” (Bryson et al., 2009). According the National Survey for Student Engagement (NSSE), higher education institutions must engage students in activities that increase their satisfaction with the learning process and enhance their desire to continue to learn (Kuh, 2003). Engagement should include, but should not be limited to, academic challenges, active and collaborative learning, student-faculty interactions, enriching education experiences, and a supportive learning environment.

**Student Retention.** Retention represents whether a student returns for a subsequent year of study at the same institution after the successful completion of their first year of matriculation (Hagedorn, 2005; Tinto, 1997; Tinto, 2006).

**Summary**

This chapter provides an overview of the background of this research study of academic motivation in first-year experience programs. Included herein is a discussion of the importance of a college degree, a brief review of the American higher educational system, a look at the issue of retention in American colleges and universities, a review of student engagement and self-regulated learning, as well as a discussion first-year experience programs in college—with a particular emphasis on the Virginia Tech Summer Academy Program. Chapter One also describes the problem statement that prompted this study, its purpose and objectives, the significance of the study, a discussion of the researcher’s epistemology, research limitations, and definitions of terms frequently used in the study.
CHAPTER TWO:  
REVIEW OF THE LITERATURE

“The function of education is to teach one to think intensively and to think critically. Intelligence plus character – that is the goal of true education.”
– Martin Luther King, Jr.

The purpose of this study was to examine the influence of student engagement in the Virginia Tech Summer Academy (VTSA) first-year experience program on the academic motivation of students. This chapter presents a comprehensive review of the relevant literature that speaks to the constructs of this study. First, this chapter will discuss college student development theory. Second, background information is presented on the emergence, purpose, and effectiveness of first-year experience programs as a college student retention tool. Third, an examination of academic motivation in college is discussed including a review of prominent theories related to motivation and self-regulated learning. Finally, a comprehensive overview of the first-year-experience program in the Virginia Tech Summer Academy program is provided to conclude the chapter.

Student Development Theory

Theorists have closely examined student development to both inform and enhance student success, especially in the college environment (Astin, 1993; Terenzini & Pascarella, 2005; Tinto, 1993). In particular, psychosocial, cognitive-structural, typology, person-environment and race/identity theories have been scrutinized for their impact in the following areas: (1) to explain how and in what ways students develop in college, (2) to serve as predictors of student success and failure, (2) to guide the institutional practices of educators and student affairs personnel, and (4) to promote the development and efficacy of enhanced learning
environments (Evans, Forney, & Guido, 2010). For this study, Astin, Chickering, and Tinto have been highly referenced as important theorists of college student development.

**Astin’s I-E-O Model and Theory of Involvement**

Astin’s (1993) Input-Environment-Outcome model (I-E-O) describes college student development as a function of involvement—namely, how students change, develop, and likely become motivated to participate as a result of their academic and social activities in college (Evans et al., 2010; Terenzini & Pascarella, 2005). Astin (1993) described involvement and motivation as “the behavioral mechanisms or processes that facilitate student development (the how of student development)” (p. 135). Developed in 1984 and revised in 1993, Astin’s Theory of Student Involvement identified student-student and student-faculty interactions as the determining factor in fostering developmental change among students. *Inputs* refer to student pre-entry (i.e., before college) variables such as demographics, family background, and academic and social characteristics. *Environment* describes the college environment and the range of norms, programs, culture, policies, people, and experiences that students may encounter. *Outcomes* represent the gained academic, social, and professional abilities that students develop through their experiences in college—“the knowledge, skills, attitudes, values, beliefs and behaviors as they exist after college” (Terenzini & Pascarella, 2005, p. 53). Figure 2-1 presents a graphical representation of the components of the Astin’s Input-Environment-Outcome (I-E-O) Model.

According to Astin (1993), when students are fully engaged and invest energy in their college environment, they will attain higher levels of positive outcomes in the cognitive-psychological, cognitive behavioral, affective psychological, and affective behavioral realms...
Astin also suggested that by increasing both the quality and quantity of student involvement through the development of programming and enhanced curricula, institutions are better equipped to build a solid foundation for enhancing human capital and improving academic success. Moreover, a student’s place of residence and experiences that induce learning through academic involvement, athletic involvement, student-faculty interactions, and cognitive development have been shown to positively influence student outcomes (Astin). However, as noted by Pascarella and Terezini (2005), “Development or change is not merely the consequence of college’s impact on a student, but rather a function of the quality of student effort or involvement with the resources provided by the institution” (p. 54).

Astin (1993) detailed five cornerstones of academic involvement in college: (1) investment of physical and psychological energy, (2) differing degrees of involvement in different objects at different times, (3) the ability to measure involvement qualitatively and
quantitatively, (4) the concept that the amount of student learning is directly proportional to the quality and quantity of student engagement, and (5) the ability to benchmark success of educational practice or policy by its ability to increase student involvement (see also Pascarella & Terenzini, 2005).

Astin’s Theory of Student Involvement advances that a student’s ability and capacity to learn increase when he or she is more connected to the academic and social aspects of college. Further, any changes in educational development is a direct reflection of time invested in academics, varying relationships with others (most notably peers and professors), student interests and goals, student satisfaction with the university as a whole, and student success. Social interactions among students that revolve around shared intellectual experiences, such as a common curriculum or a common reading, may be particularly powerful or influential because they encourage peer engagement.

**Chickering’s Seven Vectors of College Student Development**

Generally viewed as a trustworthy set of engagement indicators (Foubert, Nixon, Sisson, & Barners, 2005; Kuh, 2005; Thieke, 1994), Chickering’s (1969, 1993) Seven Vectors of College Student Development addresses the various emotional, social, physical, and intellectual influences on college students. Revised in 1993 through empirical evidence and further investigation, the seven psychosocial vectors are: (1) developing competence, (2) managing emotions, (3) moving through autonomy toward interdependence, (4) developing mature interpersonal relationships, (5) establishing identity, (6) developing purpose, and (7) developing integrity (Chickering & Reisser, 1993), as shown in Figure 2-2. According to Thieke (1994), each “vector specifies in psychological terms the nature and range of tasks, defines the central concerns, and finally delineates change in self-awareness, attitudes and skills, which are
manifestations of successful task completion” (p. 3). The first of these vectors has to do with developing competence. “Chickering and Reisser (1993) likened competence to a three-tined pitchfork, the tins being intellectual competence, physical and manual skills, and interpersonal competence” (Evans et al., 2010, p. 38). As students develop competence, they come to rely more on their ability to think critically and use logic to make decisions, to participate in athletic and artistic activities, and to interact and build relationships with others.

Figure 2-2. Chickering and Reisser’s (1993) Seven Vectors of College Student Development

“Managing emotions,” the second of the vectors, refers to a student’s ability to realize and understand his or her emotions and how they relate to others. As students recognize certain
emotions—and then control them in response to certain stimuli—they are more able to cope with
day-to-day life, tasks, and challenges in the collegiate environment. Developing emotional
intelligence can help students appropriately express and control feelings, such as anxiety,
depression, confidence, and pride (Gardner, 1999). Moreover, if a student is able to manage
emotions, he or she is likely to have a better understanding of self, will be able to communicate
more clearly and establish healthy goals, and will be more adept at developing rewarding
relations (Chickering & Reisser, 1993).

The third vector, “interdependence,” refers to the ability of the student to think and make
personal decisions through emotional and instrumental independence. In other words, students
achieve interdependence when they stop relying so much on others, develop personal opinions
and goals, and put ideas into action to solve problems (Foubert et al., 2005). Successful students
are able to connect to others, while at the same time retaining their personal thoughts and
behaviors without the reassurance, support, or approval of others.

“Mature interpersonal relationships,” the fourth vector, is essential for successfully
maneuvering the collegiate environment. Through tolerance, an appreciation of differences, and
a capacity for intimacy, students are able to work alongside others in the pursuit of common
goals even if they have individual differences. Students will be more inclined to build healthy,
long-lasting relationships if they appreciate the identities of others, celebrate and value
differences, and reject stereotypes and prejudice (Chickering & Reisser, 1993). Building on
previous vectors, students are able to “establish identity” (Vector 5) though a number of essential
traits, which Chickering and Reisser listed as follows:

(1) comfort with body and appearance, (2) comfort with gender, and sexual orientation,

(3) sense of self in a social, historical, and cultural context, (4) clarification of self-
concept through roles and life-style, (5) sense of self in response to feedback from valued others, (6) self-acceptance and self-esteem, and (7) personal stability and integration. (p. 49).

The researchers purported that these traits strengthen character and promote success both within and outside the classroom.

In their discussion of Vector 6 (developing purpose), Chickering and Reisser (1993) argued that for students to lead happy and healthy lives, they must determine appropriate career goals, make commitments to personal aspirations and family, and balance their professional and personal interests with responsibility and resources. Moran (2001) concluded that purpose-driven students are more connected to the campus community, are better equipped to decrease unhealthy behaviors and uneducated risk taking, and are more motivated to learn and succeed. With purpose, students can develop a road map for vocational plans, facilitated by allowing their interests, abilities and interpersonal/family commitments to serve as road signs toward success.

The final vector states that students must “develop integrity” through humanizing values, personalizing values, and developing congruence between values, purpose, and beliefs. As students balance self-interest with others’ interests, they confirm core values and beliefs, and make socially responsible decisions and behavior consistent with their values and beliefs.

Tinto’s Interactionalist Model of Student Departure

To develop a model of the predictors of student departure decisions in a sociological context, Tinto (1993) postulated that student persistence in college is a function of student pre-entry variables and experiences, combined with their interactions with and integration in both the academic and social systems of the college environment. The latter includes the development of formal and informal relationships with faculty and peers, as well as their engagement with
courses and activities on campus. Tinto’s (1993) Theoretical Interactionalist Model of Student Departure is the most commonly used model to explain student departure in higher education (J. Braxton, Hirschy, & McClendon, 2004). The model describes the longitudinal processes of student persistence that affect a student’s voluntary withdrawal from a postsecondary institution. Voluntary withdrawal refers to a student’s decision to leave the institution citing personal reasons and not for involuntary academic dismissal, which describes decisions to leave college due to inappropriate behavior or the inability to meet academic challenges (Tinto, 1993).

Tinto’s (1993) model differs from the psychological, sociological, economical, and organizational perspectives of student attrition. His model asserts an interactionalist approach to student departure by centering on the interaction between the student and the social structures of college. Key components of the model are pre-entry variables, goals and commitments, academic and social systems, integration, and external commitments (Figure 2-3). These variables can positively or negatively interact and influence a student’s decision to withdraw.
Tinto posited that students arrive on college campuses with pre-entry attributes that include their family backgrounds, skills and abilities, and prior schooling. Other specific attributes include socioeconomic status, family size, education level of parents, race, age, gender, values, dispositions, educational experiences and programs, and educational achievement (Tinto, 1993). These pre-entry attributes directly influence and shape student intentions and commitment to pursue a degree. Intentions represent a student’s desire to work in a certain profession, while commitments describe a student’s desire to attain a degree and graduate from the institution in which they enroll. Tinto (1993) also acknowledges that many students have external commitments such as work, family obligations, and other responsibilities that require their time.
and focus, and must be evaluated as well. These pre-entry attributes, initial intentions and commitments, and external commitments represent the “financial, social, and intellectual resources and orientations” (Tinto, 1993, p. 114) that students use as a foundation for their interaction with the formal and informal academic and social systems of college.

Academic integration describes a student’s ability to align with the beliefs, values, and norms of academia. This includes formal structures such as overall intellectual development, successful performance in coursework, and active engagement in extracurricular activities. In addition, the more informal structures of integration are represented by a student’s ability to develop academic relationships with faculty and staff, and personal relationships with their peers. Social integration describes the degree of congruency between a student and the social environment. As students move through separation, transition, interaction, and incorporation phases in college, increased academic integration leads to increased intentions and commitments to graduate with a degree. Increased social integration lends to increased intentions and commitment to graduate from the particular institution.

While in college, the influence of external commitments as identified before is evident during interaction as well: students continue to be impacted by work, family obligations, and other responsibilities as they balance campus life. Tinto (1993) asserted that higher levels of both academic and social integration, coupled with the ability to balance external commitments, create a climate for college persistence. Although a student’s decision to leave college is accumulated from within, research indicates that his or her initial level of institutional commitment, coupled with his or her level of commitment after enrollment, is exceedingly important to making withdrawal decisions. Varying levels of academic and social integration and balance of external commitments correspond directly with student departure decisions.
Tinto’s (1993) Interactionalist Model of Student Departure has been thoroughly investigated and applied to a variety of students at a multitude of colleges – researchers have assessed differing variables of the local environment and their relationship on student persistence. Braxton, Milem, and Sullivan (2000), for example, found that active learning through faculty classrooms is instrumental in student decision making. Faculty roles and instructional methods may facilitate heightened social integration, institutional commitment, and thus student persistence. Active learning, serving as an antecedent to academic integration, is generally defined as instructional methods introduced in the classroom that engage students in meaningful learning activities that induce their thinking about their learning. Reason (2009) explained that student persistence is a function of university organizational context, referring to elements of the university environment including structures, support, and programming, and the peer environment, including student activities and involvement, culture, and the ability and acceptance into college life.

First-Year Experience Programs

In proactively addressing these four essential areas of student success, most institutions allocate significant resources to first-year experience programs in an effort to improve the odds for incoming freshmen. In fact, (Jamelske, 2009) pointed out that 95% of four-year colleges in the U.S. employ some type of first-year program designed to reduce early withdrawal decisions and increase student retention. Institutional efforts to combat student dropout, such as first-year experience programming, typically work to tackle the problems associated with student attrition at the student level. While varied in structure, organization, focus, and delivery, researchers note that student participation in these programs has increased persistence to the sophomore year, promoted stronger peer connections, enhanced institutional satisfaction, increased the use of
campus services, and improved out-of-class faculty/student interactions (Keup & Barefoot, 2005).

Other gains from first-year experience programming include the following: increased financial benefits for the university (Barefoot, 2000), the development of concerned citizens and the promotion of higher mean grade point averages (Lang, 2007), increased positive relationships (Keup & Barefoot, 2005), improved confidence and self-efficacy, higher graduation rates (Lang, 2007), and greater persistence rates (Miller, Janz, & Chen, 2007). It is important to note that the various researchers who have addressed first-year programming argue that these outcomes are independent of a student’s participation in mainstream introductory level academic courses.

Gerken and Volwien (2000) explained that the environment, context, and quality of first-year experiences in the classroom, and relationships with faculty and peers are better predictors of desired educational outcomes than precollege characteristics.

Barefoot (2000) described the individual, institutional, and societal gains that result from both proactive and reactive services associated with first-year experience programs. Nonetheless, her analyses indicated certain structural quandaries associated with first-year services due to a “continuous battle for status within the academy” (p. 4), the likelihood of it becoming a “central, sustainable part of the institution's fabric” (p. 4), the lack of financial support, and the lack of support and participation among faculty. Barefoot also pointed out that institutions have taken some persuading to develop, implement, and finance robust programs targeted at the first-year experience. However, many are now tied to accreditation plans as benchmarks for student engagement, accountability in higher education, and tools to increase retention rates. In short, first-year programs have garnered increased focus, funding, research, and policy development.
Essential Components of a First-Year Experience (FYE)

In 2008, The National Resource Center for The First-Year Experience and Students in Transition published a manuscript entitled, *Exploring the Evidence: Initiatives in the First Year of College*. The document identifies the following focus areas as important for helping students to adjust during their first year: civic engagement, early identification and intervention, first-year advising, linked learning communities, organization and assessment of multi-layered programs, first-year seminars, problem-based learning, and student-faculty interaction.

The American Association for Colleges and Universities noted that first-year experience (FYE) programming—especially first-year seminars—helps students to: 1) connect to the university, 2) build self-awareness and self-efficacy, 3) identify a sense of purpose, 4) participate in cross-cultural experiences, 5) engage in learning, 6) strengthen social integration, and finally, 7) enhance critical and reflective thinking (Association of American Colleges and Universities, 2007).

Therefore, based on a review of the student developmental literature, first-year experience programs, and personal observations, I argue that an effective FYE program should include the following essential components: high levels of faculty-student interaction, the development and promotion of learning communities; sustained student engagement, thoughtful acculturationalization and alignment, a clarification of the responsibilities of a college student, and opportunities to craft a successful self and future.

**High Level of Faculty-Student Interaction**

An FYE must seek to engage first-year students in high levels of faculty-student interactions (Chickering & Gamson, 1999), both within the classroom and in more informal settings. Student and faculty interactions allows both constituents to engage in a reciprocal
exchange of expectations, enables enhanced communication of needs and wants, and promotes development of meaningful learning experiences to increase quality learning outcomes. Tinto (1993) asserted that the fundamental components of a valuable college experience should include frequent student-faculty interactions, effective academic advising and mentoring relationships, and participation in academic and extracurricular organizations. When students are routinely interacting with faculty, they integrate themselves into academia by valuing both their role and faculty roles in learning. When students do not have such relationships, they turn to potentially “faulty” external sources for information and answers, such as peers and the Internet. In contrast, when first-year students interact with faculty, they gain guidance, encouragement, feedback, shared knowledge, a network, and a better understanding of teamwork and diversity. Such gains increase student success and satisfaction as they connect to the university through caring faculty. In short, by proactively understanding the challenges that college students may face in their first year, faculty can assist students in overcoming the likely hurdles they will encounter.

**Learning Communities**

An FYE should create learning communities, which Tinto and Pusser (2006) defined as a group of first-year and upper-class college students that institutions encourage in order to support the mutual academic and social success of all (Tinto, 2006). Learning communities are flexible; they can be developed in a single course, in a series of courses, or in a virtual classroom. What a learning community promotes is enhanced peer-to-peer contact and a commitment to shared learning. Students who participate in learning communities feel more academically and socially integrated since they routinely spend more time with other students in learning (Zhao & Kuh, 2004). Tinto (2009) had this to say about the dangers of learning in isolation:
Learning is still very much a spectator sport in which teacher talk dominates and where few students actively participate. Most first-year students experience learning as isolated learners whose learning is disconnected from that of others. Just as important, students typically take courses as detached, individual units, one course separated from another in both content and peer group, one set of understandings unrelated in any intentional fashion to the content learned in other courses. (p. 5-6).

In contrast, through linked courses, curriculum, and targeted experiences such as living arrangements and service projects, learning communities encourage shared knowledge, shared knowing, and shared responsibility in the learning process between peer and faculty (Tinto, 1997). By sharing, students become more self-aware, more apt to value differences, and increasingly motivated to engage in teamwork and collaboration. Soldner, Lee, and Duby (1999/2000) found that retention rates among students who participated in a learning community program were significantly higher in comparison to those who did not.

**Student Learning Through Engagement**

An essential component of an FYE is to encourage student learning through engagement in academic and social activities. “Student engagement represents both the time and energy students invest in educationally purposeful activities and the effort institutions devote to using effective educational practices” (Kuh et al., 2008, p. 542) Successful FYE programs will induce higher levels of engagement that will motivate and encourage students to be involved in the college experience. Such engagement opportunities should be designed with some or all of the following goals:

- Encourage high expectations of students;
- Assist students to know, understand, think, and learn how to learn;
• Provide opportunities for active, collaborative learning;
• Use inquiry as a process to construct knowledge and meaning for real-life issues;
• Use collaborative problem-solving as anchors for learning;
• Induce reflection and the implication of learning on thinking and behavior;
• Build civic and community attitudes that respect difference, and;
• Engage students in educational research, planning, teaching, evaluation, and decision-making, and encourage self-regulated, meaningful learning.

Acculturalization & Alignment

Kuh et al. (2006) suggested that colleges must pay attention to two essential concepts if their young students are to be successful: acculturalization and alignment. Acculturalization refers to the ability of an institution to provide students with clear objectives to what the institution values, how successful students perform, and the necessary resources to thrive in such an environment. Alignment refers to the institution’s ability to provide necessary “resources that match the institution’s mission and educational purposes and student’s abilities and needs” (Kuh et al., p. 110). Acculturalization and alignment includes explaining institutional policies, services, offices, and programs available at the institution (i.e., policy handbooks, health and legal services, academic affairs, financial aid, etc.). It also includes creating programming that encourages students to become a part of the community—for example, convocation ceremonies, frequent social events, and common-text programs. In short, an effective FYE should create a welcoming environment for first-year students. In so doing, an institution is able to assist students in developing a clear picture of the academic behaviors and mindset that must be developed if they are to be successful as a student and member of the academic community. When students learn early on the rationale behind their university's mission, core values and
expectations—as well as familiarize themselves with academic and social climate on campus—they will be better able to integrate into the academic/nonacademic systems of the campus and develop essential higher learning habits and skills (Tinto, 1993).

**Defining the Roles and Responsibilities of a College Student**

An effective FYE should assist new college students in handling their new responsibilities while concurrently embarking upon new opportunities. The literature addresses four significant demands when transitioning to the college environment: 1) academic adjustment, 2) institutional adjustment, 3) personal-emotional adjustment, and 4) social adjustment (Baker, McNeil & Siryk, 1985; Pascarella and Terenzini, 2005; Tinto, 2006). Therefore, the well-planned FYE helps students to transition and adjust to these demands through defining both the explicit and implicit roles of a college student and adult. Collier and Morgan (2006) argued that “an individual’s understanding of the ‘college-student role’ is a critical element in explaining student success at the university” (p. 426). When a student takes part in an FYE, he or she gains the cognitive, psychosocial, academic, and personal skills to maneuver the college environment and cope with the transition to college. By exposing them to skills such as test-taking, time-management, teamwork, communication, goal-setting, leadership, financial planning, and conflict resolution early in their academic tenure, a first-year experience will not only help them transition and adjust—it will also lay the groundwork for successful behavior and action throughout college and post-graduation. In essence, an FYE should help students formulate answers to the following questions: *Who is a college student? What does a college student do? What behavior and thinking should a college student exhibit? And what is expected of me as a college student?*
Craft of a Successful Self and Future

An essential component of an FYE is to help students to both define and understand themselves—their demographics, backgrounds, prior experiences, traits and characteristics, learning styles, personality, strengths and weakness, emotions, and abilities. Chickering and Reisser (1993) stressed that understanding oneself and others is vital to student development in college. Through assessments, reflection, learning, and critical thinking, a first-year experience can help students “craft a successful self” through understanding who they are, why they are in college, and how to incorporate positive thinking through self-confidence, self-efficacy, self-esteem, and self-awareness into their behavior (Chickering & Reisser). In so doing, students will be more inclined to develop a sense of purpose as a college student and connect their personal characteristics to the college environment. An effective FYE should also help first-year students think about their futures—through career exploration, goal-setting, building relationships, visioning, and cross-cultural experiential learning—thereby equipping them with the tools to craft successful academic, personal, and professional futures.

Academic Motivation and a Conceptual Model

One of the greatest perplexities in the learning puzzle is what motivates students—what motivates some students to excel academically? To study? To learn, appreciate, and make connections to the material? Researchers identify an emphasis on the role of students’ beliefs and strategies being assessed to better understand student motivation and learning. While learning is heavily dependent upon teacher characteristics, researchers attribute a large part of learning to that which is in a student’s control, value, effort, and motivation. Yet, understanding these links may provide educators with insights into the elements of the learning process of
which teachers have control and the contextual conditions of a learning environment that should exist to promote learning and academic motivation.

Important to this research is college student academic motivation, or the “process that is inferred from actions (e.g. choice of tasks, effort, persistence) and verbalizations (e.g., “I like biology.”), whereby goal-directed physical or mental activity is instigated and sustained” (Jones, 2009, p. 272). College student motivation is central to student engagement and student learning and is considered a highly influential factor in student persistence. Understanding academic motivation is a function of the connections between student engagement, persistence, factors of the university that promote student success, and the level and ways in which students are motivated toward the achievement of certain goals and activities.

Students with more developed self-regulatory cognitive skills tend to be more academically motivated and learn more than others (Jones, 2003; Pintrich, 2003). Thus, academically motivated students are more likely to engage in activities that positively impact a student’s level of persistence, interest in subject matter, knowledge acquisition, positive sense of self, critical thinking ability, and academic effort (Pintrich & Schunk, 2002; Pintrich and Zusho, 2007). Cognitive learning strategies describe how students’ process information gathered from educational activities, whether through basic approaches or through more advanced steps. These include strategies such as note taking, collaborative peer learning, rehearsal, and elaboration (Pintrich, 2004). Research on the effects of academic self-regulation and motivation on learning has demonstrated important links between the two constructs, namely through self-determination theory (Pintrich & Schunk, 2002; Pintrich and Zusho, 2007).
Self Determination Theory

Self-determination theory postulates that humans have the innate desire for stimulation and learning evident through their behavior by which individuals purposefully act which is influenced by the conditions of their learning environment (Pintrich, 2003, 2004). Through self-determination, Deci and Ryan (2000) describe motivation as a dynamic, evolving progression through three distinct stages: amotivation, extrinsic motivation, and intrinsic motivation. The stages fall along a motivational continuum from non self-determined behaviors to self-determined behaviors (Fairchild, Horst, Finney, & Barron, 2005). Research concerning academic motivation suggests that the extent of which a student is motivated is influenced by the cognitive, affective, and psychomotor processes that a student is engaged in during the learning process.

Researchers explain motivation as a dichotomy of differing level, or the amount of motivation, and orientation, or the underlying attitudes and goals that give rise to action, best shown through the behaviors and thinking one exhibits as he or she pursues activities and goals (Vallerand & Bissonette, 1992). For example, Jones (2009) clarifies motivation for students:

At one end of the continuum, fully self-determined students have an internal locus of control because they perceive a high level of freedom during an activity and have a sense of choice over their actions. In contrast, students who are not at all self-determined have an external locus of control because they have no autonomy or sense of choice and feel controlled. (p. 274)

Intrinsic motivation is personified through the effort that students apply to learning purely from their enjoyment of the learning process of that particular subject. While, extrinsic motivation is the derived as a result of some external push or obligation—from a material
reward, enforcement, manipulation, or limitation—to engage in a learning activity. Consequently, with extrinsic motivation, the satisfaction achieved internally to pursue an activity or achieve a task can be absent and inflicted by an external source.

Intrinsic motivation rests in a student’s locus of control or their innate abilities and beliefs that they have control over their learning. Thus, self-determined students believe that they have some control of their learning based upon the identification and thus the fulfillment of their individual psychological needs. Deci and Ryan (2000) describe the needs for intrinsic motivation as three-fold: a) autonomy, b) competence, and c) relatedness. Autonomy refers to self-governance, or the ability to direct one’s own considerations, characteristics, desires and conditions with independence to be able to think and make choices that reflect one’s authentic self (Deci & Ryan, 2000). Those with autonomy have the freedom to make their own decisions and use available information to showcase responsible control over their actions to achieve goals. Relatedness describes the need to feel connected to significant others. Self-determination theory proposes that the degree to which any of these three psychological needs is unsupported or thwarted within a social context will have a robust detrimental impact on learning and motivation in that setting. Theoretically, when needs are met within a particular environment, people are more likely to be intrinsically motivated to perform a given activity.

Ryan and Deci (2000) explain, however, that true extrinsic motivation can exist in variable forms through four distinct categories: external regulation, introjected regulation, identified regulation, and integrated regulation. “Thus as one moves along the extrinsic continuum (from external regulation to integrated regulation), motivation begins to take on more of the characteristics associated with intrinsic motivation” (Fairchild et. al, 2005), although not a complete reflection of true self-determination (Ryan and Deci, 2000).
“Students can perform extrinsically motivated actions with resentment, resistance, and disinterest or, alternatively, with an attitude of willingness that reflects an inner acceptance of the value or utility of a task” (Ryan & Deci, 2000, p. 55). For example, students exhibiting external regulation in their approach to learning and engagement in activities do so as a result of external influences or reward contingencies (Ryan & Deci). Introjected regulation represents motivation influenced by external factors, though contextualized by self-imposed rewards or punishments. Thus, a student may complete an assignment at their own free will but feel obliged to do so based on factors controlled by the learning environment including responsibility, guilt or ego (Fairchild et. al, 2005). For example, a university athlete that performs academically through a high GPA to maintain their athletic status and to avoid academic sanctions from the NCAA is externally motivated through introjected regulation.

Moving along the continuum, Vallerand and Bisonette (1992) explain that identified regulation is recognized as improved self-determined behavior yet still functions as a result of an external means in the form of personal values—for example, a student may engage in a learning activity if they feel as though it will help them to pass a class. Thus, identified regulation is when one engages in an action that is a vehicle to his or her goal. Finally, integrated regulation refers to behaviors that serve as an instrument to reach certain goals that progress one’s self-concept and not due to personal interests or satisfaction. Although propelled internally, a student may engage in a learning activity because they are known as a good student or feel like they are doing the right thing and represents what he or she stands for in regards to academics.

Understanding academic motivation and the many behaviors, thoughts and feelings that can exist while students pursue academic goals is an important factor to academic performance. Thus, students that engage in self-regulated behaviors in the classroom may explain individual
differences among learners in response to learning materials and activities (Pintrich & Zusho, 2007; Schunk & Zimmerman, 2006). Successful learners have high levels of motivation and use a wide range of adaptive self-regulatory learning strategies, or intricate steps to perform, to succeed in academic tasks. Furthermore, students that set defined goals for their learning, approach and value learning activity with excitement, fervor and persistence, exhibit higher levels of self-efficacy in learning, and diminish their apprehensions to testing and other challenges through effort and learning strategies are more successful than their counterparts (Pintrich & Zusho, 2007).

**Pintrich & Zusho’s (2007) Student Motivation and Self-Regulated Learning Model**

Established in social cognitive theory, Pintrich and Zusho’s (2007) model of student motivation and self-regulated learning (Figure 2-4) is a detailed conceptual framework that postulates that *learning outcomes* are a function of the associations between student academic motivation and adaptive self-regulation. The framework highlights *personal characteristics* and *classroom context* as a vehicle to motivation and self-regulated learning. Assumed in this context is that motivation and self-regulation are both changeable and malleable which is directly influenced by the learning process (Pintrich and Zusho). The model frames motivation as integral component to learning outcomes such as testing performance and retention and demonstrates the interaction between personal, environmental, cognitive, and developmental factors as a continuous, systematic series based on change and engagement.
Enhanced Learning Environments

The type of academic environment in which students are engaged has a direct influence on their motivation for learning, the tools they use to approach learning, and the quality and quantity of learning outcomes. The research supports the creation and implementation of “seamless” enhanced learning environments to increase positive impacts on learning and a positive educational climate for students (Hofer et. Al 1998; Jones, 2009; Kezar, 2006; Kuh,
The word *seamless* suggests that what was once believed to be separate, distinct parts (e.g., in-class and out-of-class, academic and non-academic, curricular and co-curricular, or on campus and off-campus experiences) are now of one piece, bound together so as to appear whole or continuous. (Kuh, 1996, p. 136)

In other words, students learn most effectively in an environment that minimizes the learning boundaries between formal and informal learning experiences. Such learning experiences will link and connect curriculum by bridging learning with institutional practices, thereby motivating and inspiring students to exhibit energy and effort to educational activity (Pascarella & Terezini, 2005; Kuh, 1996; Kuh et al., 2005). Seamless learning environments are also student centered and work to engage students to be active participants in their learning.

Schroeder and Hurst (1996) described seven core conditions for an optimal learning environment as designated by Blocher (1978): involvement, challenge, support, structure, feedback, application and integration. With the transition to a seamless learning environment, the institutional culture becomes one of shared mission and values (Pascarella & Terezini, 2006), student learning becomes more personal (Kuh, 1996), the institution itself becomes more collegial and accountable for student learning outcomes (Kezar, 2006), students are introduced to innovative opportunities and technology, and student success and student learning become the primary foci of the entire institution (Schroeder & Hurst, 1996).

**Virginia Tech Summer Academy**

Founded in 2012, the VTSA was developed jointly by faculty and staff as an innovative strategy to enhance the first-year experience. The VTSA is an intensive, six-week residential...
program that provides students with a stimulating and challenging academic experience, one-on-one relationships with faculty, access to peer mentors and other student support programs and services, and enriching on- and off-campus activities to help students to intellectually and socially transition to campus life at Virginia Tech (Virginia Tech Summer Academy, 2012). The program was designed to allow freshman the opportunity to begin their college education during the summer session prior to their first fall semester; thus, it takes place during Virginia Tech’s second summer session and is only available to first-year students. The program combines popular courses grouped in academic tracks consisting of two three-credit hour courses. Advantages of the program include the potential to earn six units of college credit based on a successful completion of the program. Students are housed in dormitories on campus and are welcomed into a safe and accepting community that promotes student involvement and cooperation through comfortable campus living and a unique social environment.

The main objectives of the VTSA are to:

a) Address capacity issues in general education courses;
b) Facilitate support of retention initiatives for student success;
c) Provide opportunities to connect faculty with small freshmen classes;
d) Respond to state level concerns for optimizing physical resources year round;
e) Expose students to the value and potential of summer enrollment early in their academic career (M. Herndon, personal communication, December 5, 2012).

Participation in the program acts as a bridge of transition from high school to academic rigors and social challenges of college life. The foundation of the program is to generate a preparatory environment that encourages student academic and social success, while mimicking what students will experience in the fall semester.
Dr. Herndon, Director of Summer Sessions, described how the program came to fruition:

In August 2011, the Vice President for Undergraduate Education approached the Assistant Vice President for Enrollment Management and requested that we explore possibilities to develop a summer program for entering first year students. From August to November 2011, we explored similar programs that had been developed at other institutions. The program that appealed to us the most was Penn State University (PSU). This institution was of great interest because they had nearly 20 years of successful experience in their Learning Edge Academic Program (LEAP). PSU was also of particular interest since it is one of our sister land-grant schools.

After we examined programs at Penn State and North Carolina State, we looked for ways to develop a program tailored to our university. We set out to meet with all the associate deans, explaining the vision and expectations of the program and to get university-wide buy-in. All of the colleges participated in the program, with the exception of the College of Natural Resources and the Environment.

The program received tremendous public support from the Provost and the Vice President for Undergraduate Education. These two key figures really opened the doors for implementation. Once deans and department heads learned that this was an expectation from the top levels of the administration, faculty got on board.

We then identified courses in the Curriculum for Liberal Education (CLE) that would be appealing to students in a six week summer format. The next step was to get faculty who were interested in the program and available to teach
during the second summer session. Our office later forged partnerships with the Office of Student Success, University Studies, the Division of Student Affairs, Financial Aid and others to pull the program together in roughly 3 months (M. Herndon, personal communication, December 5, 2012).

Virginia Tech allocated a total of $211,000 to start the program; $41,000 of these funds were used to cover stipends, room and board for peer mentors, and other operational costs associated with the program, while $97,000 was used to compensate summer academy faculty salaries (M. Herndon, personal communication, December 5, 2012). The pilot implementation of the program was launched in July 2012 with the following cornerstones: a) smaller, in-depth classroom settings; b) collaborative teaching, as well as a wide variety of faculty-level interactions; c) academic support (study skills, writing center and library workshops); d) student life experiences, including academy centered recreational activities; e) relationships with upper-class students through assigned peer mentors; and f) early move-in into assigned fall residence halls (M. Herndon, personal communication, December 5, 2012).

Plans are already underway for the implementation of the 2013 program. Currently, the University has full participation from all Colleges for the upcoming Summer Academy, which will increase from 13 tracks to 35 tracks. Future plans include adding new facets to the program, including a simultaneous program for entering transfer students (M. Herndon, personal communication, December 5, 2012).

Summary

This literature review presented research studies, concepts, and theoretical constructs pertaining to student development theory, college student retention, and first-year experience programs. This chapter also addressed theories and implications of motivation and self-regulated
learning in college student development. As confirmed by the literature, first-year experience programs have proven to be an effective method for increasing student retention. Additional research is needed, however, to understand their influence on student motivation and retention. A discussion of the 2012 Virginia Tech Summer Academy program is also provided to better understand the context of the study. Despite the tremendous investment of financial and personnel resources, little is known about the relationship of participation in Virginia Tech’s summer academy first-year experience courses and student motivation because the program is in its infancy. This literature review guides the methods and processes of research and analysis as a framework for this study.
CHAPTER THREE:

METHODOLOGY

“Our lives begin to end the day we become silent about things that matter.”

– Martin Luther King, Jr.

Overview of Study Design

The purpose of this study was to examine the influence of student engagement in the Virginia Tech Summer Academy (VTSA) first-year experience program on the academic motivation and success of students. Using the two-phase, sequential explanatory mixed-methods design (QUAN→ QUAL) (Creswell & Plano-Clark, 2011; Creswell, 2007), this study explored the relationship between engagement in first-year experience programs and academic motivation through both qualitative and quantitative interpretation.

The first phase of the study used two separate quantitative measures to assess the level of student engagement in educationally purposeful activities in the VTSA. First, the Learning and Study Strategies Inventory (LASSI) and was utilized to measure changes (if any) in first-year students’ academic motivation. A second quantitative assessment, the Scale of Educationally Purposeful Activities (SEPA), based on the National Survey of Student Engagement (NSSE), was administered approximately seven weeks later to gauge student engagement in the VTSA. In the qualitative phase, the researcher conducted focus groups to explore student perceptions regarding their experiences in the VTSA and the influence of the program on their learning.

Specifically, the following research objectives guided the study:

1. Describe the student participants of the VTSA program in the sample.
2. Determine VTSA students’ level of student engagement in the program’s educationally-purposeful activities.

3. Determine VTSA students’ academic motivation before and after the program through pre- and post-measurement.

4. Explain the change in academic motivation in relation to VTSA student engagement and demographic variables.

5. Explore student perceptions of student engagement in the VTSA program and connections to academic motivation.

6. Interpret and explain significant factors of student engagement influencing changes in academic motivation among VTSA students.

The independent variables for this study were first-year student engagement, as well as a number of demographic and academic performance variables that include the following: gender, ethnicity/race, track, standardized test score, athlete status, current GPA, and first-generation student status. The dependent variable was the change in academic motivation as assessed by the LASSI Motivation Subscale.

**Mixed-methods Research: Advantages and Disadvantages**

Johnson and Onwuegbuzie (2004) provided detailed insights into mixed-methods as a research method, which emphasizes the strengths and weakness of both qualitative and quantitative methodologies individually, as well as the incentives for mixing the two. Clearly, the purposes of the two methods differ in their research purpose and design. Quantitative research uses scientific methods to test theory based on the relationship between variables, although according to Creswell (2009), this methodology is not useful for explaining why a relationship exists. In contrast, qualitative research is used to comprehensively explore a phenomenon and
link multiple perspectives through emerging patterns to provide a human interpretation of the problem. The disadvantage of a qualitative approach is that the results are not typically generalizable to a larger population or should in any way be considered infallible (Creswell, 2009). Creswell and Plano-Clark (2011) argued that neither method in isolation is adequate for explaining the complex schemas of social problems and interaction.

“Mixed-methods research is defined as the class of research where the researcher mixes or combines qualitative and quantitative research techniques, methods, approaches, concepts, or language into a single study” (Johnson & Onwuegbuzie, 2004, p. 17). The researchers also noted that mixed-methods is “inclusive, pluralistic, and complementary” (p. 17). Conducting a mixed-methods study can mimic real-life challenges and social contexts and allow researchers to investigate the full gamut of a problem (Creswell & Plano-Clark, 2011). Supported by a pragmatic research paradigm, Creswell (2009) suggested that an effective research methodology should be “question-led” and that design would be shaped by the needs of a specific research question. According to Johnson and Onwuegbuzie (2004), “What is most fundamental is the research question—research methods should follow research questions in a way that offers the best chance to obtain useful answers” (p. 16-17).

The pragmatist research paradigm contends that a chosen research methodology must be designed in whatever way best addresses the research topic. Once the phenomenon of inquiry is clearly defined, only then can researchers choose the appropriate approach to investigate what is to be discovered (Krauss, 2005). Creswell and Plano-Clark (2011) explained that through pragmatism, researchers do not have to be limited to choosing one research method over another based on an epistemological and ontological position, and that multiple worldviews are useful for conducting research through pluralistic observation and measurement. Similarly, Sale, Lohfeld,
and Brazil (2002) argued that “both quantitative and qualitative researchers should embrace positivism colored by a certain degree of interpretivism” (p. 47), as quality research is both needs-based and value oriented (Johnson & Onwuegbuzie, 2004).

Central to mixed-methods is the integration of qualitative and quantitative research methods either during data collection and/or during the results and interpretations phase. “Mixing” is not just two different methodological studies of aspects of the same phenomena. “Researchers should collect multiple data using different strategies, approaches, and methods in such a way that the resulting mixture or combination [of quantitative and quantitative research] is likely to result in complementary strengths and non-overlapping weaknesses” (Turner, 2003, p. 18). The multiple data are collected sequentially or concurrently and should supplement one another. For example, qualitative data, which can enhance meaning and interpretation, is often augmented or made more generalizable through quantitative data, which involves factual measurements of relationship data (Creswell & Plano-Clark, 2011). Conversely, quantitative data testing theory can be enhanced through an in-depth investigation of interaction and human interpretation obtained through qualitative instruments (Creswell & Plano-Clark, 2011).

To summarize, there are several advantages and disadvantages associated with a mixed-methods research design compared to a single-method approach.

Advantages

- Combination of the approaches provides strengths that offset the weaknesses of using a single methodology. Thus, the use of positivism in quantitative and constructivism in qualitative can answer questions not illuminated by just one method.
- Combination provides more evidence to explain and highlight the factors that affect student expectations, experiences and achievement through the use of variable tools.
• Combination can be advantageous to answer certain complex research questions that individual research methods cannot answer. Mixing can lead to stronger, more conclusive results that speak to both the breadth and depth of the problem.

Disadvantages

• Combination increases the time investment, demands, and expense because it increases the need for more manpower and teamwork during the research study.

• Combination requires more skill and detailed action to implement and integrate the both qualitative and quantitative research; this includes focusing on the logical, epistemological, and ontological assumptions of both qualitative and quantitative research.

• Combination can decrease the vigor and credibility of the study as mixed-methods research is a relatively new approach and is met with additional scrutiny and speculation (Bryman, 2006; Creswell & Plano-Clark, 2011; Greene & Caracelli, 1997; Ivankova et al., 2006; Tashakkori & Teddlie, 2003).

Research Design

This research used mixed-methods as a research design. Two quantitative approaches employing surveys were used to accomplish the following goals: 1) to analyze student academic preferences for learning and learning strategies using the LASSI, and 2) to determine the degree of student engagement in educationally purposeful activities in a first-year experience program using the SEPA. For the qualitative analysis, focus groups were utilized to examine student academic motivation within first-year experience programs. Specifically, an explanatory mixed-methods design (QUAN→ QUAL) was employed in order to “refine and explain those statistical results by exploring participants’ views in more depth” (Ivankova et al., 2006, p. 4).
The main purpose of this research was to use qualitative and quantitative inquiry to clarify the nature of effective educational practices within first-year programs that encourage significant positive changes in student academic motivation. This mixed-methods design was expected to provide a fuller picture of the context, enhance the utility of results by revealing more nuances, and add credibility to the research by augmenting the integrity of the findings through triangulation, development, and complementarity (Bryman, 2006; Greene & Caracelli, 1997; Johnson & Onwuegbuzie, 2004).

Creswell and Plano-Clark (2011) described explanatory sequential design as conducted in two separate (sequential) phases: a quantitative study followed by a qualitative study, which serves to expand and illustrate the numerical results. In such a design approach, priority is generally given to the quantitative data, after which the two methods are integrated during the interpretation phase of the study. During the first phase of this study, the researcher collected, measured, and analyzed quantitative data through close-ended research (i.e., surveys) in the form of empirical (numerical) relationships using statistical computations and mathematical expressions (Tashakkori & Teddlie, 2003). These empirical relationships provided a framework to guide the qualitative phase of the study, as well as inform data collection and purposeful sampling (Creswell & Plano-Clark). The qualitative phase (i.e., focus groups) provided detailed information to generate deeper understanding and expand results (Ivankana, Creswell, & Stick, 2006). Integration occurred during several phases of the research study—in the selection of qualitative participants based on those who completed the quantitative survey, in developing probes during qualitative questioning intended to serve emergent purposes, and by ultimately relating both sets of results.
In summary, by utilizing a two-phase sequential explanatory research design, this study coupled the use quantitative and qualitative methods of data collection to provide a more comprehensive and, it is hoped, a more authentic view of the relationship of first-year experience programming, engagement, and academic motivation (Ivankana, et al., 2006; Creswell & Plano-Clark, 2007). Figure 3-1 provides a graphic representation of the stages of the convergent parallel mixed-methods design used in this study.
<table>
<thead>
<tr>
<th>Phase</th>
<th>Procedures</th>
<th>Product</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative Data Collection</td>
<td>- Engagement Scale of Educationally Purposeful Activities</td>
<td>- Numerical data</td>
<td>August 2012</td>
</tr>
<tr>
<td></td>
<td>- Learning and Study Strategies Inventory (LASSI) (Pre-existing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantitative Data Analysis</td>
<td>- SPSS computational statistical Analyses</td>
<td>- Descriptive statistics</td>
<td>August 2012</td>
</tr>
<tr>
<td></td>
<td>- Matched Pairs T-test</td>
<td>- Change scores</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Correlations</td>
<td>- Statistical significance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- ANOVA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Forced Entry Regression Analyses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connecting Quantitative and Qualitative Phases</td>
<td>- Identification of extreme cases of variation for students</td>
<td>- Refinement of focus group protocol</td>
<td>August 2012</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Purposeful sample</td>
<td></td>
</tr>
<tr>
<td>Qualitative Data Collection</td>
<td>- Focus groups</td>
<td>- Text data (transcripts, document descriptions)</td>
<td>August-September 2012</td>
</tr>
<tr>
<td>Qualitative Data Analysis</td>
<td>- Coding and thematic analysis using Excel</td>
<td>- Text data</td>
<td>August - September 2012</td>
</tr>
<tr>
<td></td>
<td>- Constant comparative data analysis</td>
<td>- Written response data</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Themes and quotes</td>
<td></td>
</tr>
<tr>
<td>QUAN → QUAL = Results</td>
<td>- Interpretation and explanation of the quantitative and qualitative results</td>
<td>- Report</td>
<td>September – October 2012</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Discussion</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Implications</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Future Research</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 3-1. Design model for the QEP Project mixed-methods research study: Sequential explanatory design procedures.*
Pilot Study

Pilot study testing involves conducting a preliminary, small-scale rehearsal of data collection tools and procedures of a research study to test the feasibility of the methodology, to identify emerging logical and systematic problems, and to allow for corrective changes or adjustments before actually collecting data from the target population (Creswell, 2009). Thabane et al. (2010) identified four categorical reasons for conducting pilot tests: (1) resources, or the analysis of time, budget and the property necessary to conduct a research study; (2) process, or an examination of the steps and procedures that comprise the main study; (3) management, or the review of the potential human and data issues in recruitment, collection, and analyses; and (4) scientific, or the systematic assessment of the influence, response, and safety of participating in a research study on study participants. “Well-designed and well-conducted pilot studies can inform [researchers] about the best research process and occasionally about likely outcomes” (van Teijlingen & Hundley, 2001, p. 4).

A pilot test was conducted in July 2012 with volunteer students of a similar population to identify potential practical problems in following the research procedures, thereby enabling the researcher to refine the data instruments. Volunteer students were recruited from a similar Virginia Tech summer, residential, academically rigorous educational enrichment program—Fifteen (N=15) volunteer high school students were recruited to both review and dissect the intended recruitment communication and procedures, sign-up tools, survey questions, and focus group protocol. Students also participated in mock focus groups to allow for the analysis of questioning and analysis. The Director of the Office of Summer Sessions, Dr. Michael Herndon, and the Associate Vice President for Student Success, Dr. Karen Sanders, reviewed the study materials for clarity as well.
Results from the pilot study provided valuable insights into the potential reactions of the respondents to the intended research design, including acceptability and comprehension of the wording used, any sensitive reactions to the research procedures, potential improvements to the internal validity of the research, and levels of cooperation. Results from the pilot study were also used to discover errors in the research process, such as the reliability and suitability of the information, the time necessary to conduct the research, and the possible need to revise the format of the research procedures and tools including instructions, sequence, structure, and acceptable wording. Specifically, results of the pilot study provided for:

- rescheduling of the time allotted for the in-class engagement survey due to concerns raised by participants;
- change to the wording for directions and steps to sign-up for focus groups using Scholar, a course management system, for clarity and understanding;
- the addition of a $50 grand prize to be raffled to one student participating in a focus group to increase the response rate.

**Setting and Population**

The setting for this research was Virginia Tech, a comprehensive, state-supported land grant institution of higher education. The University is an accredited four-year college and stands on three triangular premises of learning, discovery, and engagement, with a motto of *Ut Prosim* (That I May Serve).

As the Commonwealth’s most comprehensive university and its leading research institution, Virginia Tech offers 215 undergraduate and graduate degree programs to more than 30,000 students and manages a research portfolio of nearly $400 million. The university fulfills its land-grant mission of transforming knowledge to practice through

According to the Office of Institutional Research and Effectiveness (2012), in Fall 2012, Virginia Tech (a predominantly White institution) welcomed its most demographically-diverse student population representing the University’s most academically-qualified students. The University admitted 5,487 first time freshmen to its Blacksburg campus, including 3,043 males and 2,444 females. The SAT score mean for fall 2012 freshmen was 1250, while high school GPA average was 4.0. The student body was comprised of 3,864 in-state students, and 1,623 out-of-state students. Table 3-1 provides a side-by-side comparison of both the demographic and academic performance variables of the Virginia Tech University population and the VTSA.

With respect to VTSA participants, the general characteristics of the population were similar with respect to age, academic background, academic preparedness, race, first generation status and location. Specifically, the 2012 VTSA cohort consisted of 124 first-year college students, of whom 33% (n=41) were female and 67% (n=83) were male. In terms of race and ethnicity, 61% (n=75) of the participants were White. Sixty-five percent hailed from Virginia, while 35 percent came from out-of-state, including areas as far away as Alaska, California, and Texas. The mean age was 18 years, with the age range varying between 17 and 20. Learners had a mean SAT verbal score of 545 and a mean SAT math score of M=590, and an average high school grade point average of 3.68 (on a 4.0 scale). Additionally, 38% (n= 48) percent of the learners were University student athletes and 19% (n=23) percent were first-generation college students.
### Table 3-1

**Demographic Comparison of Virginia Tech’s First Year Students and Virginia Tech Summer Academy Population**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Virginia Tech 2012 Freshman University Population</th>
<th>Virginia Tech 2012 Summer Academy Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>2,444</td>
<td>44.5</td>
</tr>
<tr>
<td>Male</td>
<td>3,043</td>
<td>55.5</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>3816</td>
<td>69.5</td>
</tr>
<tr>
<td>African American</td>
<td>166</td>
<td>3.0</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>265</td>
<td>4.8</td>
</tr>
<tr>
<td>Asian</td>
<td>465</td>
<td>8.5</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>2,139</td>
<td>4.4</td>
</tr>
<tr>
<td>Other</td>
<td>315</td>
<td>5.8</td>
</tr>
<tr>
<td>Not Reported</td>
<td>221</td>
<td>4.0</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>18</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>19</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>20</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Residency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-state residence</td>
<td>3,864</td>
<td>70.4</td>
</tr>
<tr>
<td>Out of state residence</td>
<td>1,623</td>
<td>29.6</td>
</tr>
<tr>
<td>First Generation Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First-Generation</td>
<td>987</td>
<td>18.0</td>
</tr>
<tr>
<td>Not First-Generation</td>
<td>4500</td>
<td>82.0</td>
</tr>
<tr>
<td>Honors Student Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honors Student</td>
<td>275</td>
<td>5.0</td>
</tr>
<tr>
<td>Not Honors</td>
<td>5212</td>
<td>95.0</td>
</tr>
<tr>
<td>University Athlete Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athlete Student</td>
<td>146</td>
<td>2.7</td>
</tr>
<tr>
<td>Not Athlete</td>
<td>5341</td>
<td>97.3</td>
</tr>
<tr>
<td>Total</td>
<td>5487</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Note. Age data was unavailable for the full Freshman population.*
Also important to highlight is the student membership in the VTSA tracks. Students were assigned to 13 different tracks. For example, 18.5% (n=23) of the students were in the Architecture and Design track, 16.1% (n=20) participated in the Creative Leadership track, while 9.7% (n=12) of the students were in the Business Information Systems track. Tracks with 6.5% (n=8) respectively were The Role of Europe in the Evolution of the Modern World, Ethics in an International Society, The History of the American Political Machine, and Critical College Communication. Table 3-2 outlines student membership in all thirteen tracks of the VTSA.

Table 3-2

*Student Membership in VTSA Tracks*

<table>
<thead>
<tr>
<th>Virginia Tech Summer Academy Tracks</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track 1: The Art of Thinking and Speaking</td>
<td>7</td>
<td>5.6</td>
</tr>
<tr>
<td>Track 2: Role of Europe in the Evolution of the Modern World</td>
<td>8</td>
<td>6.5</td>
</tr>
<tr>
<td>Track 3: Architecture and Design</td>
<td>23</td>
<td>18.5</td>
</tr>
<tr>
<td>Track 4: Ethics in an International Society</td>
<td>8</td>
<td>6.5</td>
</tr>
<tr>
<td>Track 5: The History of the American Political Machine</td>
<td>8</td>
<td>6.5</td>
</tr>
<tr>
<td>Track 6: Nutrition, Foods, Exercise, and Sport</td>
<td>7</td>
<td>5.6</td>
</tr>
<tr>
<td>Track 7: Engineering</td>
<td>8</td>
<td>6.5</td>
</tr>
<tr>
<td>Track 8: Critical College Communication</td>
<td>5</td>
<td>4.0</td>
</tr>
<tr>
<td>Track 9: Life Sciences</td>
<td>5</td>
<td>4.0</td>
</tr>
<tr>
<td>Track 10: Nutrition and Life Sciences</td>
<td>7</td>
<td>5.6</td>
</tr>
<tr>
<td>Track 11: Humanities and the Arts</td>
<td>12</td>
<td>9.7</td>
</tr>
<tr>
<td>Track 12: Business Information Systems</td>
<td>6</td>
<td>4.8</td>
</tr>
<tr>
<td>Track 13: Creative Leadership</td>
<td>20</td>
<td>16.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>124</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Quantitative Data Collection and Analysis Procedures

Quantitative research is the systematic empirical investigation of measurement of natural phenomena through the use of statistical and mathematical models and relationships (Creswell, 2003). Quantitative research studies collect data regarding these variables to describe variables in terms of distribution within a certain population and to make inferences regarding the relationships between variables. At the heart of quantitative research is fundamental connection and interpretation of mathematical expression and statistical relationships and the interpretation of how variables are distributed to generalize data across groups of people within a certain population. Thus, researchers employ methods such as surveying using formal instruments to express causal accounts for certain phenomena (Creswell, 2009).

Data from two quantitative surveys functioned as the quantitative phase of this research study. First, the Learning and Study Strategies Inventory (LASSI) and was utilized to measure changes (if any) in first-year students’ academic motivation. A second quantitative assessment, the Scale of Educationally Purposeful Activities (SEPA), based on the National Survey of Student Engagement (NSSE), was used to analyze student engagement in the VTSA.

Recruitment

The researcher recruited students to participate in this study during a class session through an introductory PowerPoint slide in July 2012. This slide (Appendix B) detailed the research purpose and objective, informed consent, and participant responsibilities. Participant responsibilities included the following: a) allowing the researcher access to the LASSI Pre- and Post- test results; b) completing an engagement questionnaire; c) participating (if asked) in a 90-minute focus group concerning student perceptions of engagement in the Virginia Tech Summer Academy program and academic motivation; and d) electronically reviewing (if asked) the
transcripts of the audio-recorded focus group. Students reviewed the Informed Consent form (Appendix C), which described the research objectives and purpose of the study, and explained voluntary participation and any potential risks and benefits involved in the study. Finally, the researcher fully explained the procedures for completing the SEPA and answered any student questions regarding the research processes, including informed consent, participant responsibilities, and assessments. At the end of the VTSA program in August 2012, students were recruited in their courses to take part in the second quantitative assessment of this study. During the final course of the semester, the researcher asked specific professors of one of their courses to hand out and collect the SEPA.

Sample

Data from 89 participants were used in the quantitative phase of the study. Although 124 students participated in the VTSA program, the sample included only those study participants that met the following requirements: 1) completed the SEPA, and 2) signed an informed consent form granting permission to access their LASSI pre- and posttest assessment scores, as well as their demographic and academic records. LASSI pre and posttest scores were not available for 28 students, pairing the analytic sample to 96 cases. All 96 students completed the SEPA. Based on ±3 standard deviations representing large change scores in LASSI pre and post test scores, five outliers were identified from this sample and were removed, coupling the sample to 91 participants. Researchers suggest that a ceiling effect could obscure the possibility of finding a true difference as students who score at a distinct upper limit of a scale have mastered the subject before treatment (Howell, 2012). In light of such risks, two students were removed from the sample, identifying a final sample of 89 participants.
Reliability, Validity, Missing Data

Creswell (2009) identified reliability and validity as essential concepts to consider when evaluating both the purpose and dependability of a survey to measure a construct. Researchers define reliability as an indication of the consistency of a measure to produce the same results over time. It is the extent to which a measurement is able to achieve the same results if the measure were to be repeated under the same conditions, namely with the same test-takers, with different evaluators, or with group of equivalency (Howell, 2012).

Cook and Campbell (1979) defined validity as “the best available approximation to the truth or falsity of a given inference, proposition, or conclusion” (p. 37). In essence, validity is the extent to which conclusions drawn from a study are accurate, meaningful, and useful. A valid assessment should measure what it was intended to measure; reflect the characteristics of the knowledge and research base of a topic; and finally, represent relationships, reality, standards, and associations with the intended construct(s) (Pedhazur & Schmelkin, 1991).

Efforts were undertaken to obtain missing data from the university’s database system. This was done to ensure that student records were as complete as possible. There were missing data values for Ethnicity/Race and for SAT (n=3) and ACT scores (n=6). To treat missing values, regression substitution analysis, or data imputation, was used to replace missing values of student records and data. Regression analysis is designed to predict one variable based upon another variable, so it can be used to predict the missing value based upon the subject’s answer to another variable (Howell, 2007).

For this study, missing data values were imputed for six participants for their SAT composite scores. To compute the variable standardized test score, the regression method was used to estimate missing values of the SAT Composite Score using the respective ACT
Composite scores. Using linear regression, the formula that was used to impute these six observations was:

\[
\text{STANDARDIZEDTESTSCORE} = 26.904(\text{ACTScore}) + 472.524
\]

**Research Objectives**

**Objective One: Student Participants of the VTSA Program**

The first objective of this research study was to describe the student participants of the 2012 VTSA as measured through past academic performances and demographic data. Basic descriptive data was collected to better understand the unique student population of first-year students enrolled in the program, as well as develop a student profile regarding the unique characteristics of the research participants and their academic and personal backgrounds.

*University records.* A paper version of the SEPA questionnaire (Appendix E) was administered to the VTSA students during the same course. The first pages of the survey consisted of a copy of the consent form described above for students to sign. Students reviewed and signed the informed consent form to indicate that they understand all aspects of the study. The researcher worked directly with the Director of the Office of Summer Sessions to develop a database in Statistical Package for Social Sciences (SPSS) 20.0 for the 2012 VTSA cohort of students to gather the appropriate past academic performances and demographic data. Through an analysis of the University’s student electronic records, the following variables were collected: age, gender, ethnicity/race, track, high school GPA, SAT/ACT scores, honors students status, athlete status, current GPA, and first-generation student status. Headings for data included each of the demographic items and academic performances, among other variables discussed later.

*Analysis.* Descriptive statistics, including graphical and numerical summaries, were calculated to describe the frequency of academic performances and demographic variables
through measures of distribution, central tendency, and variance. Coladarci, Cobb, and Minium (2010) explained that descriptive statistics are used to provide an initial picture of data for organization and summary. Descriptive statistics, therefore, allow researchers to present data in a more meaningful way to allow for simpler interpretation. To enhance an understanding of the sample, analysis of the demographic make-up of the population included the mean, median, mode, and sample size. Frequency counts and percentages were used to describe categorical data, while mean scores, standard deviation, and ranges were generated to describe continuous data.

**Objective Two: Change in Academic Motivation Both Before and After Student Engagement in the VTSA Program**

This study employed the secondary analysis of data collected through a contract with the Virginia Tech Office of Summer Sessions, which was used to analyze the academic motivation of students both before and after their engagement in the VTSA program through pre- and post-measurement. Lekies (1998) stated that the use of existing data is helpful for research projects to be able to maximize the efficient use of resources. Advantages of existing data include ease of access, saved time, decreased economical and financial demands, and expanded project scope and participants available to the study. Nonetheless, researchers express caution with using secondary data and suggest the need for thorough evaluation to ensure accuracy, relevance, and sufficiency to maintain the integrity of the data and the research study (Lekies, 1998). Unless these factors are taken into account, secondary data can create instances where the data does not fit the critical focus and needs of the current research, including validity, ethics, and objectives.

Used with permission of Virginia Tech Office of Summer Sessions and HH Publishing, quantitative data collection of the LASSI was administered electronically (Appendix F). Students enrolled in VTSA were provided an electronic link to an on-line assessment at the beginning and
end of the course as a pre- and post-test measure, which had to be completed within a designated amount of time. Participation in the survey was assigned by an identifier to link participant pre- and post-test data. Email inquiries requesting permission to use the quantitative data in its raw form as gathered from the students were sent to the appropriate administrator in the Virginia Tech Office of Summer Sessions. The data was used to assess changes, if any, in student motivation over the course of the program.

Secondary analysis of the data as a research methodology was employed because it represented a purposeful opportunity to analyze data pertaining the first-year experience at Virginia Tech. The data set also provided an advanced sample population with first-year students in varying demographics at Virginia Tech, including major, hometown, race, etc.

*Learning and Study Strategies Inventory (LASSI).* The academic motivation of first-year college students in the VTSA program was investigated through the use of the LASSI, used with permission from Virginia Tech Office of Summer Sessions and HH Publishing. The LASSI is a standardized, self-reporting instrument designed to measure students’ awareness and use of learning strategies (Weinstein & Palmer, 2002). The instrument was developed by Claire Weinstein, PhD, and David Palmer, PhD, as a project on cognitive learning strategies at the University of Texas Austin (Weinstein & Palmer, 2002). “The term learning strategies is used in a very broad sense to identify a number of different competencies that researchers and practitioners have postulated as necessary, or helpful, for effective learning and retention of information for later use” (Weinstein & Mayer, 1986, p. 1). Pintrich (2004) asserted that learning strategies, or the steps one takes to perform with regards to a certain task, are based on “general cognitive model of learning and information processing” (p. 802).
The LASSI quantitative survey includes 80 questions and uses a seven-point Likert-type scale, ranging from “not at all typical of me” to “very typical of me.” LASSI was designed to serve as both a diagnostic and prescriptive tool for identifying areas for remediation or barriers in the learning process where students may need to improve their knowledge, attitudes, beliefs and skills associated with collegiate learning (Weinstein & Palmer, 2002). The assessment provides pragmatic help to college students to help them better understand potential learning and studying difficulties that could hinder them from reaching specific learning goals and objectives. “The focus [of the survey] is on both covert and overt thoughts, behaviors, attitudes and beliefs that relate to successful learning and that can be altered through educational interventions” (Weinstein & Palmer, 2002, p. 4).

LASSI was assembled to measure differences in how students learn in response to stimuli and the influences of exerting specific cognitive processing on learning outcomes and scholarly success. Weinstein and Palmer (2002) provided some specific rationales for conducting assessments: 1) to develop a range of specific educational interventions, 2) to highlight for students their need to improve learning and study skills, 3) to serve as a diagnostic for teachers and advisors to counsel students regarding their learning strengths and weakness, and 4) to provide pre/post measures of academic success over the course of an intervention program.

The LASSI, grounded in social cognitive learning and strategic learning, is operationalized through three general constructs: student skill, student academic will, and self-regulation (Weinstein & Palmer, 2002). These constructs are measured through the ten LASSI subscales: anxiety, attitude, concentration, information processing, motivation, selecting main ideas, self-testing, study aids, test strategies, and time management. LASSI has been extensively field tested for both reliability and validity through feedback from developmental educators,
educational psychologists, education psychometricians, and college students. This study used the motivation subscale to assess student academic motivation both before and after participation in the VTSA. Weinstein and Palmer (2002) advised that each subscale should be measured separately.

*Academic will* corresponds to the test items organized by the anxiety, attitude, and motivation subscales. The “will” component “measures the degree to which students worry about their academic performance, their receptivity to learning new information, their attitudes and interests in college, their diligence, self-discipline, and willingness to exert the effort necessary to successfully complete academic requirements” (Weinstein & Palmer, 2002, p. 5). Weinstein explained that the more that students exhibit the mental will to engage in learning and maneuvering the many responsibilities and challenges that comes with being a learner, the more they will be inclined to be academically successful. Flowers et al. (2012) explained that the motivation scale “measured students’ loci of control to pursue activities that will ensure their academic success in school; higher scores on the motivation scale indicated that students were more likely to plan and engage in routine study activities (Weinstein, 1987)” (p. 2). The LASSI user’s manual reports the internal consistency value of the motivation subscale as Cronbach $\alpha = .84$ (Weinstein & Palmer, 2002).

For this research, the motivation construct was used to assess student academic motivation in the VTSA program. Student scores from the LASSI were expressed in raw form, as well as percentile score equivalents (Weinstein & Palmer, 2002). Scores above the 75th percentile represented cognitive areas and learning strategies where students were successful, while scores in less than the 50th percentile represented cognitive areas and learning strategies where students needed substantial refinement in order to be successful in college. Therefore,
scores in the 50th percentile should be monitored closely and given high priority for incorporating learning and behavior intervention strategies (Weinstein & Palmer). Three or more subscales with percentile scores below the 50th percentile typically indicate a student with a higher risk for failing to meet the demands of college.

**Analysis.** The LASSI has been used extensively to measure and analyze the pre-post achievement measure of college student’s learning styles and study strategies after participation in an intervention program (Weinstein & Palmer, 2002). To better understand the change in student motivation before and after participating in the VTSA, a paired sample dependent t-test was conducted between the pre- and post LASSI Motivation subscale.

The LASSI Motivation variable was first explored through distributions. At the same time, frequencies were calculated for all categorical variables, and descriptive statistics were calculated for all continuous variables. Paired samples t tests were used to compare individual pre- and post-test attitude statements to determine if means differed among statements. Creswell (2009) explained that t-tests are used when experimental groups are defined by a variable that is relevant to the change in measurement. He added that the pre-post-test design is one of the simplest methods of testing effectiveness of an intervention in that it acts as a thermostat. In other words, this test design provides real-time feedback of program efforts so that the researcher is able to identify a change in attitude after the influence of a treatment (Creswell). The mean change was tested at a significance level of .05 and effect sizes were computed through Cohen’s d analysis.

Also part of the analysis, reliability testing through Cronbach’s alpha was conducted to identify the effectiveness of test items and the validity of test scores to evaluate the reliability and internal consistency of the LASSI Motivation subscale of both the pretest and posttest
scores. Table 3-3 shows the comparison between the Cronbach’s alpha for Motivation to compare the VTSA reliability coefficient with national norms as established by the authors of the LASSI. Analysis of the reliability of the instrument for the VTSA sample revealed a Cronbach’s alpha level of .82 for the pretest administration and .80 for the posttest administration. Results indicate that the LASSI Motivation subscale was found to be reliable to measure this construct and displayed a relatively good internal consistency. The researcher also tested the ability of the LASSI motivation subscale questions to measure motivation as a collective and to identify problematic questions. Table 3-4 shows the change in Cronbach’s alpha when questions were omitted through item analysis. Results confirm that the eight questions of the LASSI Motivation subscale contributed well.

Table 3-3

*Reliability Cronbach’s Alpha of the LASSI Motivation Subscale Questions*

<table>
<thead>
<tr>
<th></th>
<th>LASSI Test Manual</th>
<th>Virginia Tech Summer Academy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pretest</td>
</tr>
<tr>
<td>Motivation – r</td>
<td>.84</td>
<td>.822</td>
</tr>
</tbody>
</table>

Table 3-4

*Item analysis of LASSI Motivation Subscale Posttest Questions*

<table>
<thead>
<tr>
<th>Motivation</th>
<th>Item Mean</th>
<th>Standard</th>
<th>Scale Mean if Corrected</th>
<th>Cronbach’s</th>
</tr>
</thead>
</table>
Objective Three: Level of Student Engagement in Educationally Purposeful Activities

The third objective of this research study was to determine the level of student engagement in the 2012 VTSA through the SEPA.

*Scale of Educationally Purposeful Activities (SEPA).* The Indiana University Center for Postsecondary Research granted permission to use questions from the *College Student Report*, a National Survey of Student Engagement (NSSE) 2011. The *College Student Report* serves as a measure of student engagement in educationally purposeful activities (Appendix D). Kuh et al. (2008) described the Scale of Educationally Purposeful Activities as a “summative scale of 19 NSSE items measuring student interaction with faculty, their experience with diverse others, and their involvement in opportunities for active and collaborative learning” (p. 558). The SEPA is a reduced version of the larger *College Student Report*, which is acknowledged as the most recognized evaluation of student academic life on a college campus. The survey is broken into five benchmarks of institutional quality: *Level of Academic Challenge, Active and Collaborative Learning, Student-Faculty Interaction, Enriching Educational Experiences, and Supportive Campus Environment*. In sum, the survey allows researchers to examine the relationship
between educational practices and the campus environment on student achievement. The NSSE explains that these benchmarks indicate an institution’s ability to create the proper conditions for enhancing student learning and developing connections to foster educational growth. The NSSE “provide[s] data to colleges and universities to use for improving undergraduate education, inform state accountability and accreditation efforts, and facilitate national and sector benchmarking efforts, among others” (National Survey on Student Engagement, 2004).

The psychometric properties of the NSSE have been extensively tested and reported by a number of scholars (Kuh, 2004; Kuh, Hayek, Carini, Oiumet, Gonyea & Kennedy, 2001). This test has been routinely administered to college students by the NSSE each year since initial field testing in 1999 (Kuh, 2004). Furthermore, for the Scale of Engagement of Educationally Purposeful Activities, the reliability of the instrument was verified through a developmental sample of students (n= 6,193) across 18 diverse baccalaureate-granting colleges in the United States. Cronbach’s alpha coefficient was identified as .81 (Kuh et al., 2008). The SEPA includes 19 questions and uses a four-point Likert-type scale, ranging from “Very often,” “Often,” “Sometimes,” and “Never.”

As described by Kuh (2004), students who are more engaged in behaviors that represent empirically tested good practices of undergraduate education benefit more from their college experience than students who are less engaged. As discussed earlier, the NSSE attempts to measure the degree of this engagement. That is, the NSSE measures the amount of time and effort students put into their studies and other educationally purposeful activities. A secondary purpose of the NSSE is to ascertain how colleges and universities deploy their resources and organize their curricula, other learning opportunities and support services to induce students to
participate in activities that lead to desired outcomes such as persistence (Kuh, 2001; Kuh et al., 2006).

**Analysis.** Used with permission of the Indiana University Center for Postsecondary Research, the *College Student Report* of the 2011 NSSE survey instrument data was compiled, organized, and electronically stored using the SPSS 20.0 software. For this study, student engagement consisted of one variable—namely, engagement, which represents engagement both in and outside of the classroom. Scores for the variable of engagement were devised through addition for an additive score. Reverse coding is often performed to simplify interpreting the relationship between variables or to prepare variables to be combined into a scale. Important to note is that positive responses to the statement, “Come to class without completing readings or assignments,” were reverse coded prior to calculating an aggregate score for engagement because such behaviors would not increase student engagement.

Descriptive statistics were calculated to describe the frequency of variables in the sample population, including measures of central tendency and measures of variance. These calculations provided summaries of the sample population as well as quantitative measurement descriptions for both categorical and continuous data. Moreover, descriptive statistics provided a concise description of the sample and various subsamples within the groups based on these variables.

Item analysis and reliability testing was conducted to identify the effectiveness of test items and the validity of test scores to evaluate the reliability of SEPA. Reliability testing was conducted to identify the effectiveness of test items and the validity of test scores to evaluate the reliability of the SEPA. Table 3-5 shows the comparison between the Cronbach’s alpha for Engagement to compare the VTSA reliability coefficient with the researcher’s reliability (Kuh et
al., 2008). Results indicate that the SEPA was found to be reliable to measure this construct and displayed a relatively good internal consistency with a Cronbach’s alpha of .832.

Table 3-6 depicts the change in Cronbach’s alpha when questions were omitted through item analysis. Results confirmed that the 19 questions of the SEPA contributed well.
### Table 3-5

**Reliability of the Scale of Educationally Purposeful Activities Questions (SEPA)**

<table>
<thead>
<tr>
<th>NSSE Test Results</th>
<th>Virginia Tech Summer Academy</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEPA- r</td>
<td>.818</td>
</tr>
<tr>
<td></td>
<td>.832</td>
</tr>
</tbody>
</table>

### Table 3-6

**Item analysis of Scale of Educationally Purposeful Activities Questions (SEPA)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Corrected Item-Total Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asked questions in class or contributed to class discussions</td>
<td>2.08</td>
<td>0.83</td>
<td>0.36</td>
<td>0.83</td>
</tr>
<tr>
<td>Made a class presentation</td>
<td>1.59</td>
<td>0.97</td>
<td>0.49</td>
<td>0.82</td>
</tr>
<tr>
<td>Prepared two or more drafts of a paper or assignment before…</td>
<td>1.77</td>
<td>1.13</td>
<td>0.19</td>
<td>0.84</td>
</tr>
<tr>
<td>Come to class without completing readings or assignments</td>
<td>2.20</td>
<td>0.90</td>
<td>0.12</td>
<td>0.84</td>
</tr>
<tr>
<td>Worked with other students on projects during class</td>
<td>1.82</td>
<td>0.93</td>
<td>0.52</td>
<td>0.82</td>
</tr>
<tr>
<td>Worked with classmates outside of class to prepare class</td>
<td>2.40</td>
<td>0.74</td>
<td>0.36</td>
<td>0.83</td>
</tr>
<tr>
<td>Tutored or taught other students (paid or voluntary)</td>
<td>1.88</td>
<td>1.03</td>
<td>0.37</td>
<td>0.83</td>
</tr>
<tr>
<td>Participated in a community-based project as part of a regular…</td>
<td>0.62</td>
<td>0.80</td>
<td>0.32</td>
<td>0.83</td>
</tr>
<tr>
<td>Used an electronic medium (listserv, chat group, Internet…</td>
<td>0.24</td>
<td>0.54</td>
<td>0.21</td>
<td>0.83</td>
</tr>
<tr>
<td>Used e-mail to communicate with an instructor</td>
<td>1.53</td>
<td>1.09</td>
<td>0.37</td>
<td>0.83</td>
</tr>
<tr>
<td>Discussed grades or assignments with an instructor</td>
<td>1.97</td>
<td>0.85</td>
<td>0.49</td>
<td>0.82</td>
</tr>
<tr>
<td>Talked about career plans with a faculty member or advisor</td>
<td>1.42</td>
<td>0.96</td>
<td>0.61</td>
<td>0.81</td>
</tr>
<tr>
<td>Discussed ideas from your readings or classes with faculty…</td>
<td>1.02</td>
<td>0.88</td>
<td>0.64</td>
<td>0.81</td>
</tr>
<tr>
<td>Received prompt feedback from faculty on your academic…</td>
<td>1.05</td>
<td>0.97</td>
<td>0.52</td>
<td>0.82</td>
</tr>
<tr>
<td>Worked harder than you thought you could to meet an…</td>
<td>1.76</td>
<td>0.92</td>
<td>0.46</td>
<td>0.82</td>
</tr>
<tr>
<td>Worked with faculty members on activities other than …</td>
<td>0.76</td>
<td>0.98</td>
<td>0.51</td>
<td>0.82</td>
</tr>
<tr>
<td>Discussed ideas from your readings or classes with others …</td>
<td>1.78</td>
<td>0.87</td>
<td>0.46</td>
<td>0.82</td>
</tr>
<tr>
<td>Had serious conversations with students of a different race…</td>
<td>1.62</td>
<td>1.08</td>
<td>0.42</td>
<td>0.82</td>
</tr>
<tr>
<td>Had serious conversations with students who differ from you…</td>
<td>1.79</td>
<td>0.97</td>
<td>0.51</td>
<td>0.82</td>
</tr>
</tbody>
</table>
Objective Four: Explain the Change in Academic Motivation in Relation to VTSA Student Engagement, Demographic, and Academic Variables

Objective Four seeks to explain the relationship between change in academic motivation from the LASSI in relation to student engagement, demographic variables, and academic performance variables. Using quantitative analysis to examine the relationship between variables, this research used both correlational analysis and explanatory multiple regression to evaluate and explain the relationship between change in academic motivation as the dependent variable, and first-year student engagement, gender, standardized test score, athlete status, current GPA, and first-generation student status as independent variables.

Using the correlation of variables as its core, regression analysis looks at the relationships between variables through prediction capabilities. In essence, multiple regression utilizes the independent contribution of each explanatory variable to predict outcomes while controlling for the influence of the other explanatory factors (Howell, 2012).

In order to conduct a regression analysis for the present study, a correlation analysis was first conducted. In general, the goal of correlational research is to ascertain if there is a relationship between two or more quantitative variables from the same group of subjects, and the degree, or covariation, between them (Creswell, 2009). However, a correlational research design makes no inference to cause-and-effect conclusions. Correlations were used to define statistically significant relationships between the constructs of the research using Pearson's product moment correlation coefficient. Also known as Pearson’s r, this technique is used to measure the direction and strength of the linear relationship between two quantitative variables (Coolidge, 2006). By convention, when Pearson’s r is positive, this suggests a positive association and indicates that two variables systematically vary in the same direction. Conversely, negative results indicate a
negative directionality between variables and suggest that as one variable increases, the other variable tends to decrease. Typically ranging in value between +1 and -1, as Pearson’s r moves away from 0 and closer to 1(-1), this suggests a stronger association; a correlation close to 0 indicates that no systematic co-varying exists between the variables (Howell, 2012). Pearson’s correlations have been reported by significant relationships at the .05 level and correlations strengths, using Cohen’s (1988) guidelines. According to Cohen, correlations with an r = .10 to .29 are considered to have a small or low correlation strength, while, relationships at the r = .30 to .49 levels are considered medium strength relationships, and a relationship r = .50 to 1.0, is considered as a large strength correlation.

Multiple linear regression was used to build a model to identify the relationship between the dependent variables and a set of independent variables. For this research, the analysis was conducted to investigate and model the relationship between change in academic motivation, using LASSI Pre and Posttest difference scores, as the dependent variable, and first-year student engagement, gender, standardized test score, athlete status, current GPA, and first-generation student status as independent predictors. The final regression equation used for this model can be displayed as:

\[
Y_{MotivationChange} = B_0 + B_1X_{FYEEngagement} + B_2X_{Gender} + B_3X_{Standardizedtestscore} + B_4X_{athletestatus} + \\
B_5X_{CurrentGPA} + B_6X_{Firstgenerationstatus} + e
\]

where,

\(X_{FYEEngagement} = \text{first-year student engagement,}\)

\(X_{Gender} = \text{gender,}\)

\(X_{StandardSATscore} = \text{standardized test score,}\)

\(X_{athletestatus} = \text{athlete status,}\)
$X_{\text{CurrentGPA}} = \text{current GPA}$, and

$X_{\text{Firstgenerationstatus}} = \text{first-generation student status}$

A second multiple linear regression model was fitted to the data to test the research hypothesis regarding changes in academic motivation using scores of the LASSI Motivation posttest in relation to student engagement, demographic variables, and academic performance variables, using the LASSI Motivation Pretest as a covariate of the analysis. Howell (2012) explained that a covariate is a variable that affects the dependent variable, in addition to the independent variables. In pre and posttest analysis, controlling for a covariate can explain some of the otherwise unexplained variation in the dependent variable. Using hierarchical multiple linear regression, the covariate is used to “partial out” pre-intervention individual differences from the dependent variable, leaving only the variances of the changes in the dependent variable pre and post intervention in the analysis (Pedhazur, 1997; Dimitrov and Rumrill, 2003). Through the use of covariates, regression analysis can decrease the measurement of error in the relationships between variables. This is a key step—as any first year student pre-entry variables that may cause difference in the LASSI Motivation Pre-test can be controlled and removed in the analysis. For this example, the LASSI Motivation Pretest was used as a covariate to yield a clearer picture of whether participation in the VTSA has an effect on student motivation or was more related to their motivation before the program.

Through a forced-entry regression process, all independent variables used in the study are considered and included in the model, regardless of whether they are significant predictors of the dependent variable. The amount of variation in the dependent variable that is accounted for by variation in the predictor variables is measured by the value of the coefficient of determination,
often called $R^2$ adjusted (Howell, 2012). The closer this value is to 1, the better, because if $R^2$ adjusted is 1, then the regression model accounts for all variations in the outcome variable.

Also important to the relationships among variables is a check for variable multicollinearity, which is typically conducted to identify two or more explanatory variables in a multiple regression model that are highly linearly related. Neufeld (2002) explained it this way:

In multiple regression analysis, measures of the significance of a single independent variable (including the variable’s standard error, t statistic, and associated p value) should be thought of as measures evaluating that variable’s contribution to a model containing all other independent variables. (p. 23)

By identifying variables that have a high degree of correlation, the researcher can choose an adequate sequence and subset of variables to better predict change in motivation as shown through an increased $R^2$ coefficient. Multicollinearity was checked to conclude that no two independent variables were intercorrelated as the effect can be very misleading in interpreting the relationship of variables and regression coefficients.

**Qualitative Data Collection and Analysis Procedures**

Qualitative research seeks to enhance a researcher’s knowledge of the cognitive, social, philosophical, and theoretical conditions within a human context (Lincoln & Denzin, 2003; Patton, 2002). Through analysis of this context, a researcher is able to determine commonality or patterns that can emerge through observational interaction with multiple sources of data that are contextual, demographic, and perceptual. Thus, inquiry and discovery is the basic philosophic cornerstone of qualitative research (Corbin & Strauss, 2008; Creswell, 2009).

The second phase of this study used focus groups to understand student perceptions of their experiences in the VTSA program, including their motivation and goals for enrolling in the
program and the most effective strategies for improving learning and motivation for first-year courses. Focus groups served as the qualitative data collection methodology to explain, elaborate, and highlight results identified during the quantitative phase. As with certain mixed-methods research, the findings of the quantitative portion in this study dictated the research design and questions developed for the subsequent qualitative phase.

**Recruitment**

Recruitment materials for the qualitative phase were designed using a modified version of Dillman’s (2008) multi-modal data collection method, which included the following: a personalized advance-notice letter, a recruitment email and informed consent form, an electronic sign-up site, and a thank-you card. This method, based on Social Exchange Theory, uses specific steps and techniques to maximize response rates and minimize survey error, taking into account technological advancements, the internet, and visual design (Dillman, 2008). Used here for qualitative research, the goal was to these methods to increase the response rate for participation in focus groups.

In September 2012, an electronic personalized advance-notice letter was utilized to request student participation in focus groups, as well as to provide a brief overview of the research project, the IRB process, and their roles as sources of data collection (Appendix G). Based on guidelines discussed by Dillman, Smyth, and Christian (2008), the emailed letters were addressed from Virginia Tech administration, created with University letterhead, and developed using personalized communication to address the potential participants. The letter informed potential research participants that they had been selected to serve in this phase of the research, and that they would receive communication regarding participation in focus groups in the near future.
Three days later, a focus group recruitment email and a copy of the informed consent was electronically distributed to each student from the researcher (Appendix H). The email requested student participation in the focus groups in order to use their contribution as a source of data; it also briefly described the research purpose and objectives. The email also provided an access link to the Scholar site, a course management tracking system, which was used for students to sign-up for a focus group (Appendix I). Students were able to view the times and dates available for the focus groups on the site and choose the one that best fit their time schedule. Finally, over the course of two weeks, two subsequent requests were emailed to students asking for their participation in focus groups. A total of sixteen students (N=16) served as participants in the focus group research.

In November 2012, a follow up thank-you letter (Appendix L) was emailed to each participant expressing appreciation and gratitude to those students who had participated in a focus group. The thank-you letter also served as a member-checking tool to allow participants to electronically review the themes formulated by the researcher for accuracy. As a research incentive, a $5 gift card was offered to all students who participated in a focus group session; also a $50 gift card was raffled to one student as a grand prize for their time and contributions.

Sample

Purposeful sampling is essential for gauging opinions from a full range of participants through cases that are highly unusual or highly relevant to a particular topical area (Siedman, 2006). Maxwell (2005) noted that the technique is used to explore cases germane to the research question and to compare differences between individuals. Patton (2002) stated that stratified purposeful sampling can be useful in a mixed methodology for identifying and understanding characteristics of particular interest as well as to facilitate comparisons. Stratified purposive
sampling treats the total population as though it were two or more separate populations by categorizing subgroups and purposively choosing within each. Consequently, these subgroups are comprised of individuals that are relatively homogeneous with respect to one or more characteristics according to their responses to questions or behaviors. Thus, purposeful sampling was used to systematically identify students to take part in this study of student engagement and academic motivation and learning strategy use.

This study used participant quantitative change scores on the Motivation subscale of the LASSI to identify subgroups for stratified purposeful sampling for follow-up qualitative questioning through focus groups. Based on their LASSI tests results, student change scores were grouped on the following scale:

- **High Motivation:** High Change Score Quartile (Upper 25%)
- **Low Motivation:** Low Change Score Quartile (Lower 25%)

These scores are based on a cut off system developed by the researcher. Low and high groups provided a range of motivation change on the LASSI. The researcher contacted a total of 34 students (17 Low Motivation and 17 High Motivation) as potential candidates for the focus groups phase of this study.

**Objective Five: Student Perceptions of Student Engagement in the VTSA Program and Connections to Academic Motivation**

Objective Five was designed to explain student perceptions of student engagement in the VTSA program and connections to academic motivation as a result of their participation.

*A Priori Propositions and Interview Protocol.* The researcher conducted preliminary work using “a priori propositions” (Yin, 2009), which assisted in focusing and centering the research study through theoretical perspectives (Appendix J). Yin suggested that “without such
propositions, an investigator might be tempted to cover everything which is impossible to do” (p. 23). In essence, these propositions help to guide the researcher through the design process by providing focus, scope, foundation, and limitations of the study through theory. Accordingly, focus groups provided a venue by which the researcher could ask questions as outlined by an interview protocol, thereby enabling participants to reflect on their experiences for understanding and meaning. The interview protocol (Appendix K) was developed through using *a priori* propositions based on a literature review and the intent of the current research.

**Focus Groups.** This study used focus groups to investigate student perceptions of their engagement in the VTSA program and connections to academic motivation as a result of their participation. With group interactions and qualitative inquiry at its core, focus groups are targeted discussions involving a homogeneous set of people assembled to provide qualitative data for analysis (Creswell, 2009; Krueger & Casey, 2009). Focus groups are not designed to reach group consensus or make decisions, but rather to elicit the full range of ideas, attitudes, experiences, and opinions held by a selected sample of respondents on a defined topic (Creswell, 2009), including the most important characteristics, the level and nature of emotional value, and how participants differ on key issues.

Krueger and Casey (2009) identified six advantages of using focus groups: their social nature and orientation, the ability to manipulate and probe participants for in-depth discussion, increased face validity, relatively lower costs to implement, and increased sample size. Creswell (2009) further explained the advantages of focus group research methodology by saying:

Focus groups are advantageous when the interaction among interviewees will likely yield the best information, where interviewees are similar and cooperative with each other,
when time to collect information is limited, and when individuals interviewed one-on-one may be hesitant to provide information. (p. 133)

The focus groups in this study were comprised of small groups of 4-7 students to allow the researcher to ask questions about their experiences using an interview protocol designed to have them reflect on their experiences for understanding and meaning. Appendix K describes the interview protocol that was developed through using a priori propositions (as discussed in the previous section), based on a literature review and the intent of the current research.

**Analysis.** The primary approach used to analyze qualitative data was the constant comparative method. The Glaser and Strauss (1967) constant comparative method is a process in which any newly collected data is compared with previously collected data. This is an ongoing process because theories are formed, enhanced, confirmed, or even discounted as a result of any new data that emerges. In order to accurately capture this data, the students’ focus group responses were transcribed and served as foundation for subsequent data analysis and synthesis (Bloomberg & Volpe, 2008).

Focus groups recordings were transcribed by the company Quick Transcription Service, which facilitated effective oral-to-text records. The researcher coded the data from the focus groups using the Microsoft Excel software package to store, manage, code into categories, and aid in the analysis of the transcripts and related documents. Through coding—namely, marking segments of data with symbols, descriptive words, or category names that respond to certain constructs of student retention and experience associated with the literature or emergent themes—the researcher was able to make sense of the data (Glaser & Strauss, 1967; Lincoln, 1995; Miles & Huberman, 1994; Vidich, Lyman, Denzin, & Lincoln, 2003). This process teases out theme-specific data though inductive reasoning (developing concepts and constructs from the
data) and deductive reasoning (refining concepts and drawing out their theoretical implications) (Bloomberg & Volpe, 2008; Corbin & Strauss, 2008; Rallis & Rossman, 2011). Coding also enables the researcher to think abstractly (Corbin & Strauss, 2008), by reviewing the data and identifying concepts, patterns and trends, and then making connections from the interpretation of the researcher. Themes of the participants’ descriptions were developed by making connections between codes.

**Role of the Researcher.** Qualitative researchers believe that multiple realities exist because they are viewed through the subjective eyes of an individual. Thus, as the individual experiences a phenomena, reality can change across time and place (Creswell, 2009; Krauss, 2005). The role of the researcher is critical to understanding the subjective meaning of an experience or phenomenon. Qualitative researchers immerse themselves in natural settings to access to the voice of experience (Krauss, 2005) and then interpret that voice based on their perspective.

At the heart of qualitative research are the characteristics of the assumptions (Corbin & Strauss, 2008; Lincoln & Denzin, 2003). “Researchers bring their own worldviews, paradigms, or sets of beliefs to the research project and these inform the conduct and writing of the qualitative study” (Creswell, 2009, p. 15). In essence, how the researcher juxtaposes him or herself in the world, makes sense of the world, and approaches the context and subject of the research, all work together to give life to the voice of the topic (Bloomberg & Volpe, 2008; Lincoln & Denzin, 2003; Patton, 2002; Rallis & Rossman, 2011). This context guides the researcher in choosing tools, resources, and strategies to evaluate the topic of interest.

To give further insight, Lincoln and Denzin (2003) explained that qualitative research “locates the observer in the world… and involves an interpretive, naturalistic approach…
attempting to make sense of, or to interpret phenomena in terms of the meaning people bring to them” (p. 4). Coined as situated learning through interpretation by Rallis and Rossman (2011), researchers or learners seek to understand the factors that make up a phenomena through the researchers’ perspective and interpretation (Patton, 2002).

If interpretation is at the heart of the research process, then it must be acknowledged that the values, experiences, and beliefs of the researcher must be taken into account. As such, the researcher must “position themselves in the research to acknowledge their own cultural, social and historical experiences” (Bloomberg & Volpe, 2008, p. 10). By analyzing and interpreting verbiage, qualitative researchers investigate holistic phenomena to understand the full experience by connecting patterns in the multiple perspectives. Through inductive reasoning, qualitative researchers construct knowledge through subjective observations of a particular social context.

**Trustworthiness.** Hein defined research in the following way:

A human activity based on intellectual application in the investigation of a matter. The primary aim for research is discovering, interpreting, and developing methods and systems for the advancement of human knowledge on a wide variety of scientific matters of our world and the universe. (personal communication, January 4, 2008)

In essence, trustworthiness is the process of developing meaning of the world through exploration, evaluation, description, explanation, prediction, and speculation (Bloomberg & Volpe, 2008; Patton, 2002). “Where quantitative researchers seek causal determination, prediction, and generalization of findings, qualitative researchers seek instead illumination, understanding, and extrapolation to similar situations” (Hoepfl, 1997, p. 48). Both methods, however, must showcase standards of quality and validity (Maxwell, 2005; Merriam, 1998).
In their study of education, Freeman, Preissle, Roulston, and Pierre (2007) described how qualitative researchers must invoke quality and “include decisions that researchers make as they interact with those they study and as they consider their analyses, interpretations, and representations of data” (p. 27). Furthermore, Maxwell (2005) outlined five specific standards of a well-designed qualitative research methodology. It should:

- reflect the reality of the experience for the participants and the content in which they describe the phenomena;
- apply appropriate data collection methods and tools to meet the research objectives, as well as utilize a variety of methods;
- incorporate the use of existing research literature;
- outline and dispel any researcher bias that could influence the interpretation;
- provide a chain of reasoning and a transparent detail of research steps and decision making.

To enhance standards of rigor in qualitative research, issues of trustworthiness were addressed in this study based on four criteria: credibility, transferability, dependability, and confirmability (Guba & Lincoln, 1989). The researcher used these standards of trustworthiness to ensure both the breadth and depth of the study, as well as the integrity and validity of the researcher’s interpretation of the experiences of these students.

- Credibility of the research was addressed by triangulating student experiences through the use of multiple sources of data, and by using raw data to describe what participants actually said. Credibility was also encouraged through the use of member checking of interview transcripts.
• Although this research utilized the experiences of a small population of first-year students at Virginia Tech—and therefore is limited with respect to generalizability—transferability was addressed by including detailed, thick and rich descriptions of the setting, participants, and the research processes. Such information provides the contextual elements of the research study, and allows the reader to make comparisons according to similar characteristics of other similar educational environments.

• The researcher addressed dependability by creating an audit trail of steps in the research design for future researchers to utilize in future studies. Incorporating a chain of reasoning and activity assists the reader to understand intent and outcomes.

Finally, the researcher employed reflexivity with respect to personal emotions and world views about the importance of the first-year in college and the role of faculty in assisting students to assimilate into college. Thus, a discussion of researcher bias and the integral role of a researcher to maintain confirmability is also provided later in this chapter.

**Mixed Methods Data Collection and Analysis**

The researcher employed a mixed-methods design to investigate and interpret changes (if any) in academic motivation based on participation in the Virginia Tech Summer Academy Program. Importantly, this design allowed the investigator to mimic real-life challenges and social contexts. As discussed, the initial quantitative phase was used to assess pre- and post-tests data, while the qualitative phase provided a more in-depth explanation of student perceptions of approaches to increase academic motivation (Creswell, 2009). In short, mixing facilitated a more robust study, since using either method in isolation would have been insufficient to provide rich
evidence about effective practices in first-year experience programs as tools to support student learning and retention (Bloomberg & Volpe, 2008; Creswell, 2009; Creswell & Plano-Clark, 2011; Johnson & Onwuegbuzie, 2004). The use of a mixed-methods approach in this study provided a clearer picture of the influence of the level of student engagement and the specific factors that advance student academic motivation among those who participated in the Virginia Tech Summer Academy. “By narrowing the divide between quantitative and qualitative researchers, mixed-methods research has a great potential to promote a shared responsibility in the quest for attaining accountability for educational quality” (Johnson & Onwuegbuzie, 2004, p. 24).

**Objective Six: Significant Factors of Student Engagement Influencing Changes in Academic Motivation Among VTSA Students**

A central component of mixed-methods research is its ability to use quantitative and qualitative approaches in a mixed or combined strategy to produce more comprehensive data (Creswell, Fetters, & Ivankova, 2004; Tashakkori & Creswell, 2007). Researchers have identified three categories for the integration of qualitative and quantitative data: merged, embedded, or connected (Creswell & Plano-Clark, 2011; Johnson & Onwuegbuzie, 2004). Yin (2009) outlined a framework to structure integration in mixed-methods studies through five steps: research questions, units of analysis, sampling, instrumentation and data collection, and analytic strategies. As Yin explained, “The more that a single study integrates mixed-methods across these five procedures, the more that mixed-methods research, as opposed to multiple studies, is taking place” (p. 42).

In summary, the following are important cornerstones of mixed-methods research:

- Both research methods are of equal importance to a study.
• Individual components of qualitative and quantitative inquiry cannot be used individually, as the research is structured for the purpose of integration and to supplement each other.

• The research is conducted through either inductive or deductive reasoning as prescribed by the research question. Major tenants of research are conducted through the priority given to either the qualitative or quantitative method.

• Qualitative and quantitative research is sequenced through either mixed-methods or mixed-model typology. Mixed-methods refers to mixing multiple types of data throughout the research process, while mixed-models refer to mixing results of two connected yet separate studies.

• Both the standards of quality and trustworthiness of quantitative research (validity, reliability, and ethics) and qualitative research (credibility, transferability, and dependability) are upheld during a single study.

Analysis. For this study, mixing or relating the two sets of data was essential. Integration occurred through connections from data analysis in the quantitative phase to data collection in the qualitative phase. Moreover, both quantitative and qualitative data were merged together to provide a single interpretation of the data. To better display mixing design, many researchers use a mixing table—a visual representation of the processes of integration for a mixed-methods study (Creswell & Plano-Clark, 2011). A template for a mixing table depicting the qualitative data participant criteria based on pre and post-test change on the LASSI is shown in Table 3-7.
Table 3-7

*Mixing Table Template: Integrating Quantitative and Qualitative Data Collection and Analysis*

<table>
<thead>
<tr>
<th>Group</th>
<th>Academic Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Change</td>
<td>Theme 1, Theme 2</td>
</tr>
<tr>
<td>Low Change</td>
<td>Theme 4, Theme 5</td>
</tr>
</tbody>
</table>

**Epistemological Reflexivity**

Over the past few years, I have been immersed in observing first-year students and their experiences—both positive and negative—as they grapple with the multifaceted demands of the first year of college. I am concerned about these students who are walking into the new and unknown. Moreover, having just witnessed my younger sister complete her first year in college, I am even more concerned about the current state of our postsecondary education. Watching Shayla struggle with finances, homesickness, difficult roommate issues, combative and insincere professors, empty assignments, and expectation/effort mismatch makes this research all the more important. I have often wished that students would take a more active role in their learning, and that educators would take a more kindhearted, considerate approach to student academic and social achievement. These feelings and experiences motivated me to pursue this research study, although it is important to note that I am intrinsically motivated to learn more about engagement and learning. It must be noted that this thinking may shape and influence the behaviors and interpretation of this research. Keeping this in mind, I have sought to minimize the role of personal bias in carrying out this study.

Since human action is indelibly influenced by personal perceptions and interpretations, my personal beliefs regarding student retention and first year experience are important to note as
a foundation for this study. In essence, my belief system is constructed by my social, cultural, and historical perspectives and the meaning that I attribute them. Such a perspective aligns with that of constructivism, which suggests that knowledge is created based on experience. I also believe that human beings can influence what we are trying to measure, which is reflective of the critical realist ontology. This is important to note, because I believe that these perspectives will affect a student in his or her first year. I also assert that knowledge is gained through our perspectives and that what is known and considered factual is linked to values, beliefs, and experiences. We develop knowledge by making meaning of our world, by interacting with others, and through the experiences that we engage in—which ultimately will shape what we consider to be true. And although I have endeavored to keep this study bias-free, I understand that my personal experiences and perspectives may have influenced the design, interpretation, and the meaning attached to this research.

**Summary**

This chapter described the use of a two-phase explanatory mixed-methods research design used to examine the relationship between student engagement in the Virginia Tech Summer Academy Program and changes in academic motivation. Through mixed-methods, this study provided a comprehensive analysis of this social interaction—first via the quantitative phase, followed by an interpretation of meanings and findings through qualitative methods. An overview of mixed-methods, including the advantages and disadvantages of mixed-methods research, is discussed herein. Also included in this chapter is a discussion of both the qualitative and quantitative methods used to develop this study, including the population sample and setting; data collection and analysis procedures; and the processes used to mix the data. Chapter 4 will present the results associated from this study.
CHAPTER FOUR:
RESULTS

“Change does not roll in on the wheels of inevitability, but comes through continuous struggle.” – Martin Luther King, Jr.

The purpose of this study was to examine the influence of student engagement on the academic motivation of students who took part in the Virginia Tech Summer Academy (VTSA) first-year experience program. Through a mixed-methods research design, this study analyzed the relationship and influence of demographic variables, the change in academic motivation before and after engagement in the program, and participation in educationally purposeful activities.

Using a two-phase, sequential explanatory mixed-methods design (QUAN→QUAL) (Creswell, 2009; Creswell & Plano-Clark, 2011), this study investigated the empirical relationship between participation in the Virginia Tech Summer Academy first-year experience program and academic motivation. A total of 89 students participated in the quantitative phase of the study. In the subsequent qualitative phase, 16 students participated in focus groups that were used to investigate and explore student perceptions of their engagement in the VTSA program and their academic motivation during their first year of study. Results from each phase were triangulated and converged to develop themes related to the influence of participation in a first-year experience program on student development through mixed-methods design.

The following research objectives guided this study:

1. Describe the sample of student participants in the VTSA program.
2. Determine VTSA students’ academic motivation before and after the program through pre and post measurement.
3. Determine VTSA students’ level of student engagement in the program’s educationally-purposeful activities.

4. Explain the change in academic motivation in relation to VTSA student engagement and demographic variables.

5. Explore student perceptions of student engagement in the VTSA program and connections to academic motivation.

6. Interpret and explain significant factors of student engagement influencing changes in academic motivation among VTSA students.

During the quantitative phase, student demographic and academic performance records, results from the Learning and Study Strategies Inventory (LASSI), and results from the SEPA were used to assess Research Objectives 1-4. A qualitative phase used focus group data to assess Research Objective 5. Data were merged to answer Research Objective 6.

Objective One: Describe Sample of Student Participants of the VTSA Program

The first objective of this research study was to describe the sample of student participants in the 2012 VTSA program as measured through demographic data, past and current academic performance, and other unique characteristics.

Data from a total of 89 students were analyzed in the quantitative phase of the study. Two requirements guided the identification of participants in this sample: 1) completed the SEPA, and 2) signed an informed consent form granting permission to access their LASSI pre- and posttest assessment scores, as well as their demographic and academic records. This sample of students demonstrated the general demographic and academic characteristics shown in Table 4-1 and Table 4-2.
Table 4-1.

*Description of Virginia Tech Summer Academy Students*

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>2,444</td>
<td>44.5</td>
<td>41</td>
</tr>
<tr>
<td>Male</td>
<td>3,043</td>
<td>55.5</td>
<td>83</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>3816</td>
<td>69.5</td>
<td>75</td>
</tr>
<tr>
<td>African American</td>
<td>166</td>
<td>3.0</td>
<td>23</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>265</td>
<td>4.8</td>
<td>8</td>
</tr>
<tr>
<td>Asian</td>
<td>465</td>
<td>8.5</td>
<td>6</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>2,139</td>
<td>4.4</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>315</td>
<td>5.8</td>
<td>0</td>
</tr>
<tr>
<td>Not Reported</td>
<td>221</td>
<td>4.0</td>
<td>3</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>n/a</td>
<td>n/a</td>
<td>22</td>
</tr>
<tr>
<td>18</td>
<td>n/a</td>
<td>n/a</td>
<td>95</td>
</tr>
<tr>
<td>19</td>
<td>n/a</td>
<td>n/a</td>
<td>6</td>
</tr>
<tr>
<td>20</td>
<td>n/a</td>
<td>n/a</td>
<td>1</td>
</tr>
<tr>
<td>Residency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In-state residence</td>
<td>3,864</td>
<td>70.4</td>
<td>81</td>
</tr>
<tr>
<td>Out of state residence</td>
<td>1,623</td>
<td>29.6</td>
<td>43</td>
</tr>
<tr>
<td>First Generation Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First-Generation</td>
<td>987</td>
<td>18.0</td>
<td>23</td>
</tr>
<tr>
<td>Not First-Generation</td>
<td>4500</td>
<td>82.0</td>
<td>101</td>
</tr>
<tr>
<td>Honors Student Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honors Student</td>
<td>275</td>
<td>5.0</td>
<td>15</td>
</tr>
<tr>
<td>Not Honors</td>
<td>5212</td>
<td>95.0</td>
<td>109</td>
</tr>
<tr>
<td>University Athlete Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athlete Student</td>
<td>146</td>
<td>2.7</td>
<td>48</td>
</tr>
<tr>
<td>Not Athlete</td>
<td>5341</td>
<td>97.3</td>
<td>76</td>
</tr>
</tbody>
</table>

**Note.** Age data was unavailable for the full Freshman population. Also, residency data was unavailable for the study sample.
Table 4-2.

Means, Standard Deviations, Minimums and Maximums for High School GPA, SAT, Standardized Testing Score, ACT, and Virginia Tech Cumulative GPA for VTSA Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School GPA</td>
<td>62</td>
<td>3.80</td>
<td>0.48</td>
<td>2.33</td>
<td>4.86</td>
</tr>
<tr>
<td>SAT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAT Verbal</td>
<td>84</td>
<td>557.74</td>
<td>84.29</td>
<td>410.00</td>
<td>750.00</td>
</tr>
<tr>
<td>SAT Math</td>
<td>84</td>
<td>604.29</td>
<td>94.12</td>
<td>390.00</td>
<td>780.00</td>
</tr>
<tr>
<td>Standardized Testing Score</td>
<td>89</td>
<td>1166.91</td>
<td>163.63</td>
<td>810.00</td>
<td>1510.00</td>
</tr>
<tr>
<td>ACT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACT English</td>
<td>35</td>
<td>24.69</td>
<td>5.16</td>
<td>11.00</td>
<td>35.00</td>
</tr>
<tr>
<td>ACT Math</td>
<td>35</td>
<td>26.14</td>
<td>4.60</td>
<td>16.00</td>
<td>34.00</td>
</tr>
<tr>
<td>Virginia Tech GPA</td>
<td>89</td>
<td>3.45</td>
<td>0.54</td>
<td>1.20</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Note: Not all response categories equal 89 due to unavailability of data.

Demographic and basic descriptive data regarding the participant sample (n= 89) revealed a freshman cohort consisting of 68.5% males (n = 61) and 31.5% females (n = 28). This breakdown differs from the gender breakdown of the 2012 freshman class at Virginia Tech, where 45% of the 5,487 students were female. With respect to race, 62.9% (n = 56) of the students self-identified as “White,” while “Black or African-American” students accounted for 15.7% (n = 14) of the sample. Five students, or 5.6%, self-identified with the “Asian” race and 6 students (6.7%) considered themselves to be “Hispanic” or “Latino.” Also, 5.6% (n=5) of the sample reported as “Two or more races,” while 3.4% (n=3) did not self-identify with any ethnicity. Enrollment data for 2012 entering freshman at Virginia Tech was similar and classified as 69.5% (n=3816) White and 3% (n=166) African-American. The age range for subjects was 17 to 20, with 78% (n=70) of the sample aged 18 years. Finally, first-generation college students—operationally defined by Virginia Tech as “Neither parent completed a Bachelor’s (4-year
college) degree or higher” (Virginia Tech Office of Undergraduate Admissions, 2013, ¶21) were 20.2% (n=18) of the sample which compared to the 17.9% (n=987) of the 2012 freshman class at Virginia Tech.

Student data regarding Honors student status and Virginia Tech athlete status are significant factors to highlight. Twelve students (13.5%) were categorized as “Honors eligible students,” which is operationally defined as eligible freshmen with a high school GPA of 3.80 and a minimum SAT score of 1350 or a minimum ACT composite score of 30. Students were also asked to identify if they were Virginia Tech athletes. Finally, important to note are a total of 31.5% (n=28) of the sample who were considered University athletes which compared to 2.1% (n=146) of the 2012 freshman class at Virginia Tech.

Important to this study are student academic performance characteristics, which were categorized by high school cumulative GPA, SAT and ACT scores, a standardized testing score high school status, and current Virginia Tech GPA. Participant means and standard deviations, respectively, for SAT Math scores were \( M=604, SD=94 \); and for SAT Verbal scores were \( M=576, SD=84 \). For the 38 students who took the ACT, the mean ACT Math was \( M=27, SD=4.66 \) and ACT English was \( M=25, SD= 5.0 \). Mean high school cumulative GPA was \( M=3.81, SD = .48 \). A standardized test score, as described earlier, was computed for students—participant mean and standard deviation was \( M=1167, SD =164 \). Additionally, at the end of the VTSA program students beginning the fall 2012 semester had accumulated six credit hours of study toward their undergraduate degrees. The mean Virginia Tech GPA for entering freshman who participated in the VTSA was \( M=3.45, SD= .54 \).

In reference to the sample, 14 (15.7%) of the students were enrolled in the Architecture and Design track, 14 (15.7%) students were in Creative Leadership, and 8 (9.0%) students were
in the Ethics in the International Society track. Seven participants (7.9%) participated in the Nutrition Foods and Exercise track; while there were 3 tracks that each consisted of 6 (6.7%) including Engineering, Nutrition and Life Sciences, and Humanities and the Arts. Table 4-3 represents a side-by-side comparison of student membership in all 13 tracks for the 2012 Virginia Tech Academy Sample and Population.

Table 4-3.

*Student Membership in VTSA Tracks*

<table>
<thead>
<tr>
<th>Virginia Tech Summer Academy Tracks</th>
<th>2012 Virginia Tech Summer Academy Population</th>
<th>2012 Virginia Tech Summer Academy Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track 1: The Art of Thinking and Speaking</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Track 2: The Role of Europe in the Evolution of the Modern World</td>
<td>8</td>
<td>6.5</td>
</tr>
<tr>
<td>Track 3: Architecture and Design</td>
<td>23</td>
<td>18.5</td>
</tr>
<tr>
<td>Track 4: Ethics in an International Society</td>
<td>8</td>
<td>6.5</td>
</tr>
<tr>
<td>Track 5: The History of the American Political Machine</td>
<td>8</td>
<td>6.5</td>
</tr>
<tr>
<td>Track 6: Nutrition, Foods, Exercise, and Sport</td>
<td>7</td>
<td>5.6</td>
</tr>
<tr>
<td>Track 7: Engineering</td>
<td>8</td>
<td>6.5</td>
</tr>
<tr>
<td>Track 8: Critical College Communication</td>
<td>5</td>
<td>4.0</td>
</tr>
<tr>
<td>Track 9: Life Sciences</td>
<td>5</td>
<td>4.0</td>
</tr>
<tr>
<td>Track 10: Nutrition and Life Sciences</td>
<td>7</td>
<td>5.6</td>
</tr>
<tr>
<td>Track 11: Humanities and the Arts</td>
<td>12</td>
<td>9.7</td>
</tr>
<tr>
<td>Track 12: Business Information Systems</td>
<td>6</td>
<td>4.8</td>
</tr>
<tr>
<td>Track 13: Creative Leadership</td>
<td>20</td>
<td>16.1</td>
</tr>
<tr>
<td>Total</td>
<td>124</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Objective Two: Determine Change in Academic Motivation both Before and After Student Engagement in the VTSA Program

For purposes of this study, raw data consisting of student scores of the pretest and posttest of the LASSI was provided by the Virginia Tech Office of Summer Sessions. Eight item responses from the LASSI Motivation Subscale were used to measure students’ awareness and use of learning styles of “students' diligence, self-discipline, and willingness to exert the effort necessary to successfully complete academic requirements” (Weinstein & Palmer, 2002, p. 79). Researchers suggest that students who indicate lower motivation scores should increase their level of motivation and responsibility for executing academic tasks, as well as increase their capability of performing successfully.

The LASSI was administered to VTSA students during the July 2012 orientation and again after the six-week program (in August 2012). To answer the second research objective, pretest and posttest data from the motivation subscale were used to determine the level of change after the intense six-week program of college coursework. Results were evaluated against a p value less than .05 to identify statistically-significant differences (Coolidge, 2006). The mean change was tested at the .05 level of significance, and effect sizes were computed.

Descriptive statistics for both the pretest and posttest administration of the LASSI Motivation Subscale are shown in Table 4-4. By definition, parametric statistics assume that the data is normally distributed, thus referencing the use a t-test to measure the difference between means of two samples. Normality plots, skewness and kurtosis measures were analyzed to assess the normality assumption in regards to the data analysis (Howell, 2012). Results of these tests indicated that the distribution of the data was normal.
Table 4-4.

*Results of Paired Samples T Test and Descriptive Statistics of LASSI Motivation Subscale*

Pretest, Posttest and Difference (n = 89)

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Pretest M</th>
<th>Pretest SD</th>
<th>Posttest M</th>
<th>Posttest SD</th>
<th>95% CI for Mean Difference</th>
<th>t</th>
<th>Cohen’s $d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistic</td>
<td>32.16</td>
<td>5.009</td>
<td>32.98</td>
<td>5.150</td>
<td>-1.565, -.076</td>
<td>-2.190*</td>
<td>.16</td>
</tr>
</tbody>
</table>

*Note. *p ≤ .05

With the alpha set at .05, results from a one-sided matched pairs t-test used to compare academic motivation elicited a significant difference between the scores for the pretest before engagement ($M=32.16, SD=5.01$) and posttest after engagement ($M=32.98, SD=5.15$); $t=-2.190; p=.031$. The null hypothesis that there was no difference between the mean academic motivation scores before and after participation in the VTSA was rejected. Specifically, results indicate that from pre participation to post participation in the VTSA program, there was an observed average improvement of students’ academic motivation with a mean difference of .82, representing a 2.5% increase in score. Cohen’s (1988) $d$, which conveys the estimated magnitude of a relationship between two variables, was calculated to determine the appropriate effect size for the comparison between the two means. Results indicated $d=.1614$ and is interpreted by Cohen’s (1988) indicator of effect magnitude as a small effect size. The 95% confidence interval ranged from -.076 to -1.565. The Shapiro-Wilk test was used to assess normality of the data to be able to conclude goodness of fit of the parametric distribution (Shapiro & Wilk, 1965). Results indicate that the observed distribution fit the normal distribution.
Objective Three: Determine Level of Student Engagement in Educationally Purposeful Activities

The third objective of this research study was to determine the level of student engagement in the 2012 VTSA through use of the SEPA. At the end of the VTSA program in August 2012, students were recruited to complete the SEPA, and resulting descriptive statistics are shown in Table 4-5. Engagement was operationally defined as the aggregate score of the 19 test questions of the SEPA. Descriptive statistics revealed a minimum engagement score of 9 and a maximum engagement score of 53, with a mean sample score of 30.45 (SD=8.80). Responses to the statement, “Worked with classmates outside of class to prepare class assignments,” aggregated for a high sample mean of 2.40 (SD = .744). Whereas, responses to the statement, “Used an electronic medium (listserv, chat group, Internet, etc.) to discuss or complete an assignment,” represented the lowest sample mean of .24 (SD = .544). The VTSA NSSE results indicate a mean score of engagement at 30.45.

Objective Four: Explain the Change in Academic Motivation in relation to VTSA Student Engagement, Demographic, and Academic Variables

Objective Four sought to explain the relationship between change in academic motivation from the LASSI in relation to student engagement, demographic variables, and academic performance variables. Correlational analysis, using Pearson’s product moment correlations, was used to explore the relationship between academic motivation, student engagement, and academic variables. Table 4-5 shows the relationship between these variables using a Pearson correlation coefficient. Important to note are the relationships between variables that indicate significant strengths of association.
Table 4-5.

*Correlations between Motivation, Engagement, and Academic Performance Variables (n = 89)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Honors Eligibility Status</td>
<td>0.02</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Athlete Status</td>
<td>-0.21*</td>
<td>-0.27**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. First Generation Status</td>
<td>0.20</td>
<td>-0.03</td>
<td>-0.11</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. College GPA</td>
<td>0.15</td>
<td>-0.03</td>
<td>-0.09</td>
<td>-0.18</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Standardized Test Score</td>
<td>0.08</td>
<td>0.52**</td>
<td>-0.60**</td>
<td>-0.09</td>
<td>0.20</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. LASSI Motivation Pretest</td>
<td>0.19</td>
<td>0.03</td>
<td>-0.33**</td>
<td>0.03</td>
<td>0.19</td>
<td>0.17</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. LASSI Motivation Posttest</td>
<td>0.23*</td>
<td>-0.08</td>
<td>-0.29**</td>
<td>0.12</td>
<td>0.13</td>
<td>0.16</td>
<td>0.76**</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>9. LASSI Motivation Difference</td>
<td>0.07</td>
<td>-0.16</td>
<td>0.05</td>
<td>0.14</td>
<td>-0.07</td>
<td>-0.00</td>
<td>-0.31**</td>
<td>0.38**</td>
<td>—</td>
</tr>
<tr>
<td>10. SEPA Engagement</td>
<td>0.16</td>
<td>-0.05</td>
<td>-0.04</td>
<td>0.25*</td>
<td>0.06</td>
<td>0.06</td>
<td>-0.10</td>
<td>-0.13</td>
<td>-0.04</td>
</tr>
</tbody>
</table>

* p < .05. ** p < .01.
Results revealed a significant, negative relationship \((r = -.330, p = .00)\) between LASSI Motivation pre-test scores and athlete status. This correlation suggests that as LASSI Motivation pre-test scores increased, athlete status was less likely.

Results revealed a significant, positive relationship \((r = .234, p = .03)\) between the LASSI Motivation post-test scores and gender. This correlation suggests that groups of students with higher scores on the LASSI Motivation posttest would likely have more males than females.

Results revealed a significant, negative relationship \((r = -.287, p = .01)\) between LASSI Motivation post-test scores and athlete status. This correlation suggests that as LASSI Motivation posttest scores increased, athlete status was less likely.

Results revealed a significant, positive relationship \((r = .246, p = .02)\) between SEPA Engagement scores and first generation student status. This relationship suggests that groups of students with higher SEPA Engagement scores would likely have a percentage of first generation students.

As expected, LASSI test variables were highly correlated. LASSI Motivation post-test scores and LASSI Motivation pre-test scores were significantly, positively correlated, \((r = .758, p = .000)\), indicating that increased Motivation pre-test scores were associated with increased Motivation post-test scores. Furthermore, LASSI Difference scores and LASSI Motivation pre-test scores were significantly negatively correlated, \((r = -.312, p = .002)\), suggesting a moderate relationship by Pearson (Coolidge, 2006). Results suggest that as LASSI Motivation Pretest scores increased, LASSI Difference scores tended to decrease. Conversely, LASSI Difference scores and LASSI Motivation post-test scores were significantly, positively correlated, \((r = .383, p = .000)\). Accordingly, as LASSI Motivation Posttest scores increased, LASSI Difference scores also tended to increase.
Multicollinearity of predictors represents a crucial problem in linear regression because the linear dependence of independent variables on one other can inflate estimates of variance, and can be misleading in interpreting regression coefficients (Howell, 2012). Howell asserted that using the variance inflation factor (VIF) can be effective in depicting the amount of variance of the coefficient estimate that is inflated by multicollinearity. VIF results indicated no evidence of multicollinearity to cause volatility in the data.

A multiple linear regression model was fitted to the data to test the research hypothesis regarding the relationship between changes in academic motivation, using LASSI Pre and Posttest difference scores, in relation to student engagement, demographic variables, and academic performance variables. The overall model proved insignificant ($F = 1.412; p = .213$) as shown in Table 4-6.

A second hierarchical multiple linear regression model was fitted to the data to test the research hypothesis regarding differences in academic motivation using scores of the posttest in relation to student engagement, demographic variables, and academic performance variables, controlling for the effects of the LASSI Motivation Pretest as a covariate of the analysis. The standardized regression coefficients ($\beta$), the intercept, and the significance for the full model are reported in Table 4-7.
Table 4-6.

*Multiple Regression Analysis for Variables Predicting Change in Academic Motivation (n = 89)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\beta^a$</th>
<th>$t$</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-1.669</td>
<td>.099</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.056</td>
<td>.497</td>
<td>.621</td>
</tr>
<tr>
<td>Honors Eligible</td>
<td>-.317</td>
<td>-2.385</td>
<td>.020</td>
</tr>
<tr>
<td>Athlete Status</td>
<td>.310</td>
<td>2.105</td>
<td>.039</td>
</tr>
<tr>
<td>First Generation Status</td>
<td>.161</td>
<td>1.394</td>
<td>.167</td>
</tr>
<tr>
<td>College GPA</td>
<td>-.063</td>
<td>-.543</td>
<td>.589</td>
</tr>
<tr>
<td>SEPA Engagement</td>
<td>-.058</td>
<td>-.521</td>
<td>.604</td>
</tr>
<tr>
<td>Standardized Testing Score</td>
<td>.415</td>
<td>2.395</td>
<td>.019</td>
</tr>
</tbody>
</table>

$R^2$  
Adjusted $R^2$  
$F$  

| $R^2$   | 0.115 |
| Adjusted $R^2$ | 0.034 |
| $F$      | 1.412 | .213 |

*Standardized Coefficients*

In Model 2a, results of a linear regression analysis indicated that the covariate was significantly ($F = 109.54$, $p = .000$) predictive of the posttest scores of academic motivation, accounting for 57% of the variance. Model 2b presents how much predictive power was added to the model by the addition of the student engagement, demographic variables, and academic performance variables. Taken together, gender, honors eligible status, athlete status, first generation status, college GPA, SEPA Engagement, and standardized testing score, was significantly ($F = 15.521$, $p = .000$) predictive of the LASSI Motivation posttest scores of academic motivation, accounting for 58%, controlling for the interaction of the LASSI
Motivation Pretest scores. The change in variance accounted for ($\Delta R^2$) was equal to .052, which was not significantly different from zero ($F = 1.467, p = .192$).

Table 4-7.

*Multiple Regression Analyses for Variables Predicting Change in Academic Motivation LASSI*

*Posttest using Pre-test as a Covariate (n = 89)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 2a</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta^a$</td>
<td>$t$</td>
<td>Sig</td>
<td>$\beta^a$</td>
<td>$t$</td>
<td>Sig</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>3.511</td>
<td>.001</td>
<td></td>
<td>3.511</td>
<td>.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LASSI Motivation Pretest</td>
<td>.756</td>
<td>10.466</td>
<td>.000</td>
<td>.737</td>
<td>9.241</td>
<td>.000</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>.066</td>
<td>.886</td>
<td>.378</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honors Eligible Status</td>
<td>-.221</td>
<td>-2.526</td>
<td>.014</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Athlete Status</td>
<td>.115</td>
<td>1.127</td>
<td>.263</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Generation Status</td>
<td>.111</td>
<td>1.459</td>
<td>.149</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College GPA</td>
<td>-.004</td>
<td>-.054</td>
<td>.957</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SEPA Engagement</td>
<td>-.095</td>
<td>-1.259</td>
<td>.212</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standardized Testing Score</td>
<td>.256</td>
<td>2.244</td>
<td>.028</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>.567</td>
<td></td>
<td></td>
<td>.583</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$F$</td>
<td>109.540</td>
<td>.000</td>
<td></td>
<td>15.521</td>
<td>.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\Delta$ Adjusted $R^2$</td>
<td></td>
<td></td>
<td>.052</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\Delta F$</td>
<td></td>
<td></td>
<td>1.467</td>
<td>.192</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*aStandardized Coefficients*

**Objective Five: Explore Student Perceptions of Student Engagement in the VTSA Program and Connections to Academic Motivation**

Objective Five explored student perceptions of student engagement in the VTSA program and connections to academic motivation as a result of their participation. Using the Glaser and
Strauss’s (1967) constant comparative method to code the transcriptions from student responses to focus groups questions, common themes were determined among the students’ descriptions of their experiences in the VTSA. Qualitative findings represent the students’ individualized viewpoints and experiences from participating in the program. An overview of the repeated themes is discussed below as a description of the findings of the study.

**Theme: Preparing for College Life**

The majority of the students asserted that their participation in the VTSA was useful in transitioning them to college life by helping them to feel more prepared, enabling them to get a head start on coursework, becoming familiar with the campus by enhancing their academic productivity, and by exposing them to diversity.

Students continually referenced their participation in the VTSA as a variety of structured and integrated experiences that prepared them for college life prior to the fall academic term. Moving away from the comforts of home and transitioning to a new environment, involvement in the VTSA was an opportunity for students to get acquainted with the demands of the college environment through academic and social preparation. The process would be different from what students were used to in their high school environment and would represent an awakening. For example, Reagan said,

The experience [of the VTSA], the learning prepares you more for college, the workload is so different, so having that is like a kind of slap in the face, like this is what you’re going to be doing in the fall so get over it now. (2-0117)

Students explained that they were being prepared to deal with college challenges that were soon to come. Joseph discussed that he used his experience to help him to navigate what professors expected of students. He expressed, “It’s mainly because I had this experience in
Summer Academy. I was much more prepared for what professors expect” (1-0029). The type of preparation, however, was multifaceted and geared towards helping student to know, better understand, and get accustomed to college systems, including the people, events, structure, and organizations of the campus—before becoming a full-time student. Students, like Carrington, described the VTSA as useful in suppressing anxiety and fear about what college life would be like. For example, students would consider: ‘How would college be?’ ‘What will I do?’ ‘What does it look like?’ ‘Who will I meet?’ ‘And the favorite, ‘How do I get tickets to a football game?’ Carrington said “I enrolled in the Virginia Tech Summer Academy because I really didn’t know what it was like to go from high school to college, and I just really wanted to feel prepared” (3-0029). Reza echoed, “What was useful for me was getting accustomed to the campus, knowing where things are and how things work. Then you know people in the fall too” (4-0369).

Participants viewed getting a head start on college courses as an added benefit, especially by receiving six college credits when they completed the program. Joanna said, “I think it was the credits. It causes you to actually get experience and to get college credit. I think that’s what really drew me in. I was being prepared and getting credit” (4-0087). Students also explained that participation in the program allowed them to get ahead for other requirements as well. For example, some majors like engineering and architecture, requires students to have a specific set of courses to apply to their program. Starting classes early also gave students the opportunity to decrease some of the course requirements that they would need to apply to a specific major and would allow them the opportunity to register for the major at an earlier timetable. Joseph explained, “I wanted to get a head start in school. I knew that getting six credits was going to
help me to get into architecture and that by taking them I was able to take a few classes to kind of reorient myself towards a standard that I kind of help myself to” (1-0063). Kennedy stated:

I was hoping to come here and be accepted into the Architecture program, through a summer program, and that’s exactly what happened, so I was very grateful for that. I wanted to get into the Architecture program because it's a very competitive field to get into, and I just wanted to start school early, and start to get to know the campus. (3-0072)

Also vital to preparation and exposure was students’ opportunities to become directionally familiar with the campus. The simple revelation of knowing the physical location of specific campus buildings and classrooms on campus was of benefit. Liam noted:

Yeah, I know my way around campus. I'm like, I don’t feel lost or unprepared, like, ‘Where's McBryde?’ It's like, ‘Oh god, [slaps forehead] I have to trek across the drillfield and up the hill and around the bend, but I know exactly how far it is and I have to cross here to get there. (2-0068).

Being prepared with knowing the geographical layout of the campus assisted students to be more prepared for their college experience. Kennedy said:

Well, I definitely feel like I’m a part of the campus. You definitely don’t want to be the person holding the map like this like oh [Laughter] so since we already knew where to go and what to do. And so when we got here on our first day as a freshman, we were prepared, it was like, ‘Oh yeah, we got class in the GLC? Because I know where that is.’ Yeah, so we walked straight there. So I felt like a part of everybody else because everybody else knew where they were going. And now you see other freshman not knowing where they were going and you have to say to yourself, ‘oh that could’ve been me if I weren't here this summer.’ (3-0414)
Carlyle, like many other students, focused heavily on the fact that he wanted to stay productive over the summer and wanted to “do something with my life and get some work done" (2-0050). Through participation in the program, students identified their experience as remaining academically productive throughout the summer after high school. Academic engagement in the VTSA allowed students to experience an early, relatively seamless transition from high school to college life that would be superior to working or hanging out with friends of the summer—while still being enjoyable. Joanna put it this way:

I feel like it also helped that summer academy was right after school ended like high school. With some students, they went to work in the summer or they had fun at the beach or whatever so they had a summer mindset. We’re here in summer academy with still an academic mindset, so we’re still carrying that over and I think [other students] are still trying to adjust from that, from this summer mindset. But then again, it still felt like summer. It’s enough play and fun balanced with work that you still had a summer like I wasn’t burnt out or whatever by the time classes started in the fall. (4-1132)

Liam coined academic productivity as “keeping up in the learning groove” (2-0085). He focused on the fact that participation in the summer academy discouraged laziness and maintained his attention to learning. He referred to never having a break in the learning mindset:

Because I wanted to get a view of college, taking a class would be nice. I was home, bored, being a bum, doing nothing, getting up at 2 o’clock every day, going to bed at 2 o’clock. My summer here was pretty boring so I thought why not take a class in the summer, keep me upbeat? It's nice because you know how it takes that while to respond, to get back to the groove in school? (2-0045)
Finally, students described the program as good preparation for college because of their exposure to a diverse set of people. Connor described his experiences with other people and explained how being in the program prepared him to be around others, especially coming from a small town. He said, “I've learned to embrace diversity more. You don’t know what people are going through in their life. You know what I mean? I feel like that makes me a much better person than these freshmen that are coming in” (2-1102). Bobbie found the exposure to diversity to also be of benefit. She said, “They basically did these activities that emphasized diversity being open minded. Just being a good person in general and not being so judgmental of others” (4-0520). Danielle explained:

I met so many different people from different backgrounds and it's cool because I felt like at home I was just in my own little bubble with this certain kind of person … in the summer academy, you didn’t—they came from all over. (1-0749)

Reagan described his exposure to diversity in the VTSA as trying. “It’s a crash course on tolerance for most people. And patience, yeah” (2-1105). Furthermore, when asked about diversity, Carrington shared the difficulties of her experiences with her roommate. She too identified tolerance as part of her exposure to diversity:

It was definitely exposure to the fact that people are different. You definitely learned that everybody is different and diverse. My roommate was different and I had never been exposed to a person like her. She was a person that goes to sleep at 8 o'clock, and she likes to be up and out at 8 o'clock. So yeah, we had our disagreements. But I just had to learn that people are just different. (3-0187)
Theme: Developing Relationships

Students continually identified the role of developing relationships with peer mentors, professors, and peers as foundational to development in the program. Having the opportunity to create and build relationships with others gave students the chance to network, connect with, and learn from people as a means of educational, social, and personal adjustment for success. For example, Carlyle said, “Everybody was there encouraging you. Everybody, friends, peers, peer mentors, professors, everyone else wants you to succeed too, so it makes you want to do well” (4-0795).

Students adamantly identified relationships with peer mentors as an essential resource to their adjustment and to their academic motivation. A peer mentor was described as a “near peer” or an upper class student who was responsible for guiding and introducing students to college life and expectations. Peer mentors were charged with developing fun activities and answering questions to provide general academic and social support, as well as directing students on where to go and what events they needed to attend. James explains peer mentors like a recipe: “They were part guidance counselors, part event planners, part RA, part friend and umm… mentor…” (1-0603). Joanna said:

If we’re going to bring out about the PMs, I thought that was actually one of the best things that summer academy had; because it wasn’t like an RA, but they’re kind of like, ‘Yo, I’m here.’ If you’re going to ask a question they try—they were more like an older friend that you automatically could just ask anything. In the first week, we were all really confused walking around to classes or whatever but what was helpful was when they were with us. We’ll all be outside playing volleyball, and it’s like half of them are PMs and half of us just freshman like very intermixed because they were sophomores, juniors
and seniors, and they all had different insight on aspects of campus. I thought it was a great way to individually help you…you had someone that you could ask questions about. (4-0217)

An insightful response from Kennedy spoke to the importance of this theme. Kennedy explained that her peer mentor was a knowledgeable resource and organized helpful study sessions and learning resources for student success. She said adamantly:

My peer mentor was the best [moves hands excitedly]. She was the best. Bianca (name changed), aside from her class schedule, when we needed her, then she would come right to us. She set up a study session with my professor in our whole track, for ACIS students there. She also set up a meeting with Blake, which is the Math teacher. So he had two study sessions for our final exam, which was helpful. Usually she would get us all together so we could do all our projects at one time to make sure everybody was on the same page. (3-0253)

Students were highly vocal about their interaction with peer mentors. Bobbie said, “Peer mentors were very … very inclusive. They just, like, welcomed you” (4-0588). While, Reza gave credit to the interaction with peer mentors as influential to his development by saying:

I feel like they have a large effect on our experience. They were the ones that primarily set up all the stuff. They were the ones that--That made all these activities for us. PMs were kind of like, this is how college people are. I don’t know… they really represented the kids at Tech. Some of them were really relaxed here, big brother type. Even when they did have a track there, it’s not like it’s exclusive to that track. If you were walking through the cafeteria, you probably just like sit down with that track and their peer mentor. (4-0568)
Like other students, Danielle identified her peer mentor as a helpful resource for counseling:

They were just friends too, like someone you could talk to because summer academy was great, but it was also a lot of work so when you did stress out about your exam or this paper or a test, they were there just to comfort you, just to keep you on track, to let you know the world's not about to end. She’d just say, ‘You just have to calm down and just keep on moving forward.’ (1-0613)

Gavin added,

They were active. They could share emotions easily. They can communicate, give feedback pretty easily. They're like peers, rather than superiors. Yeah, I studied with them…I was in the lounge all the time studying with whoever … Because some of them were taking classes too. (2-0771)

Cameron said laughingly, “Rachel, my peer mentor, connected with us, she was sympathetic, but she was sassy…I don't know…I mean she's sympathetic but she didn’t take any crap, I guess, as long as you did what she said [laughter]” (2-0355).

Continuing with that same concept, students widely agreed that peer mentors served as their role models and that the mentor relationship was helpful because students could emulate their actions and role. Due to the fact that peer mentors were college students during the program and had faced and overcame many of the same challenges that the new students would face, students of the VTSA could look up to peer mentors and ask for their advice. Bobbie said:

I think the fact that a lot of kids want to be PMs for the next year summer academy shows how great our peer mentors were to us, because we want to be in that position that can almost motivate, inspire other kids to have that great college experience. People already say, ‘get involved, do all this work.’ And we were like, yeah, yeah I got it. Do whatever
for Virginia Tech. But having them [peer mentors] to say like, oh yeah this is what I did last year, and oh my freshman year was this and that, now I’m here or like I’m doing this research or whatever, and you’re just like I want to be at that point when I’m your age.

So you become the role model that my peer mentors were to me. (4-01235)

James replied, “If we didn’t have the mentors, it would have been a different story with preparing socially so I was like, ‘If we didn’t have the peer mentors, I wouldn’t know what to do on a weekend,’ stuff like that” (1-0237).

Students continually identified their relationships, connections, and interaction with professors as essential to their development. They were sincere about the impact and influence of their one-on-one relationships with professors. Reza pointed out that:

It was actually pretty nice because you had small classrooms. You could just talk to the teacher and develop a relationship with the teacher. They’re all really friendly and actually knew you because they didn’t have any other classes … I had Ms. Mansen. She was really nice, and she got to know us really well personally, we went to her house for the class. She showed us her artwork and talked about it, because the class was about the creative process, and she pretty much just like described it to us. It’s really awesome, because she is a really good artist. (4-0314)

Ashlyn alluded to his experiences with his professor outside of the classroom as well. Because of the small class size, professors were able to move beyond the four walls of the classroom and incorporate different teaching styles and differing activities into their curriculum. This type of teaching and one-on-one interaction seemed to resonate with students and helped them to build key relationships. Ashlyn also stated, “She actually took us … at the very end, she took us to breakfast at Gilley’s and we did like a…she was my Public Speaking class, and so we
did like a mock interview, and she expected a lot out of you, but she was always real nice” (2-0613). Carrington referenced his teacher’s outings as helpful to his pocket and to his relationships with the professor. “My professor bought us pizza. Blake. Yes. He bought the whole class pizza. I didn’t have to swipe, and I could save my own money [Laughter]. But I could also get to know him… The food was good but the conversation at the table was better” (3-0115). Danielle said:

Dr. Simmons took us on a bike ride. He bought us bikes, and then we all rode -- it kind of like a class but not a class. It was on a Saturday. We rode our bikes and through the -- I think it's the Huckleberry Trail. And we stopped and looked at some of the plants we were talking about in class and everything but we -- it was only seven of us so it was good. And then he took us to Panera and he paid for that. He took us to Ben & Jerry's, and he paid for that, and then we rode back. He got to know us -- he remembered us each -- he got to know us during the summer, speak with us, know about our families, about our interest and everything, and he still -- because we still have him now so I have a professor now that I met during the summer. I know him, and he knows me, and it's pretty cool. (1-0423)

Carrington was surprised by the interaction that she had with her professor. She said:

Our professors, they don’t really seem like professors. You can call them by their first name, because they wanted you to; they don’t want you to call them by their last name. They didn’t seem like your teacher. It was just different because like even in class, it was like no set place where she would actually stand and teach. She would actually walk around, and then she'll have us going up there and teaching, because she said she liked to hear us teach her something new. (3-0293)
Professors also extended themselves as a resource to answer students’ questions and for networking and professional opportunities. According to Morgan:

She was really nice, and she said, ‘Well, you all ever need any help just let me know, if you all have any problems, let me know, if you need a reference letter, let me know.’ And of course, coming from a doctor in the Virginia Tech Engineering School is a good reference to have. So I mean just having eight people getting to know her on a personal level, as well as the intellectual level, was kind of nice. (2-0087)

Continuing, Morgan shared that his interaction and relationship continued even after the VTSA program and well into his freshman year, when his “professor actually had us over for…we had snacks and then we talked about how are things going, the first Saturday during the Fall semester” (2-0581).

Gavin recognized his professors’ adaptation and attention to students’ needs as significant:

The cool thing about ours was she was very adaptive, basically every day she would ask us how it can work out for us, like do you have enough time between this class and the next one, and probably get lunch. Like all this other stuff, like how she set up the class and she just made sure very well, like the set up that she had was working for us, like even like mentioned that there's something wrong, she would try to help us get through it, stuff like that. (2-0553)

Finally, just as the relationships of peer mentors and professors were recognized as influential, students identified that crafting relationships with peer students was a unique and promising part of the program to help students to become more academically motivated.
Crucial to building peer relationships was the structure of the small tracks, or groups, as evidenced by Regan: “I liked the new classrooms, because there were small classes, you stay with your tracks, you got very close to the people in your track” (2-0496). While Ashlyn bellowed laughingly, “Yeah, because I KNOW right after classes today, all of our group would go and do homework. We’d go ‘HEY? [signals]’ ‘Yeah!’ We all do homework in the library because it was air conditioned, because it was really hot in the summer” (2-0330). The small groups were structured as a cohort and were not just going to classes together but also, as Bobbie mentioned, “You’re just kind of like a family with people because you’re all living together” (4-0112).

Students continually referenced the fact that the groups were invited to complete both academic and social activities with each other in smaller groups. Relationships with peers were based on doing things with each other on a continuous basis—from studying to quizzing each other, playing Frisbee to trying out a local restaurant. Cameron offered his insights into the mutual learning that took place from his relationships with peers. He identified that his relationships facilitated learning with each other and from each other in the studio lab:

When everybody was on the same page and everything, I spent days, nights and days in the studio with a group of people that I actually know pretty well, or cool with each other, then we'll hang out sometimes. It was just that, being on the same boat, working on the same project, we're gathering ideas with each other, just so much fun. (2-0326)

According to Morgan, being in the VTSA allowed him to build friendships and to engage with fellow students as a large friendly group. He described that they shared an affinity with each other through by participating in the program: “I miss the closeness of the people [since being away from the VTSA]. Because we had like six good weeks together, then we scattered in
different places. I made great relationships with most of the people – 120 of my closest friends [laughter]. Who can say really that?” (2-0906). The relationship network that emerged from their participation in VTSA was viewed as extremely close and tight-knit—almost like a family.

Bobbie asserted that her friendships with others in the VTSA helped her to be more connected and build lasting relationships at a faster rate than her non-VTSA friends were able to do as new freshmen in the fall. With the grin of a comedienne, she said, “Yeah, it’s like everywhere you go, like, I run into people from the Academy all the time, like, ‘Hey.’ My friends were like, ‘How do you know people?’ I’m connected. It was all because of these relationships from Summer Academy” (4-0387). Cameron happily reported that one of his close, lasting relationships blossomed into a sweetheart relationship:

I got a girlfriend through my experience in the summer academy [chuckles]. That’s how close we were, these are the types of relationships that were developed. Everyone in the program were just so close… it wasn’t hard. We were friends – I saw her every day.

Breakfast, lunch, and sometimes even dinner. I met her on the 3rd day here. (2-0299)

**Theme: Adjusting to College**

Students explained that through both the academic and social activities associated with the VTSA, they encountered a variety of life-changing experiences that helped them to transition and adjust to college—partly by challenging their prior thinking and academic habits. Through discovery of college life prior to their first freshman semester, the VTSA students were able to improve their time management skills, grow in decision-making abilities, and develop an increased confidence that seemed to positively influence their academic motivation in college.

One of the most important experiences that students spoke about was their overall personal transition and adjustment to the college experience. Students discussed that as they
experienced college life they felt more confident about transitioning and adjusting to a full college schedule with all of its demands and responsibilities. Many students were forthcoming with their prior feelings of being overwhelmed with the time commitment that accompanied the college experience and a need to transition to meet those needs. For example, Carlyle referred to his college experience as “extreme workload and there's like a whole adjustment process. College is like a huge jump from high school, like more free time, more work” (2-0627).

Kennedy echoed: “It's kind of like when you get here it is a definite transition. When you were in high school, like you could just play or gossip, I mean it was a small homework assignment. But if you put homework off to the side in college, you'll be here all night doing the homework [Laughter]” (3-0206). Finally, Cameron, quoting Albert Einstein, offered the following insightful take on transitioning and adjusting to college via his VTSA experiences: “It was challenging to manage the time, I think it was good though, we got a lot out of it. I guess in the middle of difficulty lies the opportunity, right?” (2-0639). Cameron, like so many of the students, described the many opportunities available to him in the VTSA to improve his strengths and abilities that accompanied the transition and adjustment to college.

Regan laughingly recounted his high school days and how he used to be able to use “the gift of gab” to beguile and deceive his high school teachers with respect to certain activities and assignments; his experience in VTSA was much different. “In high school I was a really good smooth talker to my teachers. I could get assignments moved. And going to college, you definitely can't do that” (2-1098). He further described his transitioning process, as evidenced by the fact that he replaced deception with increased learning and study skills, as well as focus planning and hard work. Many students alluded to a similar transition and adjustment in their thinking about assignments.
One of the biggest adjustments that students discussed was being able to navigate the technological aspects of a college campus. Although very eager and receptive to the new technology, students described discomfort when first using technology on campus. For example, students experienced transition and adjustment in becoming proficient in using Scholar, which is an online course management system used to access course materials, submit assignments electronically, monitor grades and performance, and stay in contact with professors. Joanna eloquently described how her experience in the VTSA helped her transition and adjust to using Scholar:

I think a big adjustment for me is online courses, submitting things online to the professor. I’m comfortable with it now but I know some students are still uncomfortable with submitting things online, doing on Scholar specifically. I know in Summer Academy, I had a hard time trying to learn the ways of Scholar where everything was, which tab is which, and when I went in the fall semester, I just felt a lot more comfortable. I didn’t have to worry about like going over at the site until midnight just to figure out what lines were which. I think that was an adjustment for me I had to do at summer academy. (4-0811)

Finally, students alluded to the fact that for many of them their transition and adjustment to college was not evident until the beginning of the Fall semester. James, like so many students, pointed to his VTSA experience as helping him to transition to the full college experience. He said:

I so see the overlap between what I was learning in Summer Academy and what I am experiencing now in college. And things just start to make since. So THIS is why they
had me do this. And THAT is why they had me do that. I hated it then. I'm grateful for it now. It was all a good transition that I am fortunate to be a part of. (1-0940)

Students clearly referenced their participation in the program as influencing their ability to make decisions — many students experienced an emotional change and heightened maturity in reacting to certain stimuli. For example, many VTSA students described that they became more approachable with respect to meeting new people as a result of the summer program. Reagan stated that he was “more outgoing, more personable to people. I'm not like the same shy person. When I'm around people I'm just like, ‘Hey how's it going?’ I'm more personable, more friendlier to people” (2-1119). He credited the VTSA and the relationships he formed there and the encouragement that he had been given for his growing maturity. Joanna, a self-described shy loner in high school, said that she too experienced an innate change that made her more personable and relaxed around other people. She coined herself now as a “social butterfly” and alluded to her newfound ability to meet people. In fact, this change had been recognizable by those who knew her in high school:

I know before I went here, before the summer academy, I was kind of reserved. So like now I’m able to just go up to someone just like, ‘Hey my name is Joanna. How are you? What’s your name?’ I’d just shake their hand. Beforehand, I wasn’t that kind of person. So I actually met some of my high school friends back here and they came up to me like, ‘Joanna, you're like a completely different character now. I didn’t even recognize you.’ Summer academy really did make a difference for me socially and academically. (4-0831)

This discussion led to an important discovery about transition and adjustment. Through their participation in the VTSA, students described finding themselves into new situations that
required the development of key life skills. Thus, these students grew in maturity as they faced new responsibilities and circumstances. For example, VTSA students described situations in which they would have once relied on their parents’ guidance and instruction to solve certain problems or to meet certain responsibilities. Gavin, for instance, described having to set his own alarm; Joanna described having to budget her own funds; and Danielle talked about having to find a dependable way home.

Morgan further highlights this issue of increased maturity when he discussed the challenge of taking care of himself when he became ill— an experience that he felt he was both ill-prepared and ill-equipped to handle. He said not having his parents to handle the situation prompted him to step it up and become more responsible:

For me… I got really sick during Summer Academy, and I had to go the doctor by myself, contact my professor by myself, but she was really helpful, it's like we'll figure…get better and then we'll figure out what we need to do, because it was towards the end, you can either finish now or you can finish in the fall, she was really supportive. But being sick, I didn’t have my parents there to help. So, I mean, I kind of had to defend for myself. (2-0948)

As results of his participation in the VTSA, Cameron described how his new maturity extended to becoming more responsible at home:

Before I went [to the VTSA], I wouldn’t do laundry. Actually, before I came here, none of that, I didn’t have that independent responsibility before Summer Academy, but I come home from a holiday, I went for one week… But when I came home, this was like out there for me: I mowed the lawn. I cleaned the house. I did a lot of stuff because I learned to keep house… I learned all these different responsibilities that you have to
have. So I come home, I feel a need of something, to clean, I come home, I did dishes, anything needed to be done in the house. If something was broken I fixed it that day, … Yeah exactly, and I would never have that transition before I had to come to the Summer Academy. (2-1145)

Finally, expanding on the idea that participation in the program engendered increased responsibility and growth through heightened maturity and decision-making, Joseph mentioned that he watched other students make rash decisions as a result of peer pressure. He attributed their lack of maturity to residing in tight living conditions, being influenced by exposure to the bad decisions of others, and to not wanting to be left out.

Joanna describes how she had to evaluate her values and beliefs carefully before succumbing to peer pressure:

I think for me, what was challenging was there was some serious peer pressure maybe. There were like a lot of new experiences that I had to go through that I’ve never experienced back at home. So having to meet with all these new friends and they’re doing different activities that I’ve never done. I’m not sure if I want to do the same thing. I had to make choices, difficult choices for myself. I think that was one challenge I had to do during the summer academy. At times it was a test of my moral ethics. (4-0448)

Likewise, Danielle described being tempted with drinking and smoking and having to exhibit a heightened maturity to say to no to wild behavior. She confessed:

It's like you don't know what you're going to say or do until you're actually in that situation so yeah, it's like when you actually do say no, or this and that, you just know what kind of person you are. Summer academy really let me know the kind of person I am (1-0678).
James, too, spoke about drawing from his family values to ward off certain behaviors. He said rather adamantly:

> It was a real experience to put it into practice, say, like ‘How strong am I in this? Am I really that strong with what I believe, with what my parents taught me?’ stuff like that. So it was like when things would come up where, it's like would offer me this thing or opportunity to kind of go against those, I was like, ‘No, I don’t like it.’ It was like ‘Oh, cool.’ It was like, ‘I can do this kind of’ [laughter]. (1-0777)

The students also discussed a growing sense of confidence, which is generally described as a sense of being certain that a hypothesis is true or that a chosen course of action is accurate. Self-confidence, then, is the belief within oneself that one is able to do things successfully. Students repeatedly linked their experiences in the VTSA to increased feelings of confidence and motivation. Based on his involvement in both the academic and social activities of the program, Cameron reported that he felt more like a sophomore than a new freshman. He described that his involvement with VTSA helped him to release his college “jitters” at a faster rate in comparison to non-VTSA freshmen:

> With the people around me now, they kind of have the shy freshman thing, just when they say hi, they kind of look downward or.... Sophomore people are laid back, they kind of know the path a little bit more; they kind of know the campus. I felt like I knew the campus really more. It was nice; I felt like a leader of my peers. (2-0893)

Gavin, too, shared that through his experiences in the VTSA he felt more confident in his abilities than his peers:
And I think everyone else around me, like still feel they're kids in college. I feel like that the whole freshman year. I think because we got to Summer Academy, and because we're so close, that we were able to grow that much faster. (2-1169).

Finally, Joanna summed up her feelings of confidence by saying, “I feel like really super freshman. An elite freshman” (4-1025).

In viewing confidence through a different lens, Carrington, like so many students, referred to her increased feelings of self-confidence based on the successful completion of certain projects. She mentioned that finishing assignments resulted in sort of a “snowball effect”—that accomplishing goals increased her momentum and bolstered her confidence:

Sometimes I don't think I'm as talented as I am, and I don't know like certain projects, the way we have to approach them. When you finish it, it's like, ‘Oh my gosh, I can't believe I just did that.’ So you learn many things about yourself. It was a little self-confidence and reassurance at the same time. (3-0235)

Bobbie, too, referenced her newfound confidence to discover and try new things as a result of being in the VTSA:

I know before I went here, before the summer academy, I was kind of reserved. So like now I’m able to just go up to someone just like, ‘Hey my name is Joanna. How are you? What’s your name?’ I’d just shake their hand. Beforehand, I wasn’t that kind of person. So I actually met some of my high school friends back here and they came up to me like, ‘Joanna, you're like a completely different character now. I didn’t even recognize you.’ Summer academy really did make a difference for me socially and academically. (4-0831)
Theme: Discovering Social Life

While most students recognized that they were in the program for academic reasons, another motivator was the chance to discover and enjoy both structured and spontaneous social activities with others. When asked about what was most motivating about the program, students identified several key activities that provided them with both entertainment and pleasure. Through these activities, students had the opportunity to discover new things, create and foster relationships, and interact and exchange ideas with students.

Participants openly shared that when they were willing to discover new things through fun social activities in the program they experienced personal development. This occurred through structured activities created by peer mentors of the program, as well as spontaneous activities and improvised recreational events. Examples of structured social activities include salsa dancing lessons, an outing to Salem (VA) Fair, tubing, hiking, a summer Blacksburg fair known as “Steppin’ Out,” a Fourth of July cookout, skating, and lazer tag. Spontaneous activities included soccer, baseball, kickball, volleyball games, water gun competitions, card and board games, sleepovers, and impromptu visits to shops and restaurants.

For some students, participation in the social activities gave them the opportunity to discover and experience new things. Danielle, for example, enthusiastically described how her participation opened her eyes to new interesting places and things:

I’ve never been tubing. I’ve never been in a lake before, so it was a first time experience. It was awesome. The mountain climbing, the hiking thing. I hated it [laughter], but it was nice when I got to the top. It was hot and it was horrible but it was fun. I love it. (1-0221)
These opportunities seemed to help her develop a new attitude toward trying the unfamiliar, as well as the courage necessary to experience the unknown. Morgan, however, referred to how many students used socializing time as a much needed stress reliever. “During the weekends, we're going to the river and the Cascades and stuff, you know during the week if you were doing your homework and you needed your mind off something, there's always somebody outside playing volleyball or friends down the hallway you go talk to” (2-0641).

Boredom did not seem to resonate with students in the program, in fact, students discussed how they were in a constant state of “doing something.” Students often flocked to social activities in celebration of all the hard work and effort that they were putting in class or to complete an assignment. According to Liam, the fun activities at the end of the day were like “icing on the cake” after successfully completing a rigorous day. Liam added:

For engineering it's basically like 10:00 o'clock, work all day until, like… Well, we got a class at like 3:00, then we did a few more homework, and then after you've done your homework, there was just like time to just party, just like having a good time, hanging with your friends. Volleyball at 12:00 o'clock at night. So you really worked on your homework to be able to have a good time. (2-0801)

Similarly, Carlyle described a time when students were so committed to a recreational activity that they were reluctant to abandon it—even in the face of dreadful weather.

This one time, we were like out there, and the game was so fun, and it was getting really intense, and it was raining… I mean, it was like a freeing hurricane. [shakes hands] It's like thunder and lightning, and we didn’t want to stop. It's like the game was that intense. It was just awesome! (2-0425)
Finally, students gave personal testimonies regarding how the environment of the program provided for involvement in certain social activities that helped to improve their overall wellbeing and stimulated their personal growth. Because students shared similar interests, the affinity for developing relationships with each other was natural. Carrington talked about how from the very first activity in the VTSA, she was encouraged to meet other people. This theme became a running thread throughout the program:

Oh, we had a cookout. For the 4th of July, we get everybody to come out because we had just got there. I think we got that was the first activity. Yeah, so everybody just was meeting everybody and…Everybody met everybody, threw water balloons, had food, and just got to introduce yourself. (3-0137)

Reza laughingly spoke about an impromptu video shoot that encouraged students to interact with each and foster relationship-building:

Well, yeah, bonding, but after tubing I remember this, because it was really funny. Driving back in the van we did a ‘Call Me Maybe’ video that we did. It’s actually on Facebook. We were just interacting with each other. And it was nice because you knew everyone on campus. (4-0284)

Bobbie described how important the social activities were to getting to know other program participants, which she contrasted with the later fall semester when it became more difficult to connect:

Probably, like once a week, we had some sort of like social, or even like the Fourth of July cook out, or whatever, sponsored and stuff like that that the PMs put together. I was just thinking about this the other day, ‘There are so many people that I don’t know’ [right now], and I was like the summer academy, I knew everyone with the exception of a few
kids. I was like, how did that work? I was like, oh wait, we had stuff together, like as a group. It was really to bring everyone—to get everyone to know each other through random activities. Every time you met someone new or really got to start talking to someone new. (4-0243)

**Theme: Facing Academic Challenges**

Students identified their engagement in the VTSA as an essential introduction to subsequent academic challenges in college, wherein they needed a variety of learning and study strategies to complete tasks and assignments. Students described the need for enhanced critical thinking skills, time management techniques and fresh approaches to learning. Tasks such as note-taking, group study, practice, memorization, and interpreting material in one’s own words were often highlighted as key intellectual strategies to learn the material. For example, James listed a host of strategies to meet the cognitive rigor of the Architecture program:

> With Architecture, it was almost always busy. It’s just kind of -- it was kind of like Architecture immersion where it's like it gets you -- gives you a taste of how busy architecture students can be where it's -- and it's not like regular homework or it's like long reading assignments that you'd read and essays that you have to write but it's work, working with your hands, creating things like within college studies within college studies, within depth, with an order. (4-1150)

Students described many intellectual challenges often linked to college course work that required them to move beyond the memorization of certain terms to more complex problem solving comprehension, and synthesis of the material. The accumulation of reading material was one source of challenge where students were asked to read pages and pages of material in preparation for their next class—this daunting task was more quickly paced than high school and
required focus, new approaches to application of the materials, and time management. Joseph explains his take on the more in-depth reading requirements:

I had quite a bit of reading actually because of two history classes and I’m going into engineering. I prefer math and physics, sciences but having usually about 40 pages of reading -- or less than that. I guess 30 to 40 pages -- really taught me to sort of skim through materials. I was never good at reading and sort skimming for valuable information and now I’m in an engineering class that unfortunately requires a lot of reading. We'll just sort of highlight -- I now highlight stuff. I never highlighted anything in high school. (1-0450)

The introduction of more complex assignments was also an academic challenge. The process would include knowing the expectations of professors and understanding the need for work that showcased intricate comprehension of and connection to the material. To complete assignments in full, students were expected to be able to define concepts and draw conclusions that moved beyond the more fundamental requirements in high school. This would come as a shock to some students, especially those who performed successfully in high school. Danielle, speaking about her roommate here, described the discomfort of receiving an unsatisfactory grade on an assignment – a lesson that she explains that will help her in future coursework:

Just with study skills, time management, knowing what a professor requires -- my roommate, her professor during the summer -- she was wondering why she got a C on her paper. Her professor told her it was because ‘you gave me exactly what I wanted but if you want that A, you need to do way more. You can’t just be average anymore. You have to be more.’ Just knowing that, just having that in the back of my mind so I know that I have to just work hard and just go on. (1-1301)
Many students spoke about the academic rigor of their coursework, which motivated them to put out more effort to meet those academic challenges. Carrington stated: “I worked so hard. I made sure everything I did -- I'm not going to say perfect because nothing is really perfect, but it was to my standards” (3-0125). Bobbie spoke about the significant effort and energy that she put forth to meet academic challenges. She described often having to forgo hanging out with friends to meet the requirements and expectations in her coursework. It was indeed a learning experience that paid off:

I was in the Biology track and I ended up getting an A in every class so … I definitely, definitely worked hard… I worked my butt off… Dr. Simmons test were hard. So if you don’t put forth work you’re not getting in there. For me it was, ‘Oh hey do you want to go outside and play volleyball?’ Dude, I watched like Mean Girls and I had to be like, ‘Oh I can’t I have my exam tomorrow. I’m going to go to Torgersen and study,’ or whatever. (4-0397)

Finally, students discussed new approaches to teaching and learning in their coursework. Although the teaching style was very different from what they had experienced in high school, many students felt invigorated by the change. James suggested that his views of teaching and learning evolved as a result of his participation in VTSA. He, like many students, described the process of “learning how to learn” using cognitive processes such as problem solving, practice, and even trial and error as tactics to complete coursework. He said, “It felt good. It felt -- it was a great new way of learning. It was like -- it's just something new. It's something cool, better than having just this big messy stack of papers I usually have by the end of the school year” (1-400). Similarly, Kennedy added this observation:
The teaching style was very different. Because in ACIS 1504, it was like lecture and then read the book, but when it came to the test time, you had to figure out, although the chapters weren't extremely long, you had to go and figure out what you needed to know for the test. It wasn’t like back in high school where someone would explicitly tell you what you needed. Back in high school, it was like you need to figure out what you need to know. Now in college, and by the time you take the first test, you kind of know, got a feel for that professor's test, but you know it's different. (3-0156)

Theme: Clarifying Motives

In describing the many mental and physical challenges to which they were exposed as VTSA participants, students were able to illuminate a variety of internal, external, and cognitive sources of academic motivation that would contribute to success—both in the VTSA and throughout college. Students provided many examples of how participating in VTSA positively influenced their academic motivation and thinking about college. It was here that the findings were much more diverse regarding the energy that drives students to achieve in the VTSA.

For example, students often spoke about how the goal of getting good grades in the VTSA was a primary target and academic motivator. Ashlyn honed in on the importance of grades: “I just wanted to get really good grades [laughter]” (2-0070), while Morgan laughingly told a story about how he had to remind his peers that grades were most important: “I remember once, me and the guys were talking, that it's like I said some remark that grades are really important to me, ‘we got to focus.’ They all kind of looked at me funny, I'm like, ‘Guys, come on, that’s why we're here.’ You know, like, ‘Oh, yeah that’s right.’ [Laughter]” (2-1035).

Other students described the financial burden of participating in the program—as well as their undergraduate college years—as a heavy motivator for them to succeed academically.
Many acknowledged the sacrifice of their parents to cover tuition and material costs. Carlyle said that when he was ready to give up while working on a rigorous assignment, he was reminded of “all the money we spent on this, it wasn’t too cheap” (2-0823). Joseph acknowledged that the fact his father was paying for tuition triggered him to perform successfully:

I’ll just say part of what made me motivated to succeed is thinking about my dad, and he’s paying for most of my tuition right now, and at the end of senior year of high school once I realized that it was going to have to come from his pocket…I sort of thought about all the people who invested in my life, whether it was time or money. I realize that I didn’t really want that to go to waste. (1-0662)

Important to note is that many students found other people to be an external motivating factor. Their relationships with parents, professors, and peers, for example, served to help them discover and achieve for greater potential and to maximize their performance towards success.

Joanna said outright that her parents were a source of academic motivation:

I guess my parents motivated me. For me they were constantly calling me and asking me like, ‘how was class Joanna?’ It was kind of annoying but at the same time I know they wanted me to the best experience and to wish me luck. They really motivated me to get good grades in the summer academy. (4-0683)

Cameron, describing how he wanted his parents to be proud, explained:

You feel sorry for your parents and yourself when you do something like that? Just give up. Yeah, and I think that if I got through it, like I said, in difficulty lies opportunity, that the harder it gets, the better, more reward you'll get for it. So that’s kind of my
philosophy through the whole VTSA. The program kicked my butt, and I feel a lot better because of it. (2-0826)

Not only were parents seen as motivators, students also viewed the role and feedback from professors as a motivating factor. Liam said, “My professor was just so nice; I wanted to do well just to please her. Since she was giving so much, I just wanted to do so well just to make her happy” (2-0799). Danielle said that her professor’s feedback was motivating when she felt depressed about the workload and whether she could meet what she described as “tumultuous” responsibility:

I actually talked to my advisor, and he was like, ‘What are you talking about? Every freshman goes through [depression].’ It’s like you’ve just got to keep on going. There’s nothing to worry about. You’re doing fine. It was like that was something I really needed to hear. (1-0710)

Finally, Bobbie described that teamwork and friendly competition with her classmates were highly motivating to succeed in her coursework:

We’re having like a friendly competition for every test—afterwards we’d have the test, and we try to compare and see what answers we got wrong. I remember one test I got the highest grade and I was like [laughter] [shakes hands], and it was just motivating because you guys were in a class that you pushed each other and had that little kind of friendly competition where you’re just motivated by that. (4-0646)

Many students described an internal motivation to achieve goals. Danielle put it this way: “For me, I just knew -- well, for me, it was like what else am I going to do but succeed?” (1-0712). Joanna spoke with pleasure about her successful academic performance and motivation: “What was motivating was that you’re trying to be better just for yourself. It was so
motivating for me to just get it and when I got it, it was good. And when it was good, it was great” (4-0654). James also reflected on the importance of self-motivation to achieve success:

It was like motivation, knowing that the amount of success is dependent upon the amount of effort so it was like we wanted to succeed. We know that we’re going to have to give it our all and it's where -- it's like that's where the self-motivation came from, from knowledge of already knowing how to succeed so although there was -- all things are new except for how to succeed. (1-0705)

Almost in tears, Kennedy (a first-generation college student) described how she was internally motivated to succeed by being an education-trailblazer in her family:

I feel like I'm going to motivate myself. I feel like coming to college was huge in itself already. My momma didn’t graduate from college, my daddy didn’t graduate from college; my Stepdaddy didn’t graduate from college. This will be huge for me but also for my family. (3-0478)

Participants frequently spoke about how participating in VTSA helped them to develop an interest in a particular discipline. Through both exposure and discovery, students expressed that their motivation for academic learning increased for a variety of reasons. Liam reported that his interest in accounting increased:

It solidified my interests and my plan. I took the two business classes, and it just like reassured me that this is exactly what I want to do, because I enjoyed it, I was good at it, and it's like re-solidified what I already knew to be true for me. It’s like [pops collar] ...this is what I want to do. (2-0676)

Kennedy also described her increased motivation for studying accounting based on exposure to certain projects:
When I filled out my application, I put the wrong major, so I just switched to university studies, but I knew I wanted to be an Accounting major, but I wasn’t sure. Besides I'm in the Business Information Systems major, and the ACIS II like the different projects that we did, the budget project, Excel project, PowerPoint projects, all projects we did, I think I kind of found out I want to be an Accounting major. (3-0241)

Bobbie echoed the comments of many students in stressing that her professors helped to increase her interest in majoring in biology. Specifically, the curriculum they presented and their teaching style reinforced her motivation for studying biology.

Specifically, Dr. Simmons he made the class very interesting.... Taking Bio in summer really opened my mind to the fact that Biology can be interesting more so than I thought it was before. And it really solidified that this is what I want to do. (4-1164)

Seeming somewhat surprised, Carrington articulated that studying architecture through VTSA heightened her interest in pursuing it as a major. She added that her classroom experiences not only resulted in academic successes, but personal advances as well:

I can say it was nothing like I expected it to be but it was like, ‘Oh yes, I know that I want to do this for the rest of my life.’ Even though it's so hard, I was happy with the results that I came out with. Like most of my work, the things that I've learned new about myself. (3-0231)

Similarly, Joseph voiced how participating in VTSA coursework helped to increase his motivation for pursuing engineering as a major and later as a career. He explained that the VTSA encouraged him to:

…continue the interest and building in interest of engineering for me. There are opportunities of research and I’m always fascinated by different -- of how stuff works.
Love physics class and I think fostering that interest with physics class maybe would push me even further towards wanting to graduate, going to a graduate research program or a lab or something like that. (1-1229)

Other students also articulated how their engagement in the VTSA stimulated them to create many future goals for their academic and personal lives. Through experiencing what being a student at Virginia Tech had to offer, many students were able to craft a clearer vision of how to spend their college years. Cameron spoke about how he had outlined and was working toward his plans for “getting involved” in clubs and organizations in college, a future goal that he had not visited before participating in the VTSA:

I never thought of getting involved, most of all, [through the] Virginia Tech Summer Academy, I was really thinking of like taking just nineteen credits, maybe doing engineering frat just to give me a little bit of experience, maybe robotics or something, but nothing could’ve made me do clubs. I mean I wouldn’t have done … you know, the clubs I’m doing now. (2-1025)

Reza too expressed his interests to get involved in the clubs and organizations at Virginia Tech as a result of his experiences in the VTSA: “Since leaving Summer Academy, I just want to get good grades and be involved in a lot of clubs and stuff. Because there’s a lot of clubs at Virginia Tech. You can’t do them all but there’s a lot of them that seemed like really fun like scuba diving, archery” (4-0968).

When asked about what was next for them after their participation in the VTSA, all of the participants planned on emerging from Virginia Tech with a degree in hand. With conviction, each student voiced an increased motivation and ability to be able to graduate from college. For
example, Carrington said, “My goals are definitely to graduate from Virginia Tech” (3-0461). Kennedy responded with, “I have one goal [holds up one finger] to graduate” (3-0463).

As a final point, many students expressed increased optimism about achieving future goals. As Bobbie, put it, “I feel as though anything’s possible. No, I really do” (4-1005). Students continually referenced that through their participation in the VTSA, they were more motivated to reach their dreams and possibly create new ones. As James stated:

I know. This is the part in our lives where it's like we take life by however we want to take it, and it's like making it into what we want. It's like we have the dream of doing it. All we've got to do is have the motivation and skills for it and just go out there and do it, isn't it? My experience in summer academy was motivating in itself. I learned a lot there. (1-1373)

Daniele stated how her VTSA experience encouraged her to follow her dreams to become a veterinarian:

I feel like -- I know this might sound really corny and Disney-like, but your dreams can come true. [laughter]. I know, but I’m serious. Where I live, where I came from, it was just like I was just surrounded by people that were so small minded. When I told them, ‘Oh, I want to be a veterinarian,’ they look at me like ‘What?’ I’m like, ‘Yeah.’ And they were like, ‘No. You should be in business or cosmetology or managing something.’ ‘No. I want to be a veterinarian. I want to do it.’ ''They were like, ‘how are you going to do that?’ I’m like, ‘I don’t know.’ [laughter] But when I came to Summer Academy, nobody said anything negative against me being a veterinarian. Everybody was just like follow your dreams… ‘Hell yeah… Be a veterinarian!’ (1-1363)
Theme: Developing Community Pride

Students continually referenced a sense of belonging to the Virginia Tech community as a direct reflection of their experience in the VTSA. Evident from student conversations, participation in the program seemed to reinforce their ties to the campus community over time. Students were able to integrate into VT traditions and see themselves as a piece of the larger puzzle. For example, students often spoke of themselves as being “Hokies,” a nickname for a VT student. As Kennedy noted, “Having been a part of the Summer Academy, I am a Hokie. [Laughter]” (3-0343), while Joseph laughingly shared that he felt “very Hokie-like” (1-0320). Joanna said that when she shared her experiences in the VTSA with her non-program peers, her feelings of being a part of the campus clicked for her:

One thing that I heard the entire time, this was implied when I was talking to people over and over again, ‘Oh, I wish was you, I wish I could do that all.’ And that made complete sense. If I could do it all, I'm going to back to Tech and start all over again. And I'm like, actually this Summer Academy thing, it just made complete sense. Because me, I'm just having a great time. ‘I’m a Hokie.’ (2-0977)

Joseph highlighted the attractive diversity within the summer academy and at Virginia Tech:

It’s that diversity that makes, I think, Virginia Tech so special, not just the summer academy but in the university. We love the open mindedness and accepting people of all kinds, race, culture, religion. So with the summer academy – it just made you feel a part of it all, a part of Virginia Tech. (4-0453)

Participating in VTSA seemed to reinforce strong feelings and acquire a new vision for the university. As Carlyle said, “I fell in love with [Virginia Tech] more and more each day I guess,” (2-0974), noting that as he discovered more things about the campus his appreciation for
Virginia Tech grew over time. Similarly, Bobbie said that through her experiences she wanted to inspire others to become a part of the campus. She described how her feelings about Virginia Tech were established:

The summer academy really just made me fall in love with the vibe of the campus, and Blacksburg too, just everything. I don’t know how many times I tweeted about college, and loving Virginia Tech, and it just being so fun. It made me so enthusiastic about Virginia Tech that I am determined to become an ambassador so that I can share that with people who are considering it and be like, ‘look, I don’t know you but really just come here because it’s so awesome.’ You kind of get to feel, like in the summer academy specifically, that you own Tech, because no one is here. You can walk in the drill field, and no one else is out there, which you can’t do now. You kind of feel you become a part of the campus. (4-0902)

The VTSA experience also seemed to make some “believers” out of skeptics. Specifically, Cameron indicated that he was embarrassed to have chosen VT—until participating in the VTSA. He mentioned that some of his peers viewed Virginia Tech as the “poor stepchild” to an Ivy League institution. In the end, Cameron chose Virginia Tech through a cost-benefit analysis, but felt as though he had “settled.” However, he described an innate change regarding his choice that came about from participating in the VTSA:

Like I said, I actually didn’t visit this college before I came here, but what made me want to come here was there was a third the price of Cornell, and after that, I'm like, ‘it won't really matter.’ So I come here, that’s very decent for Engineering, and I come to Summer Academy, then I really got a good feel for it. I really liked Virginia Tech after that, really gave me like a…I felt kind of ashamed to come here at first, after this, I really felt like I
belong to the mold, and I fit the campus. It wasn’t ‘til after Summer Academy did I feel that way. (2-0964)

Joanna echoed that she had initially chosen the University of Virginia over Virginia Tech, but that through her experiences in the VTSA she had a different perspective of the campus: Well, initially I actually wanted to go UVA, that was my number one school and I actually got accepted there, so when I went to campus and see that it was open housing, it was pretty cool, but at the same time there wasn’t that much there and the campus was not as friendly actually. I guess that’s what a lot of people would say about UVA, as well, when they choose Virginia Tech. The summer academy, campus was social and lively, and people there have a different perspective of how to treat each other just with a warm smile, a nice firm handshake. They were willing to help you, so here in the Virginia Tech it’s nice. (4-0877)

Objective Six: Interpret and Explain Significant Factors of Student Engagement Influencing Changes in Academic Motivation among VTSA Students

The use of mixed-methods approaches in this research study provided a clearer picture and understanding of the influence of the level of variation in student engagements and factors that advance student academic motivation in the Virginia Tech Summer Academy. Data was merged from a quantitative assessment using the LASSI to assess changes in academic motivation with qualitative findings from the focus groups regarding student participants of the VTSA.

Using purposeful sampling, students were grouped based on their quantitative change scores on the Motivation subscale of the LASSI to identify subgroups for follow-up qualitative questioning through focus groups. Based on their LASSI tests results, students in Focus Groups 1
and 4 were classified as high motivation, while students in Focus Groups 2 and 3 were grouped as low motivation. Themes identified from qualitative data in Objective 5 were matched to both low and high motivation groups as depicted in Table 4-8. As organized in the table, all seven themes were evident in both high and low change groups: Preparing for College, Developing Relationships, Adjusting to College, Discovering Social Life, Clarifying Motives, Facing Academic Challenges, and Developing Community Pride.

Table 4-8.

Qualitative Themes Associated with Quantitative Changes in Academic Motivation

<table>
<thead>
<tr>
<th>Group</th>
<th>Academic Motivation</th>
</tr>
</thead>
</table>
| High Change | Preparing for College
               Developing Relationships
               Adjusting to College
               Discovering Social Life
               Clarifying Motives
               Facing Academic Challenges
               Developing Community Pride |

| Low Change  | Preparing for College
               Developing Relationships
               Adjusting to College
               Discovering Social Life
               Clarifying Motives
               Facing Academic Challenges
               Developing Community Pride |

Summary

This chapter described the research findings related to each of the objectives used to examine the relationship between student engagement in the Virginia Tech Summer Academy Program and changes in academic motivation. An overview of the quantitative results of this study was provided to describe the sample of student participants of the VTSA, determine
students’ academic motivation before and after the program, determine students’ level of student engagement in educationally-purposeful activities, and to explain the change in academic motivation in relation to VTSA student engagement and demographic variables. Findings from focus groups were presented as qualitative data to explore students’ perceptions of their engagement in the VTSA program and connections to academic motivation. Also outlined in this chapter were the results of the mixing of the quantitative and qualitative data to interpret and explain significant factors of student engagement influencing changes in academic motivation among VTSA students. The final chapter, Chapter 5, will discuss the results of this study and present conclusions, implications, and recommendations for future research and practice.
CHAPTER FIVE:
SUMMARY AND DISCUSSION

“But today our very survival depends on our ability to stay awake, to adjust to new ideas, to remain vigilant and to face the challenge of change.”—Martin Luther King, Jr.

Problem Statement

Increasingly, four-year colleges in the U.S. are enrolling students in first-year experience programs to combat low retention rates (Jamelske, 2009), particularly among higher risk populations such as first-generation, minority, and academically-unprepared college students. In fact, researchers have concluded that billions of dollars have been earmarked to support the creation and implementation of these first-year experience programs as a component of university accreditation plans to improve academic achievement and performance (Brock, 2010; Lotkowski et al., 2004). Among the variables to assess in examining student retention and the effectiveness of student retention programs is student motivation, which Allen (1999) linked strongly to academic achievement, student satisfaction, and student persistence.

Students who are highly motivated to learn and excel in the classroom are more goal-directed, expend more effort toward their academics, and make better use of cognitive strategies; in short, motivated students are more inclined to persist beyond their first year and earn a diploma (Allen, 1999; French & Oakes, 2003; Lynch, 2006; Skinner & Belmont, 1993; Stefanou & Salisbury-Glennon, 2002; Watson et al., 2004). Allen linked a student’s academic motivation to complete college as a form of goal commitment in student retention, and suggested that an important contribution in understanding the determinants of student persistence behavior might be to investigate the consequence of motivation.
Stefanou and Salisbury-Glennon (2002) stated that the ways in which a learning environment is structured and presented can encourage motivation. In a corollary study, Kuh (2001) explained that learning environments should engage students in educationally-purposeful activities. Also important, Kuh et al. (2008), using the SEPA, found that “student engagement in educationally purposeful activities during the first of college had a statistically significant effect on persistence, even after controlling for background characteristics, other college experiences during the first year of college, academic achievement, and financial aid” (p. 551). Earlier, Strumpf and Hunt (1993) argued that many retention intervention studies have not correctly accounted for the influence of motivation. Allen (1999) reiterated this finding, stating that evidence of the impact of such interventions, especially their impact on student academic motivation, was lacking. In addition, it is not clear to what extent student engagement and other measures of effective educational practice contribute to motivation, achievement and persistence. Through a meta-analysis of research, Pascarella and Terenzini (2005) found evidence to suggest that student participation in first year experience programs provide as a minimum an indirect influence on student grades and various dimensions of academic and social integration. These general findings led to this study of the relationship between participation and student engagement in educationally-purposeful activities in the Virginia Tech Summer Academy (VTSA) and student academic motivation.

**Purpose and Objectives**

The purpose of this study was to examine the influence of student engagement in the VTSA first-year experience program on the academic motivation of students. Specifically, the following research objectives guided the study:

1. Describe the sample of student participants of the VTSA program.
2. Determine VTSA students’ academic motivation before and after the program through pre and post measurement.

3. Determine VTSA students’ level of student engagement in the program’s educationally-purposeful activities.

4. Explain the change in academic motivation in relation to VTSA student engagement and demographic variables.

5. Explore student perceptions of student engagement in the VTSA program and connections to academic motivation.

6. Interpret and explain significant factors of student engagement influencing changes in academic motivation among VTSA students.

**Methodology**

Using a two-phase, sequential explanatory mixed-methods design (QUAN→QUAL) (Creswell, 2009; Creswell & Plano-Clark, 2011) this study investigated the empirical relationship between participation in the VTSA first-year experience program and academic motivation using both qualitative and quantitative data. Creswell and Plano-Clark point out that explanatory sequential design is completed in two phases: a quantitative data collection phase, followed by qualitative interpretation. Through a mixed-methods approach, this research design takes advantage of the strengths of both quantitative and qualitative techniques through interpretation garnered from breadth and depth analysis (Ivankova et al., 2006).

The initial quantitative phase of the study measured changes, if any, of first-year learners’ academic motivation through use of the Learning and Study Strategies Inventory (LASSI), employing pre-existing data. A second quantitative phase measured the level of student engagement in the Virginia Tech Summer Academy Program using the Scale of Educationally
Purposeful Activities (SEPA). The scale consists of three separate measures from the National Survey of Student Engagement (NSSE): time spent studying, time spent in co-curricular activities, and a global measure of engagement (Kuh et al., 2008). A total of 89 students contributed to the quantitative phase of the research. In the qualitative phase, 16 students participated in focus groups to explore results from the statistical tests, as well as student perceptions regarding their engagement in the VTSA program and their academic motivation during their first year.

Summary of Findings

Objective One: Describe Sample of Student Participants of the VTSA Program

Objective One of this research study was to describe the sample of student participants in the 2012 VTSA as measured through demographic data, past and current academic performance, and other unique characteristics. Demographic and basic descriptive data regarding the participant sample (n= 89) revealed a freshman cohort consisting of 68.5% (n = 61) males and 31.5% (n = 28) females. The majority 62.9% (n = 56) of the students self-identified as White, while African-Americans accounted for 15.7% (n=14) of the sample. The age range for subjects was 17 to 20, with 78% (n=70) of the sample aged 18 years. Finally, 20.2% (n=18) of the students reported as first-generation students—operationally defined by Virginia Tech as “Neither parent completed a Bachelor’s (4-year college) degree or higher” (Virginia Tech Office of Undergraduate Admissions, 2013, ¶21).

Twelve students (13.5%) were categorized as “Honors students,” operationally defined as eligible freshmen with a high school GPA of 3.80 and a minimum SAT score of 1350 or a minimum ACT composite score of 30. In addition, 31.5% (n= 28) of the students were categorized as Virginia Tech athletes governed by NCAA or ACC rules and regulations.
Academic performance variables included SAT Math scores ($M=604$, $SD=94$); and SAT Verbal scores ($M=557$, $SD=84$). For the 38 students who completed the ACT, the mean ACT Math score was ($M=26$, $SD=4.60$) and ACT English was ($M=25$, $SD=5.26$). A Standardized Test Score was computed to be able to compare academic performance across all students due to missing data—the mean Standardized Test Score was ($M=1167$, $SD=163.63$). Mean high school cumulative GPA was ($M=3.80$, $SD=0.48$). Finally, the mean cumulative GPA for entering freshman that participated in the VTSA was ($M=3.46$, $SD=0.5375$).

Finally, students were organized into 13 different tracks in the VTSA. Fourteen (15.7%) of the students were assigned to the Architecture and Design track, 14 (15.7%) students were Creative Leadership, while eight (9.0%) students were in the Ethics in the International Society track. Seven students (7.9%) participated in the Nutrition Foods and Exercise track; while there were three tracks that each consisted of six students (6.7%) including Engineering, Nutrition and Life Sciences, and Humanities and the Arts. A total of four tracks consisted of five (5.6%) students including Life Sciences, The History of American Political Machine, The Art of Thinking and Speaking, and The Role of Europe in the Evolution of the Modern World. Finally, participation for the remaining VTSA tracks was four (4.5%) students in the Business Information Systems and Critical College Communication respectively.

**Objective Two: Determine Change in Academic Motivation both Before and After Student Engagement in the VTSA Program**

This study employed the secondary analysis of LASSI Motivation Subscale data from the Virginia Tech Office of Summer Sessions. Both pretest and posttest data from the LASSI were used to determine the level of change after the intense six-week program of college coursework. Data was analyzed through a one-sided matched pairs t-test used to compare academic
motivation. Findings indicate a significant difference between the scores for the pretest before engagement ($M=32.16$, $SD=5.01$) and posttest after engagement ($M=32.98$, $SD = 5.15$); $t=-2.190$; $p=.031$. Results indicate that from pre-participation to post-participation in the VTSA program, there was an observed average improvement of students’ academic motivation with a mean difference of .82, representing a 2.5% increase in score. Cohen’s $d$, used to calculate the estimated magnitude of a relationship between two variables, evidenced a small effective size ($d=.161$).

**Objective Three: Determine Level of Student Engagement in Educationally Purposeful Activities**

The third objective of this research study was to determine the level of student engagement in the 2012 VTSA through use of the SEPA. Engagement was operationally defined as the aggregate score of the 19 test questions of the SEPA. Descriptive statistics revealed a minimum engagement score of 9 and a maximum engagement score of 53, with a mean sample score of 30.29 (SD=8.79). Mean scores reveal that students describe engagement at approximately 57% in relation to the maximum possible engagement score.

**Objective Four: Explain the Change in Academic Motivation in relation to VTSA Student Engagement, Demographic, and Academic Variables**

Objective Four sought to explain the relationship between change in academic motivation from the LASSI in relation to student engagement, demographic variables, and academic performance variables. Correlational analysis, using Pearson’s product moment correlations, was used to explore the relationship between academic motivation, student engagement, and academic variables. Multiple regression analyses were used to explain the relationship between the independent variable and the multiple predictor variables.
Results revealed a significant, negative relationship \((r = -.330, p = .00)\) between LASSI Motivation pre-test scores and athlete status. This correlation suggests that as LASSI Motivation pre-test scores increased, athlete status was less likely.

Results revealed a significant, positive relationship \((r = .234, p = .03)\) between the LASSI Motivation post-test scores and gender. This correlation suggests that groups of students with higher scores on the LASSI Motivation posttest would likely have more males than females.

Results revealed a significant, negative relationship \((r = -.287, p = .01)\) between LASSI Motivation post-test scores and athlete status. This correlation suggests that as LASSI Motivation posttest scores increased, athlete status was less likely.

Results revealed a significant, positive relationship \((r = .246, p = .02)\) between SEPA scores and first generation student status. This relationship suggests that groups of students with higher SEPA scores would likely have a higher percentage of first generation students.

As expected, LASSI test variables were highly correlated. LASSI Motivation post-test scores and LASSI Motivation pre-test scores were significantly, positively correlated \((r = .758, p = .000)\), indicating that increased Motivation pre-test scores were associated with increased Motivation post-test scores. Furthermore, LASSI Difference scores and LASSI Motivation pre-test scores were significantly negatively correlated, \((r = -.312, p = .002)\), suggesting a moderate relationship by Pearson. Results suggest that as LASSI Motivation Pretest scores increased, LASSI Difference scores tended to decrease. Conversely, LASSI Difference scores and LASSI Motivation post-test scores were significantly, positively correlated, \((r = .383, p = .000)\). Accordingly, as LASSI Motivation Posttest scores increased, LASSI Difference scores also tended to increase.
Multiple regression analysis was used to model change in academic motivation as a function of gender, athlete status, first generation status, college GPA, SEPA engagement, standardized test score, and honors eligibility status. The overall model proved insignificant ($F = 1.412; p = .213$).

A second hierarchical multiple linear regression model was fitted to the data to test the research hypothesis regarding differences in academic motivation using scores of the posttest in relation to student engagement, demographic variables, and academic performance variables, controlling for the effects of the LASSI Motivation Pretest as a covariate of the analysis. In Model 2a, results of a linear regression analysis indicated that the covariate was significantly ($F = 109.540, p = .000$) predictive of the posttest scores of academic motivation, accounting for 57% of the variance. Taken together, gender, honors eligible status, athlete status, first generation status, college GPA, SEPA Engagement, and standardized testing score, was significantly ($F = 15.521, p = .000$) predictive of the LASSI Motivation posttest scores of academic motivation, accounting for 59%, controlling for the interaction of the LASSI Motivation Pretest scores. The change in variance accounted for ($\Delta R^2$) was equal to .052, which was not significantly different from zero ($F =1.467, p=.192$).

**Objective Five: Explore Student Perceptions of Student Engagement in the VTSA Program and Connections to Academic Motivation.**

Objective Five was designed to explore student perceptions of student engagement in the VTSA program and connections to academic motivation as a result of having participated in the program. Sixteen students participated in focus groups that were used to investigate and explore student perceptions of their engagement in the VTSA program and their academic motivation during their first year of study. Qualitative analyses shed light on how students viewed their
engagement in the VTSA and the relationship between participation and change in academic motivation. Based on student descriptions of the factors that influenced their academic motivation, the following themes emerged about the relationship between student perceptions of engagement and academic motivation:

1. **Preparing for College.** Students described how participating in VTSA provided a variety of important structured and unstructured experiences that helped to familiarize them with college life prior to the fall academic term. These experiences prepared them for college life by familiarizing them with the campus under less pressured circumstances, by enabling them to get a head start on college courses, by increasing academic productivity, and by exposing them to diversity.

2. **Developing Relationships.** Students continually identified the role of developing relationships with peer mentors, professors, and peers as a key foundation for academic motivation and development in the program. Having the opportunity to create and build relationships with others provided students with the chance to network, connect with, and learn from professors, peer mentors, and peers as a means of educational, social, and personal adjustment for success.

3. **Adjusting to College.** Students explained that through both the academic and social activities of the VTSA, they encountered a variety of life-changing experiences that helped with their transition from high school and adjustment to college in a number of ways. Through discovering college life in advance of the fall semester, students were able to transition and adjust to the increased time commitments in college. The activities also heightened maturity in decision-making, and resulted in increased confidence that appeared to influence their academic motivation in college.
4. **Discovering Social Life.** Students viewed participation in both structured and spontaneous social activities as distinct opportunities to create and foster relationships, interact with a diverse set of students, and exchange ideas with others. Participation in social activities helped them to grow socially, at the same time facilitating learning.

5. **Facing Academic Challenge.** Students identified their engagement in the VTSA as an essential introduction to the academic challenges, roles, and expectations of college. When students experienced academic challenge in their VTSA courses, there evidenced the need to use a variety of learning and study strategies to complete tasks and assignments. Students noted the need for enhanced critical thinking, effort and energy, and also identified fresh approaches to both teaching and learning.

6. **Clarifying Motives.** Students provided rich conversation that illuminated a variety of internal, external, and cognitive sources of academic motivation to be successful both in the VTSA and in college. Students provided many examples of how their general experience in VTSA had an influence on their academic motivation and thinking about college, including future goals, task value, and major choice.

7. **Developing Community.** Students referenced a sense of belonging to the Virginia Tech community as a direct reflection of their experience in the VTSA. Evident from student conversations, VTSA students were able to easily integrate into Virginia Tech traditions from having had the opportunity to engage in a diverse mix of academic and social opportunities on a more personal basis—for example, by interacting with professors outside the classroom and attending University events.
Objective Six: Interpret and Explain Significant Factors of Student Engagement

Influencing Changes in Academic Motivation Among VTSA Students

The use of mixed-methods approaches in this research study provided a clearer picture and understanding of the influence of the level of variation in student engagements, as well as factors that advanced student academic motivation in the Virginia Tech Summer Academy. Results were compared across groups of students who experienced a high change in academic motivation and a low change in academic motivation. Themes identified from qualitative data in Objective 5 were matched to both low and high motivation groups (Table 5-1). As shown, both high- and low-change groups identified with all seven themes: Preparing for College, Developing Relationships, Adjusting to College, Discovering Social Life, Facing Academic Challenges, Clarifying Motives, and Developing Community Pride.

Table 5-1.

Qualitative Themes Associated with Quantitative Changes in Academic Motivation

<table>
<thead>
<tr>
<th>Group</th>
<th>Academic Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Change</td>
<td>Preparing for College</td>
</tr>
<tr>
<td></td>
<td>Developing Relationships</td>
</tr>
<tr>
<td></td>
<td>Adjusting to College</td>
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<td>Discovering Social Life</td>
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<td>Facing Academic Challenges</td>
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<td></td>
<td>Clarifying Motives</td>
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<tr>
<td></td>
<td>Developing Community Pride</td>
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<tr>
<td>Low Change</td>
<td>Preparing for College</td>
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<td></td>
<td>Developing Relationships</td>
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<td>Facing Academic Challenges</td>
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<td>Clarifying Motives</td>
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<td></td>
<td>Developing Community Pride</td>
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</table>
Conclusions and Discussion

First-year experience programs are becoming increasingly ubiquitous at colleges and universities across the country. Though they take many forms in terms of length, course offerings, the roles and responsibilities of all involved, and so forth, FYEs share some interrelated goals: to help incoming students connect with their university, feel comfortable on campus, to introduce them to roles and expectations of a college student, and start to think of their chosen institution as home. More importantly, they are widely promoted for their retention potential in helping freshmen transition successfully from high school to college. Although FYEs now have a 30+-year history, their efficacy remains largely unchallenged by rigorous mixed methods investigations, which is what prompted this research.

This study investigated the 2012 Virginia Tech Summer Academy using both quantitative and qualitative methodologies. The principal goal of the investigation was to examine the influence of student engagement in the VTSA first-year experience program on subsequent academic motivation. As noted, this research is preliminary and the findings are limited to the first-year student participants of the 2012 Virginia Tech Summer Academy. Data was obtained from a diverse cohort of student participants, 89 of whom participated in the quantitative phase, while 16 took part in the qualitative phase. In terms of the quantitative results, findings did indicate that participation in the VTSA yielded a 2.5% increase in academic motivation, as shown by LASSI Motivation Pretest scores and LASSI Motivation Posttest scores, over the course of the intervention. Although minimal in effect size, results of this research should still be considered to be significant, since according to a recent Harvard study “nearly half of America’s college students drop out before receiving a degree” (Waldron, 2012).
Correlation analysis revealed significant negative associations between LASSI Motivation Pretest and Posttest scores and athletic status. Further, a significant negative correlation resulted between LASSI Motivation posttest scores and gender. Finally, SEPA engagement scores and first generation student status were positively correlated. Contrary to prior research (Kuh et al., 2005; Pintrich & Zusho, 2007), regression analysis results from this study revealed no significant quantitative demographic, academic performance, or engagement variables that influenced a change in academic motivation. A linear regression analysis revealed no significant relationship between first-year student engagement, gender, standardized test score, athlete status, current GPA, and first-generation student status on change in academic motivation. A second linear regression also revealed no significant relationship between the variables, controlling for the Motivation Pre-test.

Qualitative inquiry, however, demonstrated positive outcomes associated with VTSA participation, including enhanced college preparation, the development of key relationships, higher levels of academic and social integration, the clarification of academic motives, and the development of community for all students. Important to note is that students articulated that these factors of student engagement were important to their learning outcomes regardless of their level of change in motivation. “The question then becomes whether intervention can change students’ academic motivation and social engagement factors. This is a key question, . . . as it drives what institutions and others can do to help students succeed” (Robbins et al., 2006, p. 614). Results of this study generally support the notion that participation in the VTSA provided a multitude of success factors and induced an increased level of motivated and self-regulated behaviors. Based on qualitative-based student perceptions, their participation in the program was integral to their success as first-year students during the fall semester.
Important to note is that the quantitative findings do not wholly align with the qualitative findings. This discrepancy could have several implications. First, quantitative findings emerge from an instrument (or instruments) designed to capture trends. Thus, preset answers may not fully represent how the students felt about the topic under investigation. In other words, results can be limited since they deliver numerical indicators of what is highly experiential and therefore do not fully capture the nuanced experiences of students. Conversely, although the qualitative findings point to a more positive view of first-year experience programs and their implications for motivation, this methodology is not without problems. Since data was collected in focus groups, students could have been influenced by the setting, the researcher, or their peers and provided responses that may not have fully indicated their true beliefs. Therefore, a future study could use a different instrument(s) to investigate the efficacy and long-term implications of FYEs at Virginia Tech, as well as on other campuses.

**Diversity of Student Participants in the VTSA**

As described in Objective One, results indicated a high level of diversity within the freshman cohort of 2012 VTSA program at Virginia Tech across pre-entry and academic success variables such as gender, race, academic/athletic achievement, first-generation status and anticipated major. Important to highlight is that enrollment in the program is self-selective and not based on “at-risk” status (i.e., limited to students who are academically underprepared, first generation college students, non-traditional students, or students of color.). In short, VTSA enrollment is currently open to all students who elect to participate in the program.

Data collected from the participants revealed a mixing bowl of genders, races and ethnicities, with differing levels of academic success, athletic status, first generation status, and major and/or track choice, among other demographics and academic performance variables. For
example, although Virginia Tech is a predominantly white institution with a relatively small proportion of African American students (a little less than 4% overall), this racial cohort comprised about 16% of the VTSA group. Other demographic differences did not mirror overall VT statistics and were unexpected. One such example involves gender differences. Although the 2012 freshman class was comprised of 45% women, only 31.5% of the VTSA students were women. Within disciplines in which women are traditionally underrepresented (e.g., engineering), the researcher expected a more balanced or at least university-representative number of participants. Another demographic difference was the high percentage of participants who self-identified as university athletes (31.5% of the sample compared to 2.1% of the 2012 freshman class at Virginia Tech). However, given the increasing pressure nationwide for college athletes to be held to the same academic standards as all students, the preponderance of university athletes in the VTSA program should not have come as a surprise. Indeed, future cohorts are likely to mirror this trend. Similarly, we did not expect as many honor students to enroll in the program. Twelve students (13.5%) were categorized as “Honors eligible students” with a high school GPA of 3.80. One possible rationale for the high number of students who had already demonstrated their potential for high academic rigor is the overall societal emphasis on achievement and competitiveness.

This mixing bowl of diverse profiles of student participants and the intricate relationship of student personal background characteristics supports the notion of increased diversity within college classrooms (Upcraft, et al., 2005). Researchers agree that demographic, psychological, cognitive, physical, social-cultural, and economic influences can and in fact do affect students’ performance and engagement, especially during the first year (Allen, 1999; Kuh, 2005; Noel & Levitz, 1995; Terenzini & Pascarella, 2005; Tinto, 1993; Tinto, 2006). For instance, Tinto (1993)
stressed the importance of pre-entry attributes such as personal and family backgrounds, skills and abilities, and prior schooling that can directly influence and shape student intentions and commitment to pursue a degree. Researchers stressed that student demographics along the lines of those found in VTSA are changing and require specialized support (Upcraft, Gardner, & Barefoot, 2005).

The concept of diversity is evolving and now includes “hidden” factors or those that are simply less well understood, such as political orientation, sexual orientation, teaching and learning styles, motivation beliefs, values, and interest. In short, the college campus is becoming an increasingly complex place presenting new types of challenges for institutions to effectively be able to support incoming college students and support a positive university culture. As such, researchers point out that first-year experience programs such as the VTSA should be actively aware of the diversity in their programs (Pascarella & Terenzini, 2005; Tinto 1993, 1996, 2006). As academia becomes increasingly aware of the complex personal, academic and social background of today’s college student, this knowledge may provide insight into some of the different and sometimes unexpected demographic profiles of students. This knowledge will allow us to better understand how to meet the changing needs of the average college student, especially to increase student academic motivation.

**Change in Academic Motivation**

The results of this study are encouraging because they suggest that a first-year experience program such as the VTSA can directly affect college students’ motivation towards learning activities during their first year. Findings from a matched pairs pre-post t test suggest that VTSA students are more inclined to exhibit self-regulatory strategies and motivational patterns that encourage their academic success (Flowers et. al, 2012, Weinstein & Palmer, 2002).
and Palmer asserted that when students demonstrate increased levels of *academic will*, they are more motivated to exert the effort necessary to be academically successful—which is a central intended outcome of the VTSA program.

Although a minimal change in academic motivation was found in this study—which at first glance was disappointing—upon further reflection it may represent entirely realistic results. In other words, the question for this study and others like it is what level of change should be expected over the course of an eight-week intervention? As discussed earlier in reviewing the quantitative findings, because so many students are at risk for not completing college (Waldron, 2012), even a limited change in academic motivation represents a gain for a program of this nature. Thus, in this researcher’s view, results from this study justify continued funding for the VTSA. This is not to say that an expanded longitudinal study of the program is not wholly justified. Given the possible confounding element introduced by the “self-selective” nature of the program, it may be that students who took part in this study were already highly motivated to engage in educationally purposeful activities. Thus, it could be that a different instrument and a different participant cohort could produce conflicting results.

What we know from this research and other studies is that students who are highly motivated to learn and excel in the classroom are more goal-directed, expend more effort toward their academics, and make better use of cognitive strategies; in short, motivated students are more inclined to persist beyond their first year and earn a diploma (Allen, 1999; Foxcroft, & Watson, 2004; French & Oakes, 2003; Lynch, 2006; Pintrich, 2003; Pintrich & Zusho, 2007; Skinner & Belmont, 1993; Stefanou & Salisbury-Glennon, 2002; Watson, McSorley, Foxcroft, & Watson, 2004). Additionally, as evidenced by their behaviors and articulated beliefs, the majority of VTSA students demonstrated self-regulated effort and motivation-oriented patterns.
that have been linked to higher academic achievement in their behaviors, thinking, and articulations to help them to reach their goals through their participation (Jones, 2009).

Understanding motivation is complex, thus possibly assessing student motivation should be just as extensive. Motivation was defined here in this study through the use of the LASSI test. Additional research is necessary to refine our understanding of student academic motivation—perhaps utilizing differing constructs to measure academic motivation. Extensive research has also been undertaken to validate student motivational orientation and the use of learning strategies through the Motivated Strategies for Learning Questionnaire (MSLQ). Pintrich (2004) and Duncan and McKeachie (2005) noted that the disadvantages of using self-reports to analyze student motivation or learning strategy use (which can vary by course) are delimitated through the use of the MSLQ because questions are focused at the course level, thus emphasizing the research study to one context. Although the MSLQ is designed to gather motivation and strategy use in a particular course, prior research suggests that certain non-cognitive gains in general curriculum courses may be transferred to other courses in a cyclical manner (Pintrich, 2004; Pintrich & Schunk, 2002).

It must be noted, however, that 35% (n=31) of participants decreased their academic motivation over the course of the VTSA. Realistically, no programmatic intervention can be expected to overcome a significant number of known or unknown personal or social factors that will impede a student’s progress. Research studies disclose that a large number of students fail to integrate the academic environment due to a lack of academic and/or social engagement. Possibly patterns of disengagement, perhaps most visible in student behavior and student culture, can be signaled as reasons for student decrease in academic motivation. For example, according to findings in The National Survey of Student Engagement (NSSE) annual reports (Kuh, 2005,
2006), most students find current teaching methods and approaches to be less engaging. Other research identified males, White students, and students attending public institutions as less likely to be engaged in college (Hu and Kuh, 2001). Could these factors be causes for a decrease in student motivation?

Further investigation of academic disengagement could help to identify specific reasons for this decrease, which are possibly linked to maladaptive psychological, behavioral, affective and cognitive outcomes as identified by Astin (1993). Another likely rationale for reduced academic motivation are the overwhelming challenges associated with college student development and emerging adulthood identified through Chickering and Reisser’s (1993) seven psychosocial vectors of developing competence. Future studies should be designed to assess these students in order to add to a more comprehensive understanding of the variables of engagement and motivation that are important to the departure puzzle.

**Describing Engagement**

As discussed herein, the ways in which students are engaged on a college campus has enormous implications for student success. Therefore, the topic of engagement has received considerable attention from educators. If engagement is to be fostered and encouraged at our colleges and universities, it is important to also examine the environment of learning that instructors create for students. Niskodé-Dossett and Garver (2009) had this to say on this topic: “Student engagement stems from a complex combination of factors, some squarely attributable to students and others that are the responsibility of institutional factors such as faculty and administrators” (p. 73). While engagement activities differ from campus to campus, they share a specific overarching goal: to promote student success by providing educational services that assist a diversified student population.
Research Objective Three served to describe student engagement in educationally purposeful activities using the SEPA. The SEPA is a reduced version of the larger College Student Report, which is acknowledged as the most recognized evaluation of student engagement. Results evolved a mean sample score of 30.29 (SD=8.79) which describes engagement at approximately 57% in relation to the maximum engagement score. Data is not conclusive and interpreting these results comes with caution as there were not other viable sources to compare such data.

Results indicate that the quantitative instrument may need further development and refinement to be able to accurately describe student engagement in academically purposeful activities. For example, Further studies should expand examination to include the revised 2012 version of the assessment that may better align data and results with the five benchmarks of institutional quality in full: Level of Academic Challenge, Active and Collaborative Learning, Student-Faculty Interaction, Enriching Educational Experiences, and Supportive Campus Environment (Kuh, 2003). Using the full assessment will gauge the many subfactors of engagement in an institution. Results of this study highlight that defining and understanding engagement is indeed complex. “Engagement encompasses the perceptions, expectations and experience of being a student and the construction of being a student in higher education, a rather broader notion than student motivation, commitment to study or orientation to learning” (Bryson, Hardy, & Hand, 2009, p. 5).

Also, new research seeks to assess the ability of educators to gauge specific markers of educational activity at the course level. Expanding NSSE research, The Class-Level Survey of Student Engagement (CLASSE) compares student and faculty perceptions of the level of student engagement vs. pedagogy in the classroom. A course-level research instrument could assist
educators reevaluate their teaching practices to meet specific needs as indicated by current students, thereby providing for real-time feedback and change (Ouimet & Smallwood, 2005).

**Relationships of Engagement, Demographic, and Academic Performance Variables on Change in Academic Motivation**

What variables, then, constitutes change in academic motivation? Research Objective four sought to explain the relationship between change in academic motivation from the LASSI in relation to student engagement, demographic variables, and academic performance variables using correlation and multiple regression analysis.

Correlation analysis revealed several findings that merit discussion. The significant negative relationships between athlete status and LASSI Motivation pre-test scores and post test scores are important to highlight. It is also important to observe the negative correlation between Gender and LASSI Motivation post-test scores. This correlation suggests that groups of students with higher scores on the LASSI Motivation posttest would likely have more males than females. It is difficult to ascertain much about this correlation other than to suggest that this relationship could signify a decrease in of females after participation in the program. Thus, attention must be paid to female student development in the program to continue to engage in activities that positively impact a student’s level of persistence, interest in subject matter, knowledge acquisition, positive sense of self, critical thinking ability, and academic effort (Pintrich & Schunk, 2002; Pintrich and Zusho, 2007). This relationship, however, does not identify factors that could contribute to this decrease for females and not for males.

Finally, an important finding of this study was the positive correlation between first-generation status and student engagement—indicating that groups of students with first generation status tend to have higher SEPA engagement scores than their counterparts. Perhaps
this significant correlation indicates that first generation students perceived their participation at higher levels than their counterparts.

Quantitative analyses from this research were unsuccessful to disentangle significant predictor variables that directly influence change in academic motivation. Results suggest that other variables may contribute to the variance in gain scores of academic motivation. Researchers should investigate a host of personal background characteristics and variables that may affect student motivation.

Student Perceptions of Participation in the VTSA: READY Model

Qualitative inquiry into student descriptions of the factors that influenced their academic motivation evidenced an intricate model of factors that were part of student engagement. The use of a qualitative approach provided the opportunity to explore what remained inconclusive using quantitative measures as well as provided student perceptions of their engagement. Using small face-to-face focus groups with these students added rich conversation and extended the scope of the study which added to our understanding of the specific factors they identify to be important contributors to their academic motivation.

Students described a wide range of activities both in and out of the classroom. Similar to prior research, results of the current study demonstrates that participating in a first year experience program fosters:

- Relationships:
  - Greater development of key relationships through their interaction with peers, peer mentors, and faculty

- Engagement in both social activities and academic challenges:
Increased learning through their engagement, experience and curriculum rooted in academic rigor and challenge with smaller classes sizes

Increased exposure and fun through structured and unstructured social development

- Adjustment and transition:
  - Heightened transition and adjustment to the collegiate environment

- Developing a network of internal, external, and cognitive sources for academic motivation:
  - Helping students to manage their network of motivation including, relationships with others, course and assignment grades, feedback from professors, choosing a major, and developing future goals

- Yieldless, diverse opportunities to identify with and integrate into the university and related communities
  - Facilitating student exposure and preparation through learning and discovery
  - Encouraging a sense of belonging to the university through identifying with and integrating into the community

This R.E.A.D.Y. framework is useful for understanding and exploring academic motivation in a first year experience program such as the VTSA.

**Practical Advice for the Virginia Tech Summer Academy**

Examining the implications of this study’s findings revealed fundamental ways in which educators can successfully improve the effectiveness of the VTSA program. The following
recommendations will also be helpful for other the development of other first-year experience programs in contexts similar to Virginia Tech.

1. **Encourage recruitment and participation for all students.** Program coordinators should explore and adapt innovative recruitment strategies that excite students to partake in the VTSA by highlighting the connection between participation and student outcomes. Most first-year experience interventions of this nature are limited to at-risk populations or are self-selective—although future goals of this program is to be a requirement for all freshman students. Results of this study encourage the need for this type of intervention across a variety of pre-entry characteristics as most students expressed positive student outcomes based on their participation, regardless of high or low motivation, and other variables such as race, athlete status, honors eligibility or first generation status.

2. **Use of peer mentors structure.** One of the central tenants of this program was the inclusion of peer mentors to aid students in their development in college. Students identified their relationships with these “near peers” as helpful to their integration to the collegiate environment by introducing them to college life, serving as a knowledgeable academic and life counselor, and serving as role models. Peer mentors were charged with developing fun activities and answering questions to provide general academic and social support, as well as directing students on where to go and what events they needed to attend. This research highlights the use of peer mentors as highly evident on student motivation in the program, among other positive outcomes.

3. **Explore and incorporate a wide range of meaningful academic and social activities and best practices through the creation of a seamless environment.** The themes that surfaced in this study highlight a wide variety of program characteristics that relate to academic
motivation. Program coordinators should explore and incorporate a wide range of meaningful academic and social activities to encourage student development and for students to become active participants in their learning. The addition of new activities and the refinement of current activities will increase engagement for students, while linking and connecting their learning and activity. For example, in-class and out-of-class, academic and non-academic, curricular and co-curricular, or on campus and off-campus experiences would all become one large body within the program thereby motivating and inspiring students to exhibit energy and effort to educational activity (Pascarella & Terezini, 2005; Kuh, 1996; Kuh et al., 2005).

In developing a seamless environment, program coordinators should remain focused on partnerships between academic and student affairs faculty/practitioners—two groups generally considered to be somewhat polarized. Such partnerships will fuel the development of seamless learning environments that we know to be beneficial for student learning. In the design and implementation of the VTSA, effective collaborations improve outcomes by interconnecting and integrating the vitality of the academic classroom with the energy of personal development in student affairs (Schroeder & Hurst, 1996; Kezar, 2006).

Areas for engagement might include activities such as a ropes course, community-based activities (e.g., service learning), political development activities (e.g., mock election and/or debate), career development activities (e.g., resume building), learning and study strategy activities (e.g., note-taking and reflection journals), technological advancement activities (e.g. clicker introduction), and increased mentorship through faculty-student interaction.

Program coordinators should consider the inclusion of a final showcase as a capstone activity for learning and entertainment, which could serve as a goal-oriented motivator for students.
Finally, to ensure a seamless learning environment, program coordinators could adopt a R.E.A.D.Y. model (Figure 5-1) that focuses on the necessary student-based outcomes to increase student motivation and self-regulated behaviors.

![READY Model](image)

*Figure 5-1. READY: Model based on student perceptions of participation in the VTSA.*

4. **Communicate the Value of Learning and Participation in Motivation and Self-regulated Behavior programs.** Program coordinators should communicate the value of learning and participation in the motivation and self-regulated behavior programs to better to students and restructure the activities to be more engaging to students. This type of programming focuses on increasing student cognitive processing to be successful in college, including acquiring, monitoring, and controlling strategic knowledge; goal-setting; and time management. Many of the academic and social factors that students struggled with during their tenure in the VTSA, and ultimately during their first year in college, were addressed in the VTSA—
though many students dismissed its value or spoke of it minimally. It may be more effective to restructure the program to include smaller, team-based learning with hands-on, fun activities, based on input from peer mentors. Program coordinators will need to evaluate and prioritize the information that is exposed to students, while, supporting students’ autonomy and beliefs that they can do well; providing them with many choices; helping students to feel as valued members of the community; and balancing academic challenge with support.

**Future Avenues for Academic Motivation and First-Year Experience Research**

For this study, the core areas of concern with respect to student learning and retention are twofold: student engagement and academic motivation. Further research is necessary to gauge the influence of these constructs on student learning and retention. Despite tremendous investment in the Virginia Tech Summer Academy Program, too little is known about the relationship of participation with student engagement and academic motivation.

We know that student engagement embodies a university’s goal of providing educationally purposeful activities and practices that facilitate the ability of students to develop essential life skills to serve in a knowledge-based economy (Kuh et al., 2008). Thus, understanding the fundamentals of quality student engagement is essential for promoting retention and persistence, the scholarship of and approaches to teaching and learning, educational success, cognitive development, and social relationships and community within the university (Tinto, 2006). We also know that college student motivation is central to student engagement and student learning and is considered a highly influential factor in student persistence. Understanding academic motivation is a function of the connections between student engagement in seamless learning environments, persistence, factors of the university that promote student success, and the level and ways in which students are motivated toward the
achievement of certain goals and activities (Hofer et. al 1998; Jones, 2009; Kezar, 2006; Kuh, 1996; Kuh et al., 2005; Pintrich, 2003; Pintrich and Zusho, 2007; Schroeder & Hurst, 1996; Van Etten, Pressley, McInerney, & Liem, 2008).

Just as previous research guided the scope and nature of this study, the current research points to future avenues of research on participation in VTSA, and other first-year experience programs, on change in academic motivation. The following are recommendations for future research.

1. **Investigate first-year experience programs using a multi-faceted approach.** To obtain further insight on the potential for first-year experience programs to influence student success, researchers should explore alternative methods. Possibilities include the use of both empirical and statistical analyses of quantitative research and the ethnographic, naturalistic, field, or participant observer research of qualitative research. Researchers should evaluate relationships between the factors of Pintrich and Zusho’s (2007) Student Motivation and Self-Regulated Learning Model with Tinto’s (1993) Interactionalist Model of Student Departure, as students persist from the first year to graduation. In addition, longitudinal research would be particularly helpful as students persist to sophomore year, junior year, and graduation to better evidence trajectories of increased academic motivation through first-year experience programming. The use of control groups would also be helpful for understanding these variables and demonstrating their relationship to the intervention.

2. **Investigate student engagement, demographic, academic performance, and institutional variables.** Researchers should evaluate a range of variables that may influence student academic motivation. Studies should incorporate other variables such as socioeconomic status, course placement tests, prior academic activities, prior extracurricular activities, and
other college student inventories. In particular, the significant relationships between females, first generation students, and athletes found in this research are important to investigate further. Researchers should also investigate other factors of student engagement in the VTSA program that may influence student motivation for learning. For example, advising, attendance and participation records at the course and activity level. Taken together, these variables can serve to identify and build a comprehensive profile of students that may help to identify at-risk students as well as key support resources and programming.

3. **Explore causes of student disengagement.** Important to a decrease in student motivation is the investigation of factors that may influence a student to experience disengagement. Researchers should explore the phenomenon of engagement and its relationship with a range of demographic, academic performance, institutional, and societal factors. Researchers should know that exploring engagement is not the same thing as exploring disengagement—in fact taken together, researchers may be able to help students to persist in pursuit of graduation and to achieve satisfying careers for which they are prepared for beyond graduation. For example, McKinnis (2001) said that many first-year student’s experiences in high school can influence their level of academic preparedness making them unable to maneuver the college academic environment—thus they are less engaged.

4. **Explore students' awareness of skill, will, and self-regulation components of strategic learning using the 10 subscales of the LASSI.** Researchers should explore additional scales of the LASSI and create a comprehensive profile to measure differences in how students learn in response to stimuli. Taken together, relationships between motivation, attitude, time management, anxiety, concentration, info processing, selecting main ideas, study aids, self-
testing, and test strategies variables may highlight student motivation, academic performance, and both academic and social integration in college.

Closing

This study was initially designed to elucidate the overall value of first-year experience programs and whether continued programmatic efforts/funding would be justified, especially at Virginia Tech. To achieve these goals, the following three questions were developed: Should we continue to support the Virginia Tech Summer Academy Program? What are student perceptions of the benefits of participation in this program? Which specific programmatic approaches provide maximum benefit with respect to academic motivation and student retention?

However, the inability of some of the findings of this research to yield a detailed portrait of the relationship between level of student engagement, change in academic motivation, and student demographic and academic variables adds to this complexity. Although the findings in this research revealed some insights into the relationship between student engagement and academic performance, more questions arise regarding the influence of student engagement on academic motivation. What is the significance and extent of the relationship between themes that surfaced in this research: pressure and exposure, developing relationships, transition and adjustment, motivating sources, social activities, academic challenge, and community integration? Are there other factors of student engagement that may influence academic motivation? What activities should first-year programs include to add value to the student experience and to increase student motivation?

Although studying student engagement and academic motivation can be perplexing, the work is beneficial to assist institutions to develop educationally-purposeful activities that
facilitate life-long learning for first-year students. As more research is conducted to increase the level of understanding into the relationship of student engagement in first-year programming and student motivation more of these questions will be answered. The known advantages of a college degree will continue to outweigh the formidable challenges for universities to recruit, educate, and retain students. Maybe the answers are available in programs such as the VTSA. However, Martin Luther King, Jr. said, “All progress is precarious, and the solution of one problem brings us face to face with another problem” (“African-American Quotes: Progress”, 2007, ¶1).
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APPENDICES

Appendix A: 2012 Virginia Tech Summer Academy First-year Experience Tracks

<table>
<thead>
<tr>
<th>Track and Courses</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td><strong>The Art of Thinking and Speaking</strong></td>
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<tr>
<td>COMM 2004: Public Speaking, 3 credits</td>
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<tr>
<td>PHIL 1504: Language and Logic 3 credits</td>
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</tr>
<tr>
<td>Effective speech is a skill for success in most professions. Even good ideas that are not communicated well suffer. One of the goals of higher education is to prepare future leaders to present the best of ideas with precision and clarity. In this track, participants will explore the art of public speaking and basic concepts of critical thinking.</td>
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</table>

| **The Role of Europe in the Evolution of the Modern World**  |
| ENGL 1105: First Year Writing, 3 credits  |
| HIST 1025: Introduction to European Civilization I, 3 credits  |
| Everything new is old again. European history provides much of the background, which is needed for an understanding of both American history and the processes through which the modern world evolved. This track examines vital insights into the functioning of societies under varying religious, economic, social and technological conditions. |

| **Architecture and Design**  |
| ARCH 2984: Design Thinking: Defying Preconceptions, 3 credits  |
| ARCH 2984: Seeing Design: Transforming Observations, 3 credits  |
| Are you an aspiring Architect, Interior Designer, Landscape Architect or Industrial Designer? If so, this track has been designed specifically for you. The two combined courses provide a total immersion experience into the world of architecture and design. In this track, you will be introduced to the learning environment and activities characteristic of Foundation Design Lab ARCH 1015. Participants in this experience will also be exposed to ways of perceiving and recording the built and natural environment through travel around the region, and to transform their findings in ways that enhance their design education. |
| **Ethics in an International Society** | This track focuses on multiculturalism and a variety of ethnic and indigenous cultures in contemporary experiences. Participants will develop a systematic understanding of cultural diversity and "the politics of difference." Global and ethical implications of difference will be explored. |
| SPIA 1004: Nations and Nationalities, 3 credits | |
| PHIL 2304: Global Ethics 3 credits | |

| **Nutrition, Foods, Exercise, and Sport** | Our society is continually confronted with the dynamic nature of human health. This track introduces students to the foundational principles of health and wellness. Participants will develop an understanding of the exciting fields of nutrition and sport science. |
| HIST 1115: U. S. History (Area 3), 3 credits | |
| PSCI 1014: Introduction to U. S. Government and Politics (Area 3), 3 credits | |

| **The History of the American Political Machine** | An understanding of the historical and political landscapes of the United States is essential for responsible and informed citizenship. This track develops a rich background for students' future participation in American political culture. |
| HNFE 1004: Foods, Nutrition, and Exercise, 3 credits | |
| HNFE 2984: Fundamentals of Sport Science, 3 credits | |

<p>| <strong>Engineering</strong> | Students are introduced to the profession and the College of Engineering in this experience. Upon completion of this track, students will be able to: collaborate with classmates to successfully complete a team design project; demonstrate the ability to use basic project management methods; write an effective engineering report using a standard format and prepare and present a professional presentation; graph numeric data and drive simple empirical functions; develop algorithms and implement computer programs for engineering analysts; and, produce and interpret drawings appropriate to various engineering disciplines including hand sketched and computer generated. |
| ENGE 1434: Engineering Fundamentals, 5 Credits | |
| ENGE 2984: Explorations in Engineering, 1 credit | |</p>
<table>
<thead>
<tr>
<th>Critical College Communication</th>
<th>Developing oral and written communication skills is essential to one's success in the college environment and beyond. Discover best practices for appropriately expressing ideas in print and electronic media. This track will also explore implications and responsibilities for communicating in social media environments.</th>
</tr>
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<tbody>
<tr>
<td>COMM 2004: Public Speaking, 3 credits</td>
<td>ENGL 1106: First Year Writing, 3 credits</td>
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</table>

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<tr>
<th>Life Sciences</th>
<th>In this combination of courses, students will critically explore issues related to the scientific study of living organisms, such as plants, animals and human beings. The role of bioethics and technology will also be considered.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1106: Principles of Biology, 3 credits</td>
<td>BIOL 1116: Principles of Biology Lab, 1 credit</td>
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<tr>
<td>ENGL 1106: First Year Writing, 3 credits</td>
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</table>

<table>
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<tr>
<th>Nutrition and Life Sciences</th>
<th>Nutrition, foods, and exercise and their impact on life cycles are analyzed in this coupling of courses. Students in this track will explore connections between food human behavior, ecology, anatomy and physiology.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1106: Principles of Biology, 3 credits</td>
<td>BIOL 1116: Principles of Biology Lab, 1 credit</td>
</tr>
<tr>
<td>HNFE 1004: Human Nutrition and Foods, 3 credits</td>
<td></td>
</tr>
</tbody>
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<tr>
<th>Humanities and the Arts</th>
<th>Participants in this track will delve into contemporary questions surrounding the verbal, visual, and aural arts forms of human expression in the Western tradition. Combined with First Year Writing, students will study the condition of humanity through literature, cultural studies, and the visual arts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUM 1604: Introduction to Humanities and the Arts, 3 credits</td>
<td>ENGL 1106: First Year Writing, 3 credits</td>
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</table>

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<thead>
<tr>
<th>Business Information Systems</th>
<th>Become proficient in your understanding of the fundamental concepts of business information systems, the hardware, and data resources used in business organizations in this track. Special attention is given to information systems security and software applications.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACIS 1504: Introduction to Business Information Systems</td>
<td>MATH 1525: Elementary Calculus with Matrices</td>
</tr>
</tbody>
</table>

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<tr>
<th>Creative Leadership</th>
<th>Groups and individuals in the global marketplace are challenged to solve complex problems. Creative leaders envision outcomes for the greatest good in their communities and move beyond traditional boundaries to bring about change. Students in this track will examine historical and social leadership theories, practices, and solutions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUM 2204: The Creative Process, 3 credits</td>
<td>LDRS 1015: Exploring Citizen Leadership, 3 credits</td>
</tr>
</tbody>
</table>
Appendix B: Introduction Summary

Virginia Tech Summer Academy Research Study
Assessing the Influence of Student Engagement on Student Academic Motivation in a First Year Experience Program

- The purpose of this study is to examine the relationship between student perceptions of engagement in the Virginia Tech Summer Academy (VTSA) program and changes in first-year students’ academic motivation.

- Research Participant Responsibilities:
  - Allow the researchers access to my LASSI Pre- and Post-test results.
  - Complete an Engagement Questionnaire.
  - If asked, participate in a 90-minute focus group concerning my perception of engagement in the Virginia Tech Summer Academy program and my academic motivation.
  - If asked, review the transcripts of the previously mentioned focus group.

- As the first group of VTSA students, your input will assist to develop the most effective educational approaches for student engagement and learning to increase academic motivation in the first year of matriculation.
Appendix C: Informed Consent

Virginia Polytechnic Institute and State University
Informed Consent for Participants in Research Projects Involving Human Subjects

Project Title: Assessing the Influence of Student Engagement on Student Academic Motivation in a First Year Experience Program

Investigators: Ms. Keyana C. Ellis, Graduate Research Assistant
Dr. Eric K. Kaufman, Assistant Professor

I. Purpose of Research
The purpose of this study is to examine the relationship between student perceptions of engagement in the Virginia Tech Summer Academy (VTSA) program and changes in first-year students’ academic motivation. Knowing that student engagement can increase both the time and energy that students invest in educationally purposeful activities, this research will investigate the extent to which student engagement in the VTSA contributes to motivation, achievement and persistence. Outcomes of this research will assist colleges and educators to develop the most effective educational approaches for student engagement and learning in the first year of matriculation.

II. Procedures
This study will analyze pre and post questionnaire results of the Learning and Study Strategies Inventory (LASSI). This information, along with findings of an Engagement Questionnaire, will be used to guide focus group sessions in which students will be invited to share their most memorable experiences in the VTSA and the influence of those experiences on academic motivation. The focus group sessions will take no more than 90 minutes.

III. Risks
This study has been submitted, reviewed and approved by the Virginia Tech Institutional Review Board. Individual answers and identities of the participants will be protected all times.

IV. Benefits
There are no direct benefits to the participants. However, participants may contact the researchers for a summary of the study results.

V. Extent of Anonymity and Confidentiality
Protecting participants is a top priority of the researchers. Participant information will be kept strictly confidential. Any information in the recorded interviews that potentially could identify participants will be altered to ensure confidentiality. Individual names will be assigned pseudonyms. At no time will information be released that allows an individual to be identified.

Virginia Tech Institutional Review Board Project No. 12-424
Approved August 2, 2012 to August 1, 2013
Only the research team will have access to the data. It is possible that the Institutional Review Board (IRB) may view this study’s collected data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

VI. **Compensation**
Students who agree to participate in focus groups will be rewarded with a gift card to a local coffee shop. Reward for participation in this study will not be prorated and students that withdraw from the study before completion will retain their gift card.

VII. **Freedom to withdraw**
Participants are free to withdraw from the study at any time without penalty. Subjects are free not to answer any questions without penalty.

Should I have pertinent questions about this research and my rights, I may contact:

Ms. Keyana Ellis
Graduate Assistant, Agricultural and Extension Education  
540.231.7422  
keyellis@vt.edu

Dr. Eric K. Kaufman
Assistant Professor, Agricultural and Extension Education  
540.231.6258  
ekaufman@vt.edu

Dr. David M. Moore
Associate Vice President for Research Compliance; IRB Chair  
540.231.4991  
moored@vt.edu

Virginia Tech Institutional Review Board Project No. 12-424  
Approved August 2, 2012 to August 1, 2013
Appendix D: NSSE Agreement

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

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

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

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

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

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

   c) on the survey form itself, and in all publications or presentations of data obtained through the licensed item(s), to include the following citation: “items xx and xx used with permission from The College Student Report, National Survey of Student Engagement, Copyright 2001-13 The Trustees of Indiana University”;

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

   e) to provide to NSSE, for its own nonprofit, educational purposes, a copy of all reports, presentations, analyses, or other materials in which the item(s) licensed under this
Agreement, or modified items, and any responses to licensed or modified items, are presented, discussed, or analyzed. NSSE shall not make public any data it obtains under this subsection in a manner that identifies specific institutions or individuals, except with the consent of the Licensee.

3) This Agreement expires on August 31, 2013.

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

For The Trustees of Indiana University:

[Signature]
Alexander C. McCormick  
Director  
National Survey of Student Engagement

[Signature]  
8/10/2012  
Date

For Licensee:

[Signature]
Keyana Hills  
PhD Candidate  
Virginia Tech

[Signature]  
9/3/2012  
Date

[Signature]
Dr. Eric K. Kaufman  
Assistant Professor  
Virginia Tech

[Signature]  
9/3/12  
Date
Appendix E: Virginia Tech Summer Academy Engagement Survey

I certify that I have read and understand the Informed Consent and the conditions of this project. I have all of my questions answered. I hereby acknowledge that I am a voluntary participant in this research study and give my voluntary consent.

I understand that my responsibilities are:

- Allow the researchers access to my LASSI Pre- and Post-test results.
- Complete an Engagement Questionnaire.
- If asked, participate in a 90-minute focus group concerning my perception of engagement in the Virginia Tech Summer Academy program and my academic motivation.
- If asked, review the transcripts of the previously mentioned focus group.

________________________________________________
Participant Name (Please legibly print your name)

_________________________________________     __________________________
Participant Signature                          Date
Instructions: For each item, mark the appropriate corresponding bubble. In the Virginia Tech Summer Academy, about how often did you do each of the following?

<table>
<thead>
<tr>
<th>Item</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Asked questions in class or contributed to class discussions</td>
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<tr>
<td>b. Made a class presentation</td>
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<tr>
<td>c. Prepared two or more drafts of a paper or assignment before turning it in</td>
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<tr>
<td>d. Worked on a paper or project that required integrating ideas or information from various sources</td>
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<td>e. Included diverse perspectives (different races, religions, genders, political beliefs, etc.) in class discussions or writing assignments</td>
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<tr>
<td>f. Came to class without completing readings or assignments</td>
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<tr>
<td>g. Worked with other students on projects during class</td>
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<td>h. Put together ideas or concepts from different courses when completing assignment or during class discussions</td>
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<tr>
<td>i. Received prompt written or oral feedback from faculty on your academic performance</td>
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<tr>
<td>j. Worked with classmates outside of class to prepare class assignments</td>
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<td>k. Tutored and taught other students (paid or voluntary)</td>
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<td>l. Participated in a community-based project (e.g., service learning) as part of a regular course</td>
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<tr>
<td>m. Used an electronic medium (listserv, chat group, Internet, instant messaging, etc.) to discuss or complete an assignment</td>
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<tr>
<td>n. Used email to communicate with an instructor</td>
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<tr>
<td>o. Discussed grades or assignments with an instructor for any reason</td>
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<td>p. Talked about career plans with a faculty member or advisor</td>
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<tr>
<td>q. Discussed ideas from your readings or classes with faculty members outside of class</td>
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<tr>
<td>r. Worked harder than you thought that you could to meet an instructor’s standards or expectations</td>
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<tr>
<td>s. Worked with faculty members on activities other than coursework (committees, orientation, student life activities, etc.)</td>
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<tr>
<td>t. Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)</td>
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<tr>
<td>u. Had serious conversations with students of a different race or ethnicity than your own</td>
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<tr>
<td>v. Had serious conversations with students who are very different from you in terms of their religious beliefs, political opinions, or personal values</td>
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</tbody>
</table>
To what extent has your experience in the VTSA contributed to your knowledge, skills, and personal development in the following areas?

<table>
<thead>
<tr>
<th>Area</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Acquired a broad general education</td>
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<tr>
<td>b. Acquiring job or work related knowledge and skills</td>
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<tr>
<td>c. Writing clearly and effectively</td>
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<tr>
<td>d. Speaking clearly and effectively</td>
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<tr>
<td>e. Thinking critically and analytically</td>
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<tr>
<td>f. Analyzing math or quantitative problems</td>
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<tr>
<td>g. Using computing and information technology</td>
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<tr>
<td>h. Working effectively with others</td>
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<tr>
<td>i. Voting in local, state, or national elections</td>
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<tr>
<td>j. Learning effectively on your own</td>
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<tr>
<td>k. Understanding yourself</td>
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<tr>
<td>l. Understanding people of other racial and ethnic backgrounds</td>
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<tr>
<td>m. Solving complex real-world problems</td>
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<tr>
<td>n. Developing a deepened sense of spirituality</td>
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<tr>
<td>o. Contributing to the welfare of your community</td>
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<tr>
<td>p. Developing a sense of self of spirituality</td>
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</tbody>
</table>

To what extent did the Virginia Tech Summer Academy program emphasize each of the following?

<table>
<thead>
<tr>
<th>Emphasis</th>
<th>Very Much</th>
<th>Quite a Bit</th>
<th>Some</th>
<th>Very Little</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Spending substantial amounts of time studying and on academic work</td>
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<td></td>
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<tr>
<td>b. Providing the support you need to help you succeed academically</td>
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<td>c. Encouraging (or serving as a promoter for) contact among students</td>
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<td>from different economic, social, and racial or ethnic backgrounds</td>
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<tr>
<td>d. Helping you cope with your non-academic responsibilities (work,</td>
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<tr>
<td>family, etc.)</td>
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<tr>
<td>e. Providing the support you need to thrive socially</td>
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<tr>
<td>f. Attending campus events and activities (special speakers, cultural</td>
<td></td>
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<tr>
<td>appearances, athletic events)</td>
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</tbody>
</table>
Mark box that best represents the quality of your relationships with people at your institution.

a. Relationships with faculty members
   - Unavailable, Unhelpful, Unsympathetic
   - Available, Helpful, Sympathetic

b. Relationships with administrative personnel and offices
   - Unhelpful, Inconsiderate, Rigid
   - Helpful, Considerate, Flexible

c. Relationships with peers
   - Unfriendly, Unsupportive, Sense of Alienation
   - Friendly, Supportive, Sense of belonging

d. Relationships with peer mentors
   - Unavailable, Unhelpful, Unsympathetic
   - Available, Helpful, Sympathetic

How would you evaluate your educational experience in the Virginia Tech Summer Academy program?
   - Excellent
   - Very Good
   - Good
   - Fair
   - Poor

If you could start over again, would you have enrolled in the Virginia Tech Summer Academy program?
   - Definitely Yes
   - Probably Yes
   - Probably Not
   - Definitely Not

From which type of high school did you graduate?
   - Public
   - Private
   - Home School
   - Other / Do Not Know

What is the highest level of education that your parent(s) completed? (Mark one box per column.)

Did not finish high school
   - Parent 1
   - Parent 2
Graduated from high school
   - Parent 1
   - Parent 2
Attended some college, no degree
   - Parent 1
   - Parent 2
Completed an associate’s degree
   - Parent 1
   - Parent 2
Completed a bachelor’s degree
   - Parent 1
   - Parent 2
Completed a graduate or other professional degree
   - Parent 1
   - Parent 2

Are you a Virginia Tech athlete under NCAA and ACC Compliance?
   - Yes
   - No
Appendix F: The 10 LASSI Scales

Ellis, Keyana

From: Priscilla Trimmer [trimmer@hphpublishing.com]  
Sent: Tuesday, May 07, 2013 11:00 AM  
To: Ellis, Keyana  
Subject: Re: LASSI request

Keyana,

Based on the information you provided in this email below, HHH gives you permission to use the Motivation scale in your dissertation. Please include our copyright on any information that comes directly from our assessment.

Priscilla Trimmer  
HHH Publishing  
(800) 366-4079

Priscilla,

Thank you for your consideration in this matter. I am writing this email concerning the use of the LASSI Motivation pre-test and post-test and scale in my dissertation. This assessment was given to the 2012 Virginia Tech Summer Academy student participants as part of a pre-post intervention assessment. Students accessed the electronic version of the test prior to the start of the program and used a follow up key at the end of the program. I would like to be able to use the LASSI Motivation Pre and Post-test scores as the basis of analysis in my dissertation. I have not included exact questions from the Motivation Subscale and do not provide any copyrighted material or discussion in my research. Based on resources available in print and on the Internet, I have included:
- Reliability Cronbach alpha according to the scale in regards to the LASSI Motivation Subscale
- Reliability Cronbach alpha according to my results and scale in regards to the LASSI Motivation Subscale
- Guidelines of the 10 LASSI scales sheet

Through this permission, I would like to be able to disseminate these results of this study to various outlets. The data, however, will remain in the care of Virginia Tech Office of Summer Sessions. Thank you in advance for your consideration.

Please note that this is a highly time sensitive request! Please feel free to contact me at 202-720-6025 or 301-785-1651.

Thanks,

Keyana

Keyana C. Ellis  
Communications Program Analyst, Division of Family and Consumer Sciences  
Institute of Youth, Family & Community  
United States Department of Agriculture, NIFA  
Phone: (202) 720-6925  
keyana@nifa.usda.gov [mailto: keyana@nifa.usda.gov]  
Mailing Address:  
1400 Independence Avenue, SW  
Washington, D.C. 20250-2225  
Physical and Courier Address:  
800 9th St., SW  
Waterfront Centre Rm. 4416  
Washington, D.C. 202024  

USDA  
United States Department of Agriculture  
FAMILY SCIENCES
Description of the 10 LASSI Scales
LASSI scores are reported in percentiles for each scale based on national norms

<table>
<thead>
<tr>
<th></th>
<th>Below 50th Percentile</th>
<th>Between 50-75th Percentile</th>
<th>Above 75th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety Scale</td>
<td>You need to improve skills to avoid problems succeeding in college</td>
<td>You should consider improving strategies in those areas</td>
<td>You probably do not need to give high priority to improving strategies in those areas</td>
</tr>
<tr>
<td>Attitude Scale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concentration</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Information Processing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Self-Testing</td>
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<td></td>
<td></td>
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<tr>
<td>Selecting Main Ideas</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Study Aids</td>
<td></td>
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<td>Time Management</td>
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<tr>
<td>Test Strategies</td>
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</tbody>
</table>

Anxiety Scale—Measures how tense or concerned a student is when approaching a task—a student feels panicky or globalizes the effects of an exam. LEARN to break larger tasks down in to smaller, more manageable tasks.

Attitude Scale—Measures general motivation for succeeding in school. FOCUS on higher level goal setting and reassess how school fits in to the bigger picture.

Concentration—Measures a student’s ability to focus (when studying and listening) and not being distracted. ASSESS where to sit in class and where to study.

Information Processing—Measures a student’s ability to learn by the use of elaboration, creativity, and organization strategies. DEVELOP various approaches such as mnemonic devices and note-taking strategies.

Motivation—Measures a student’s general motivation to perform specific tasks related to achieving success and the degree to which he accepts responsibility for daily tasks. SET goals to accomplish specific tasks.

Self-Testing—Measures a student’s ability to test her own level of understanding. LEARN note-taking and effective reviewing methods to monitor your understanding of material.

Selecting Main Ideas—Measures how well a student can identify important material. DEVELOP skills on how to separate out critical information by asking “What is really being asked?” or “What is the author or my professor really trying to say?”

Study Aids—Assesses student’s use of resources to help him learn or retain information. RESEARCH resources to help you study and become a more effective, efficient learner.

Time Management—Measures a student’s ability to apply time management principles to academic situations. REFLECT on your behavior, your various energy levels, and procrastination by making a clear time management plan.

Test Strategies—Assesses a student’s use of test preparation and test taking strategies. LEARN effective techniques for preparing for and taking tests.
The graph below interprets your responses to the LASSI. The numbers on the top and bottom of
the chart show percentile ranks. You can use these percentile ranks to compare your scores to
other individuals' scores. For example, if you scored in the 80th percentile in Attitude and
Interest (ATT), you scored higher than 80 percent of other individuals answering the same
questions.

As you work to improve your scores, your advisor/instructor may want you to take this
assessment again. If you do take it a second time, you will need your student key. Your student
key is Do345234J. Record this key for future use.

<table>
<thead>
<tr>
<th>LASSI Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
</tr>
<tr>
<td>ANX</td>
</tr>
<tr>
<td>ATT</td>
</tr>
<tr>
<td>CON</td>
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<tr>
<td>INP</td>
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<td>MOT</td>
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<td>SFT</td>
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<td>SMI</td>
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<tr>
<td>STA</td>
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<tr>
<td>TMT</td>
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<tr>
<td>TST</td>
</tr>
</tbody>
</table>

- **75-100**: If you scored above the 75th percentile on any of the ten LASSI scales, you probably do not have to give a high priority to improving your strategies in those areas.
- **50-75**: If you scored between the 75th and the 50th percentiles on any of the ten LASSI scales, you should consider improving your strategies for those scales.
- **0-50**: If you scored below the 50th percentile on any of the ten LASSI scales, you need to improve your skills to avoid serious problems succeeding in college.
### Interpreting Your LASSI Scores

<table>
<thead>
<tr>
<th>Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>The Anxiety Scale assesses the degree to which students worry about school and their academic performance. Students who score low on this scale are experiencing high levels of anxiety associated with school (note that this scale is reverse scored). High levels of anxiety can help direct attention away from completing academic tasks (sample item: When I am studying, worrying about doing poorly in a course interferes with my concentration). Students who score low on this scale may need to develop techniques for coping with anxiety and reducing worry so that attention can be focused on the task at hand.</td>
</tr>
<tr>
<td>Attitude</td>
<td>The Attitude Scale assesses students’ attitudes and interest in college and academic success. It examines how facilitative or debilitative their approach to college and academics is for helping them get their work done and succeeding in college (sample item: I have a positive attitude about attending my classes). Students who score low on this scale may not believe college is relevant or important to them and may need to develop a better understanding of how college and their academic performance relates to their future life goals.</td>
</tr>
<tr>
<td>Concentration</td>
<td>The Concentration Scale assesses students’ ability to direct and maintain attention on academic tasks (sample item: I find that during lectures I think of other things and don't really listen to what is being said). Low scoring students may need to learn to monitor their level of concentration and develop techniques to redirect attention and eliminate interfering thoughts or feelings so that they can be more effective and efficient learners.</td>
</tr>
<tr>
<td>Information Processing</td>
<td>The Information Processing Scale assesses how well students’ can use imagery, verbal elaboration, organization strategies, and reasoning skills as learning strategies to help build bridges between what they already know and what they are trying to learn and remember, i.e., knowledge acquisition, retention and future application (sample item: I translate what I am studying into my own words). Students who score low on this scale may have difficulty making information meaningful and storing it in memory in a way that will help them recall it in the future.</td>
</tr>
<tr>
<td>Motivation</td>
<td>The Motivation Scale assesses students' diligence, self-discipline, and willingness to exert the effort necessary to successfully complete academic requirements (sample item: When work is difficult I either give up or study only the easy parts). Students who score low on this scale need to accept more responsibility for their academic outcomes and learn how to set and use goals to help accomplish specific tasks.</td>
</tr>
<tr>
<td>Self-Testing</td>
<td>The Self-Testing Scale assesses students' use of reviewing and comprehension monitoring techniques to determine their level of understanding of the information to be learned (sample item: I stop periodically while reading and mentally go over or review what was said). Low scoring students may need to develop an appreciation for the importance of self-testing, and learn effective techniques for reviewing information and monitoring their level of understanding or ability to apply what they are learning.</td>
</tr>
<tr>
<td>Selecting Main Ideas</td>
<td>The Selecting Main Ideas Scale assesses students' skill at identifying important information for further study from among less important information and supporting details (sample item: When studying, I seem to get lost in the details and miss the important information). Students who score low on this scale may need to develop their skill at separating out critical information on which to focus their attention. Tasks such as reading a textbook can be overwhelming if students focus on every detail presented.</td>
</tr>
<tr>
<td>Study Aids</td>
<td>The Study Aids Scale assesses students’ use of supports or resources to help them learn or retain information (sample item: I use special study helps, such as italics and headings, that are in my textbooks). Students with low scores may need to develop a better understanding of the resources available to them and how to use these resources to help them be more effective and efficient learners.</td>
</tr>
<tr>
<td>Time Management</td>
<td>The Time Management Scale assesses students’ application of time management principles to academic situations (sample item: I set aside more time to study the subjects that are difficult for me). Students who score low on this scale may need to develop effective scheduling and monitoring techniques in order to assure timely completion of academic tasks and to avoid procrastination while realistically including non-academic activities in their schedule.</td>
</tr>
<tr>
<td>Test Strategies</td>
<td>The Test Strategies Scale assesses students' use of test preparation and test taking strategies (sample item: In taking tests, writing papers, etc., I find I have misunderstood what is wanted and lose points because of it). Low scoring students may need to learn more effective techniques for preparing for and taking tests so that they are able to effectively demonstrate their knowledge of the subject matter.</td>
</tr>
</tbody>
</table>
The Learning and Study Strategies Inventory (LASSI) is designed to gather information about learning and study practices and attitudes. Upon submission and approval of your school number, several statements will be presented that relate to learning and studying.

Sample responses available to respondents:

- By Not at all typical of me, we do not necessarily mean that the statement would never describe you, but that it would be true of you only in rare instances.
- By Not very typical of me, we mean that the statement generally would not be true of you.
- By Somewhat typical of me, we mean that the statement would be true of you about half the time.
- By Fairly typical of me, we mean that the statement would generally be true of you.
- By Very much typical of me, we do not necessarily mean that the statement would always describe you, but that it would be true of you almost all the time.

Sample questions:

1. I concentrate fully when studying.
2. I am unable to summarize what I have just heard in a lecture or read in a textbook.
3. I try to find relationships between what I am learning and what I already know.
4. I find it hard to stick to a study schedule.
5. In taking tests, writing papers, etc., I find I have misunderstood what was wanted and lose points because of it.
6. I am able to study subjects I do not find interesting.
7. When I decide to study, I set aside a specific length of time and stick to it.
8. Because I don’t listen carefully, I don’t understand some course material.
9. I try to identify potential test questions when reviewing my class material.
10. During class discussions, I have trouble figuring out what is important enough to put in my notes.
11. To help me remember new principles we are learning in class, I practice applying them.
12. My underlining is helpful when I review text material.
Appendix G: Invitation Letter

August 30, 2012

Dear VTSA Students,

As recent participants of Virginia Tech’s Summer Academy (VTSA) program, we hope that you have experienced a seamless transition to college life at Virginia Tech.

A few days from now, you may receive an email letter from Keyana Ellis requesting you to participate in a research study concerning your experience in the VTSA program.

The purpose of this research is to explore the influence of engagement in the VTSA program on academic motivation and student retention for first-year experience programs. As a first-year student at Virginia Tech, your experience is vital to understanding the most effective practices to increase student academic motivation and student retention and how to develop the engagement the VTSA program to meet an array of unique student needs.

As described in class, this research is a two-phase study. You have already completed the LASSI pre- and post-test as well as the Engagement questionnaire. We are writing in advance to request that you consider serving as a participant in the next phase of the study. Participation in the second phase of this research includes:
   a) participating in a 90-minute focus group to discuss your engagement and experience in the VTSA program; and,
   d) electronically reviewing the themes of the assembled from the focus groups for accuracy.

The email will provide further information regarding how to sign-up for this activity.

Thank you in advance for your time and participation in this research. Your generous assistance will encourage this research to be successful and provide for the formulation of a successful program and outcomes to meet the academic needs of Virginia Tech first-year students.

We look forward to your participation.

Sincerely,

Michael Herndon, PhD
Director of Summer Sessions
Office of Summer Sessions

Karen Sanders, PhD
Associate Vice President for Academic Support Services
Center for Academic Enrichment and Excellence

CC: Eric Kaufman, PhD, Assistant Professor
Keyana C. Ellis, Graduate Research Assistant
Appendix H: Invitation to Focus Groups Letter

Greetings Student Name,

Recently, you received a letter from Dr. Michael Herndon and Dr. Karen Eley-Sanders that requested you to serve as a participant in an important research study.

You have been selected to serve as a participant in the second stage of this research study. We are seeking your participation in a focus group to include an informal, in-depth discussion of your experiences in the VTSA program with a small group of your peers.

Please consider the following dates and times to sign-up for a focus group.

Virginia Tech Summer Academy Focus Group Hokie  GLC Room D  Thu, 9/13/12  7:00 PM - 8:30 PM
Virginia Tech Summer Academy Focus Group Orange  GLC Room D  Mon, 9/17/12  6:00 PM - 7:30 PM
Virginia Tech Summer Academy Focus Group Invent the Future  Litton Reaves Room 1220  Tue, 9/18/12  6:30 PM - 8:00 PM

To sign-up for a focus group, please visit the sign-up feature on the left-hand panel of the Virginia Tech Summer Academy Scholar site. You are already enrolled as a member of this site; however, you may access this page through the following link: [https://scholar.vt.edu/portal/site/2012vtsa](https://scholar.vt.edu/portal/site/2012vtsa)

These specific dates and times have been uniquely assigned to you based on your responses to prior assessments. While other students may discuss other dates and times to attend a focus group, please carefully note that the dates and times listed above are the only times available for you to participate in a focus group.

Attached to this email is the informed consent form that details the purpose, confidentiality, risks, and responsibilities of this study.

By participating in a focus group as part of this research, you will receive a free gift card to the delicious Mill Mountain Coffee Shop, a local coffee and tea eatery in Blacksburg, Va.

Thank you for your time and participation in this research. If you should have any questions or concerns regarding this research and your participation in this research, please feel free to contact me, Keyana Ellis, at keyellis@vt.edu or (301) xxxxxxx. I appreciate your consideration in advance. And as always, Go Hokies!

Sincerely,

Keyana C. Ellis  
PhD Candidate, Virginia Tech  
Agricultural and Extension Education  
228 Litton Reaves  
Blacksburg, VA 24061  
Office Phone: 540-231-6836  
Email: keyellis@vt.edu

Dr. Eric K. Kaufman  
Assistant Professor,  
Virginia Tech  
Agricultural and Extension Education  
2274 Litton Reaves  
Blacksburg, VA 24061  
Office Phone: 540-231-6258  
Email: ekaufman@vt.edu
Appendix I: Scholar Site Sign-up Feature

<table>
<thead>
<tr>
<th>Meeting Title</th>
<th>Organizer</th>
<th>Location</th>
<th>Date</th>
<th>Time</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virginia Tech Summer Academy Focus Group Maroon</td>
<td>Keyana Ellis</td>
<td>Litchfield Room 1240</td>
<td>Fri, 9/14/12</td>
<td>6:00 PM - 7:30 PM</td>
<td>Closed</td>
</tr>
<tr>
<td>Virginia Tech Summer Academy Focus Group Orange</td>
<td>Keyana Ellis</td>
<td>GLC Room D</td>
<td>Mon, 9/17/12</td>
<td>6:00 PM - 7:30 PM</td>
<td>Closed</td>
</tr>
<tr>
<td>Virginia Tech Summer Academy Focus Group Invent the Future</td>
<td>Keyana Ellis</td>
<td>Litchfield Room 1220</td>
<td>Tue, 9/18/12</td>
<td>6:30 PM - 8:00 PM</td>
<td>Closed</td>
</tr>
<tr>
<td>Virginia Tech Summer Academy Focus Group Gobblers</td>
<td>Keyana Ellis</td>
<td>Litchfield Room 1240</td>
<td>Wed, 9/19/12</td>
<td>5:30 PM - 7:00 PM</td>
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</tr>
<tr>
<td>Virginia Tech Summer Academy Focus Group Hokies</td>
<td>Keyana Ellis</td>
<td>Litchfield Room 1240</td>
<td>Wed, 9/19/12</td>
<td>7:30 PM - 9:00 PM</td>
<td>Closed</td>
</tr>
<tr>
<td>Virginia Tech Summer Academy Focus Group UI Prossim</td>
<td>Keyana Ellis</td>
<td>GLC Room D</td>
<td>Thu, 9/20/12</td>
<td>6:30 PM - 8:00 PM</td>
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</table>
## Appendix J: A Priori Proposition Table

### Table J-1.

A Priori Propositions

<table>
<thead>
<tr>
<th>A Priori Proposition</th>
<th>Literature Support</th>
<th>Research Objective</th>
<th>Interview questions/probes</th>
</tr>
</thead>
</table>
| Backgrounds, perspectives, and needs that can affect their matriculation. These unique backgrounds, perspectives, and needs must be investigated as foundation for institutional interventions. | Tinto, 1993; Tinto, 2007            | To explore student perceptions of student engagement in the VTSA program and connections to academic motivation. | 1. Why did you enroll in the Virginia Tech Summer Academy?  
2. Please tell me about your background and how this may have affected your experience in the program. |
| The creation and implementation of an institutional first year experience intervention has a positive influence on student retention and success in college, through an integrated educational experience. | Institutional Experiences           | To explore student perceptions of student engagement in the VTSA program and connections to academic motivation. | 3. Think back to your experiences in the VTSA program. What were the most memorable activities of the program?  
4. Let’s talk now about your most memorable social experiences of the program. Describe for me your interactions with others in the program.  
5. As a student in the program, describe how certain components of the program influenced your goals for learning and interests. |
Student persistence in college is a function of student pre-entry variables and experiences and their interactions with and integration in both the academic and social systems of the college environment—this includes the development of formal and informal relationships with faculty and peers, as well as their engagement with courses and activities on campus.

### Academic and Social Integration

To explore student perceptions of student engagement in the VTSA program and connections to academic motivation.

6. Now that you are in your second semester at Virginia Tech, I’d like for you to talk about your adjustment to life at Virginia Tech. How have you integrated academically and socially?

---

Identifying academic approaches that facilitate increased student motivation orientation and learning strategy use have important implications for encouraging student retention in first year experience programs.

Generally speaking, the more that students engage in educational environments which provide satisfactory learning and social development, the more motivated they are to continue in the pursuit of the attainment of a college degree.

Motivation in college is heavily determined by academic engagement and can be determined by various influences, including the concepts of intrinsic and extrinsic motivation.

### Goals and Commitments

To explore student perceptions of student engagement in the VTSA program and connections to academic motivation.

7. Given the tools and resources provided to you in the VTSA program, what are your goals and intentions for college?

8. I would like for us now to take some time to discuss your current motivation, goals, and commitments. Having been a part of the program, how does this time being a first year college student feel for you?
Appendix K: Focus Group Interview Protocol

Focus Group Interview Protocol

The leader summarizes the purpose of the interview, confidentiality, length of the interview, ability to withdraw from the study at any time, the fact there are no right answers, and that it is ok to disagree.

Introduction:
- Why did you enroll in the Virginia Tech Summer Academy?
  - Probe: What motivated you to enroll in the program?
  - Probe: What were your goals for enrollment?
- Please tell me about your background and how this may have affected your experience in the program.
  - Probe: [add specific background specifics from quantitative analysis]

Institutional Experiences
- Think back to your experiences in the VTSA program. What were the most memorable activities of the program?
  - Probe: What kind of program activities did you do inside the classroom?
  - Probe: What kind of program activities did you do outside of the classroom?
  - Probe: Describe the most rewarding/useful components of the program.
  - Probe: Describe the most challenging aspects of the program.
  - Probe: Describe how the program piqued your interest regarding your studies.
- Let’s talk now about your most memorable social experiences of the program. Describe for me your interactions with others in the program.
  - Probe: Faculty and staff?
  - Probe: With your fellow peers?
  - Probe: With your peer mentors?
- As a student in the program, describe how certain components of the program influenced your goals for learning and interests.
  - Probe: What was motivating you to succeed in the program?
  - Probe: What made you believe that you could succeed in the program?
  - Probe: What kind of effort did you exert to handle tasks and responsibilities?

Academic and Social Integration
- Now that you are in your second semester at Virginia Tech, I’d like for you to talk about your adjustment to life at Virginia Tech. How have you integrated academically and socially?
  - Probe: What was your experience adjusting to college classes?
  - Probe: Tell me about your approach to social life in college.
  - Probe: How did the VTSA affect your experience at the university?
Goals and Commitments

- Given the tools and resources provided to you in the VTSA program, what are your goals and intentions for college?
  - Probe: Will you be able to succeed in college?
  - Probe: Do you think you will persist in college to graduation?
  - Probe: What will motivate you to persist?
  - Probe: What obstacles/conflicts/other commitments will you encounter?
  - Probe: What kind of effort and energy will you need to exhibit?
- I would like for us now to take some time to discuss your current motivation, goals, and commitments. Having been a part of the program, how does this time being a first year college student feel for you?
  - Probe: How are you prepared as a college student?
  - Probe: How have you changed academically?
  - Probe: How have you changed personally?

Summary and Closing

- Before closing, I would like to summarize the main points you discussed today.
  (present summary of main points).
- Does this capture what we discussed?
- Would you recommend any changes to my summary of what we discussed?
- Is there anything else that you would like to add to our discussion today?

Thank you for your time and comments regarding your experience in the Virginia Tech Summer Academy program. Please feel free to contact me if you think of anything else that may add to our discussion.
Appendix L: Letter of Thank You

Greetings Student Name,

I hope that this message reaches you in good health and in great spirits. Recently, you participated in an important research study concerning your perception of engagement in the Virginia Tech Summer Academy. I would like to personally thank you for your participation in this research as your input will contribute to the results of the research.

Attached are the themes that have been organized regarding our discussion of the VTSA. At your earliest convenience, please review the themes that surfaced from the focus group and provide feedback for accuracy and confirmation. As you review these themes, please let me know if there is anything that you feel that needs to be changed or if there is additional information that you feel should be incorporated. Please feel free to contact me at your earliest convenience at keyellis@vt.edu or 540-231-6836.

I sincerely appreciate your participation in this research and hope that you know how much I value your service. I wish you much success in your academic and professional futures as a student at Virginia Tech, especially as you navigate the most important year of study as a college student.

Thank you for your time and participation in this research. If at any point you may have any questions or comments concerning your participation in this research study, please feel free to contact me as well.

Sincerely,

Keyana C. Ellis
PhD Candidate,
Virginia Tech
Agricultural and Extension Education
228 Litton Reaves
Blacksburg, VA 24061
Office Phone: 540-231-6836
Email: keyellis@vt.edu

Dr. Eric K. Kaufman
Assistant Professor,
Virginia Tech
Agricultural and Extension Education
2274 Litton Reaves
Blacksburg, VA 24061
Office Phone: 540-231-6258
Email: ekaufman@vt.edu