The influence of college readiness and institutional intervention upon intention to persist among GED credentialed community college students

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The influence of college readiness and institutional intervention upon intention to persist among GED credentialed community college students

by

David Carson

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Education (Educational Leadership)

Program of Study Committee:
Linda Hagedorn, Major Professor
Lorenzo Dubois Baber
Yu (April) Chen
Larry H. Ebbers
Steven A. Freeman

The student author and the program of study committee are solely responsible for the content of this dissertation. The Graduate College will ensure this dissertation is globally accessible and will not permit alterations after a degree is conferred.

Iowa State University
Ames, Iowa
2017

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DEDICATION

To my wife, Sylvia, my life dance partner and rock whose love provided me with the emotional support and encouragement to make this happen. You complete me! Thank you for your sacrifice these past three years.

I love you with all my heart.
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ABSTRACT

This study’s purpose is to examine how institutional intervention and college readiness impact GED (General Education Development) credentialed students’ intent to persist at community college. Specifically, the study examines a) differences in background information between students possessing GED credentials vs. traditional high school diploma regarding intent to persist at community college, b) factors influencing persistence, and c) possession of a GED credential’s impact upon intention to persist.

Three theories were foundation of this study’s conceptual framework including 1) Knowles’ (1984) andragogy, Ryan & Deci’s (2000) self-determination, and Ajzen’s (1991) planned behavior. The theory of andragogy informs institutional representatives regarding adult learner need. Self-determination theory reveals GED credential students’ life situations and their need for autonomy resulting in academic persistence. Theory of planned behavior reminds administrators that control and volition must include learning environments conducive to task accomplishment.

This study employed a quantitative method using the 2014 SENSE survey. Student demographics including background, socioeconomic, and enrollment patterns were analyzed through descriptive statistics. Comparison between students possessing GED credentials and traditional high diplomas was accomplished using t-test and crosstabulation methods. Logistic regression analysis was conducted to assess the probability to which college readiness and institutional intervention predicts students’ intent to persist in community college.

The results indicate a greater percentage of GED credentialed students were non-traditional aged, married, had children living in the home, had a greater instance of self-
reported lower grades, and were first generation students. Results of independent samples t-tests and cross-tabulation tests indicated statistically significant difference in age, self-reported high school GPA, college readiness, and institutional intervention, between students who possessed GED credentials vs. those who earned a traditional high school diploma. The logistic regression analysis revealed that gender, race/ethnicity, 1st generation enrollment status, student enrolled in at least one developmental class, advising, and faculty support were statistically significant factors on GED credentialed students’ intent to persist.

Community college faculty intervention has great impact upon intention to persist for GED credentialed students. This study demonstrated the importance of syllabi containing clear student expectations, student-centered pedagogical method, and direction to obtain instructor assistance. Further research would benefit GED credentialed community college students.
CHAPTER 1

THE PROBLEM AND ITS UNDERLYING FRAMEWORK

It is graduation day. Men and women of all ages, wearing traditional academic garb, nervously wait for their grand entrance among adoring, proud and vocal family members. All at once, the familiar tune of Pomp and Circumstance begins, all stand and tears begin to flow. After short speeches from previous and current graduates, the big moment arrives; the calling of individual names and the proud walk across the stage to be formally recognized for their hard work. Following the ceremony, family members and graduates hug one another and take pictures. This is no ordinary graduation though as the graduation ceremony is for those receiving their General Equivalency Development credential. Armed with this accomplishment and optimistic they can replicate this feat in college, only 11.8% will earn a credential from a post-secondary institution (Patterson, Zhang, Song, & Guison-Dowdy, 2010). What accounts for this sobering reality? More importantly, by considering numerous student variables and reevaluating policies, can institutional members better serve this often marginalized and forgotten student population?

Though only 12 percent of United States citizens do not possess a high school or high school equivalency credential, 58 percent do not possess at least an associate degree (Ryan & Bauman, 2016). This is troubling, considering the continuing skilled labor shortage in the United States, whereby nearly half of Americans possess only basic and/or below basic literacy skills (Kutner, et al., 2007). As business and industry increasingly inhabit global and technical settings, community colleges have become the obvious place to incorporate career and technical foci along with the traditional mission of preparing students for university life (National Association of Colleges and Employers, 2011).
In the context of a vast increase in the demand for higher levels of education, the Obama administration unveiled a plan to empower community colleges to become a major force in equipping a skilled labor workforce. The proposal included graduating five million new college graduates by the year 2020, create a new federal funding process incentivized by innovative efforts to partner with business/industry, upgrade physical community college facilities, refocusing education to include increased use of technology, and an overhaul of the financial aid system (The White House, 2009).

As the mission of our community colleges is to educate and empower self-reliant citizens, this study’s intent is to explore how faculty/advisor intervention and student college readiness heightens GED credentialed students’ intention to persist in their community college educational paths.

Background of the Problem

Early Development of the GED (General Education Development)

The GED testing system began in 1942 as a method to empower those who enlisted for military service prior to completing high school. In addition to measuring cognitive skills for armed services, the system provided a credential for workforce reentry or continuation of postsecondary education upon military discharge (Song & Hsu, 2008; Houle, Burr, Hamilton, & Yale, 1947; Tyler, 2005).

A more progressive form of education regarded the Carnegie system of credits as redundant. Ralph Tyler (University of Chicago) and E.F. Lindquist (University of Iowa) became active voices of the Progressive educational movement, whereby general education curricula including democratic societal principles, work skills, reading, and general mathematics to be the core of education (Quinn, 2002).

In 1943, the GED was first offered to those soldiers who had not completed high school due to military enlistment. That same year, the Army contracted the American Council on
Education (ACE) to systematize a process of awarding military veterans credit for their service. Service members who passed the battery of GED examinations would be awarded a credential asserting equivalent status to a high school diploma (Houle et al., 1947).

Victorious returning veterans, armed with the GED credential and GI Bill found colleges and universities open to their presence on campus. The ACE asserted that the GED become the primary measure for college readiness. This would mark the origin of the GED credential used for high school equivalency purposes (Quinn, 2002).

From Military to Civilian Use – 1942 Test Series

By 1948, 21 states allowed civilians to utilize the GED in lieu of a high school diploma. This vast increase prompted states to legislate minimum age for test taking to include 18 through 22. By 1959, the number of civilian test takers exceeded those military personnel (Quinn, 2002). Consequently, the GED Testing Service was born in 1963 (C. A. Allen & Jones, 1992).

By the early 1950s, the American Council on Education initiated research regarding veteran’s college readiness. Unfortunately, the research conducted by Paul Dressel and John Schmid (later confirmed by Benjamin Bloom and Ralph Tyler) suggested the 7th percentile passing standard was too low and be raised to the 50th percentile but ultimately the ACE chose not to accept any of the research based recommendations (Quinn, 2002).

A Time for Revision – 1978 and 1988 Test Series

The vast growth in the number of GED test takers and test centers during the 1960’s was attributed by societal factors including entrance into the Vietnam War, the codification of adult basic education in the passage of the Title IIB of the Economic Opportunity Act of 1964, and the judgment that the GED was a cost-effective method to
provide high school credentials for those wishing to pursue postsecondary education and/or increase employment opportunities (Quinn, 2002; Tyler, 2005).

As manufacturing industries began to be negatively impacted by increased international competition, out of control energy prices, declining profitability, inflation and unemployment, educators believed proposed changes in secondary curricula were needed to address this looming national crisis. As GED understood itself as high school equivalency a new test revision was formulated moving from fact recall to application of real life concepts. Criticism abounded at this change suggesting that test-takers could pass this type of assessment simply by being aware of current events from television, newspapers, and other mass media (Quinn, 2002).

Societal and economic changes in the United States and global economies prompted major revisions in the GED test in 1978 and 1988. The 1978 changes included a reduction in the number of reading questions, an increase in life application math questions and a reduction in testing time from 10 hours to six (Tyler, 2005). The increasing use of technology in the 1980’s prompted the GED Testing Service to conduct a five-year study regarding the efficacy of the exam. As society continued to move from industry to information, the GED testing service in 1988 authorized a major review of its test and protocols. The test included creation of an essay, demonstration of problem solving skills, recognition of diversity, sources of major change in society, and demonstration of proficiency in answering questions contextualized to daily situations. This movement to applied learning was confirmed by polls revealing about two thirds of test takers did so to pursue credentials in postsecondary institutions (GED Testing Service, 2015).
A Reversal of Sorts - 2002 Series

In 2002, a fourth-generation GED test was released, influenced by content specialists in math, science, English and the social sciences. Changes included alignment with national secondary educational standards, specific organization of an essay, scoring rubrics for the writing portion of the test and the use of a calculator for the math subtest (Ezzelle & Setzer, 2009).

The test battery included five subsets: Language Arts-Writing; Language Arts-Reading; Social Studies; Science; and Mathematics. The Language Arts-Writing section contained multiple-choice questions and an essay requiring examples from test-taker’s own experiences while the reading section required answer of multiple choice questions measuring reading comprehension. Social Studies and Science required demonstration of correct interpretation of source materials like charts, graphs or maps through the answering of multiple-choice items. The Mathematics test requires answers of questions both with and without calculator assistance. The maximum allotted time to complete the exam was just over seven hours (Ezzelle & Setzer, 2009). Two additional changes included the addition of contextualized questions using business examples and those taking this exam could not use subset test results from previous exams to be applied here (Tyler, 2005).

Toward College Readiness – 2014 Series

The fifth generation of GED tests was released in 2014 and these tests are in use at the time of this writing by the GED Testing Service (GED Testing Service, 2015). The 2014 GED® test was directly aligned between the 2014 GED® test content areas and critical college and career readiness standards presented by the U.S. Department of Education Office of Vocational and Adult Education (OVAE) (GED Testing Service, 2015). Changes include exclusive computer delivery, same day scoring for all parts of the test, tri-scoring levels (passing score,
college readiness, college credit), and examines Language Arts reasoning, Math reasoning, Science, and Social Studies (GED Testing Service, 2015).

HiSET (High School Equivalency Test)

Though this study was based on data of those completing a GED credential, it should be noted that in January 2014, states had the option to utilize different assessment programs and tests (Zinth, 2015). At the time of this study, only 40 states used the General Educational Development (GED) exclusively. Iowa has contracted with Educational Testing Service (ETS) for those wishing to secure high school equivalency credentials, to take the High School Equivalency Test (HiSET).

Statement of the Problem

Students pursuing GED credentials may have had negative experiences such as behavior problems, truancy, drug/alcohol use, legal issues, lack of family support, financial constraints, transportation problems, and lack of technological access (Stephens, 2010). Those who left high school prior to graduation are at a greater disadvantage of having a lack of experience and confidence in the workings of education. Viewing the process simply as “passing a test”, GED students may fail to recognize the benefit of post-secondary education and not gain the wherewithal and confidence regarding college success (Goodall, 2009).

GED credentialed community college students may possess low self-esteem and perceive past secondary educational failures as predictive of future failures in any kind of continuing education (Hardin, 2008). Their inability to see community activity as an opportunity puts into question the relevancy of continuing within the educational process. In a very real sense, this population of students experiences an identity crisis whereby a sense of being overwhelmed precedes attrition. To be successful, the GED credentialed community college student, must
believe the educational community is a place where their goals can be accomplished (O’Donnell & Tobbell, 2007; Lott & O’Dell, 2014).

A core foundation of community colleges is to provide human capital to meet individual and community needs. Our local economies and employers demand self-reliant skilled workers (Jones & Kelly, 2007). GED graduates, brought up in single-parent low socio-economic homes, leaving high school for lack of relevancy, poor grades and/or absenteeism, seek opportunities to acquire skills such as teamwork, leadership, communication skills, problem solving, and work ethic. Community colleges should design support programs to include at least academic/career counseling, mandatory orientation, minimal comprehensive services (e.g. childcare, transportation, housing), student success courses, learning communities, academic goal setting and respectful faculty committed to building relationships with students (Braskamp, Trautvetter, & Ward, 2008).

It is easy to overlook the age demographic in this population and assume that most GED graduates are over the traditional college age. As such, GED credentialed students as young as 16 are an often-overlooked potential source of community college students. Patterson’s (2014) exhaustive work with this population noted that GED students in the 16-24 age demographic included over 316 thousand, comprising just under 57% of the total undergraduate population. She also notes nearly 65% of those passing the GED exam listed pursuit of further education as the main reason for completing the GED, only 12% earned some sort of postsecondary credential. In fact, approximately 50% of those passing the GED exam will drop out of their postsecondary study within the first semester and those who earn postsecondary credentials do so in extended lengths of time (Patterson, 2014).
Purpose of the Study

The purpose of this study is to identify and explore factors that predict persistence of students possessing GED credentials attending community college. Specifically, the intent is to examine how institutional intervention (faculty and advisors) connects with college readiness (academic behaviors and student skills).

Through quantitative analysis of The Survey of Entering Student Engagement (SENSE), gleaning student first impressions of their college experience was utilized to measure institutional intervention level and related variables. Using extant literature as a basis, a model was constructed considering how faculty/advisor intervention and student college readiness impacted persistence of GED credentialed community college students. Methods of analysis will include descriptive, comparative, factor, and logistic regression.

As with any sociological phenomena, motivation to drop out of high school is a complex issue. The most common reasons posited student boredom, truancy, circle of acquaintances who judge school irrelevant, too much freedom, and poor academic performance (Azzam, 2007).

Those persons who choose to pursue and succeed in earning the GED credential often face barriers relating to self-perception and education institutional workings. Judging themselves ill-prepared for the rigors of college, they reject institutional engagement efforts (in and out of the classroom) needed to succeed. Though successful in passing the GED exam, they quickly find their lack of skill sets like essay writing, research, study habits and test taking, as confirmation that college success is unattainable (Kuh, Buckley, Bridges, & Hayek, 2007). With minimal formal academic experiences, many GED graduates ironically fail to navigate the labyrinth of services offered as they don’t know how to ask “right questions”. Institutional
personnel assume that students understand their needs and are comfortable asking for help. Laden with self-doubt, disillusioned students quietly walk away from the academy.

Research Questions

1. What are the demographic characteristics of GED credentialed students who have participated in the 2014 SENSE survey?

2. What intercorrelations exist among variables measuring student college readiness and institutional intervention in the SENSE survey?

3. Are there statistically significant differences in demographic characteristics (e.g. age, marital status, children in the home, etc.), college readiness (skills, attitude, behavior) and institutional intervention (advisor/faculty support) between GED credentialed and high school diploma community college students?

4. What factors predict GED credentialed community college students’ intention to persist?

Hypotheses

H₀₁: There are no intercorrelations among variables measuring student college readiness and institutional intervention in the SENSE survey.

H₀₂: There are no statistically significant differences in demographic characteristics (e.g. age, marital status, children in the home, etc.), college readiness (skills, attitude, behavior) and institutional intervention (advisor/faculty support) between GED credentialed and high school diploma community college students.

H₀₃: There are no factors that predict GED credentialed community college students’ intention to persist.
Significance of the Problem

This study attempts at broadening the knowledge of faculty and advising intervention’s impact upon GED credentialed community college students. Much has been written regarding barriers to success for GED credentialed community college students like inadequate transportation, childcare arrangements, unsympathetic employers, housing, lack of family support, and stress related illnesses as reasons why managing the college life becomes impossible (Guison-Dowdy & Patterson, 2011). There exists a literature gap though focused on how the partnership of particular activities of community college faculty/advisors and student behavior demonstrating college readiness heightens academic success of those possessing GED credentials.

This study assists community college administrators to consider the efficacy of specific student support policies/processes like mandatory new student orientation, and first year experience courses. Developing processes and programs geared at student unique needs on very limited budgets is a great challenge for community colleges (Nichols, 2010). A lack of recognition and action by institutions often becomes the difference GED credentialed students obtaining a degree or departing the institution.

In addition, data contained in this study will assist community college faculty in developing and utilizing pedagogical (andragogical) methods that are student-centered. Though pedagogy/andragogy is influenced by instructor personality, academic discipline, and the balance of classroom and department responsibilities, faculty are challenged to consider student learning styles, classroom environment, and variety of students attending community colleges when developing course materials (Alexander, Karvonen, Ulrich, Davis, & Wade, 2012).
Attempting to move GED credentialed students from optimism to actualized academic success, this study will propose partnership oriented institutional and student actions meant to both evaluate institutional practice and increase student persistence rates.

Conceptual Framework

The conceptual framework for this study has three theoretical components: andragogy (Knowles, 1984), self-determination (Ryan & Deci, 2000) and planned behavior (Ajzen, 1991). Older adult learners differ from young adults in self-concept, understanding prior experience, greater readiness to learn, learning styles, and motivation to learn.

The Theory of Andragogy

The theory of andragogy consists of five elements: (1) **Self-concept**: the presence of adult learners needing to be self-reliant challenges educators to provide respectful learning contexts; (2) **Experiences**: as adult learners bring in varied experiences, adult educators are challenged to individualize and contextualize material for student ease of application; (3) **Readiness to learn**: adult students look for relevancy in classroom material to address real life situations; (4) **Learning Style**: students recognize their life experiences and believe in potential growth in self-reliant thinking; (5) **Motivations**: adult learners positively respond to classroom methods that look to solve problems.

**Adult Learners' Self-Concept**: To search for purpose and meaning in one’s life takes a considerable amount of effort, time and skill. Adult learners are extremely hard workers but often lack time and experience searching for purpose or meaning in their lives. There must be an overt willingness to look at one’s life situation and consider personal passions that exist in their particular sphere of influence. Adult learners wish to be understood as self-reliant. Thus, educators are challenged to provide learning environments grounded in respect and dignity.
Adult Learner’s Experiences: As adult learners arrive in educational institutions with varied experiences, adult educators are challenged to individualize and contextualize learning (simulations, case study or problem solving exercises) lesson plans to meet student willingness to apply their learning. Adult learners judge class time and efforts relevant to their future.

Adult Learner’s Readiness to Learn: Life problems like sickness, family stress and financial woes become a primary motivation for students showing a willingness to learn. Adult learners look for practical answers to life problems. They are very interested in the application of knowledge gained in the classroom.

Adult Learner’s Learning Style: When students understand themselves as adults, the potential of self-reliant thinking grows. In the classroom, this process must consider affective, behavioral and cognitive learning. Affective learning focuses on the development of attitudes while behavioral learning is the completion of problem or receipt of information from an instructor. These learning styles undergird the typical cognitive classroom activity analyzing and sharing course content with instructors or fellow students.

Adult Learner’s Motivations: Students enter educational institutions for various reasons. Some students are externally motivated by greater paychecks or more time off while others are more internally driven stating their goals as a greater sense of self or even purpose. Andragogical techniques that are problem-centered rather than content focused have been found efficacious in motivating adult learners.

The Theory of Self-Determination

The second component of the conceptual framework is self-determination. Self-determination theory (Ryan & Deci, 2000) considers human motivation in the context of psychological needs such as relatedness, proficiency and autonomy. Personal needs grow into
life aspirations and then are operationalized into performance opportunities like employment, parenting and education. Ryan and Deci’s work presupposes people are motivated by growth and the need to be fulfilled. Dichotomizing motivation as either internal (behavior based in choice) or external (behavior based in money or recognition by others), the theory asserts that psychologically fulfilled people master skill learning processes, recognize communal belonging and have the ability to develop/carry out goals. Social support becomes the primary means persons can become truly autonomous.

Differentiating motivation by external (reward/punishment) and internal (achieving autonomy) factors, they surprisingly found extrinsic rewards or threats actually reduced the process of autonomy. When rewards and threats were emphasized, people tended to lose interest in how personal activities were connected to sense of self and became focused on the rewards or potential punishments. They further surmised that extrinsic motivation moved on a continuum of regulation including none, external, introjection, identification, and integration.

Non-regulated persons often live without a sense of purpose and motivation has no overt foci. Those who typify external regulation consider reward and punishment (salary raises, loss of employment) as their primary motivation for life decisions. Introjected regulation occurs when persons recognize the power of gain, fear of reprimand, and shame avoidance without really owning personal or even institutional values. Identified regulation refers to a recognition of personal behavior’s impact upon themselves and others around them. Activity has value as it regulates personal behavior. Finally, in integration, personal behavior becomes an expression of identity. Ryan and Deci differentiated extrinsic and intrinsic motivation and regulation as the former was based in the value of the behavior (what’s in it for me?) while latter focuses only on the behavior. Persons who are intrinsically motivated will enjoy life, recognize the value in
supportive community, and able act autonomously. Considering multi-faceted life situations that students (especially GED credentialed ones) face, the goals of autonomy and sense purpose are paramount to academic and life persistence.

Theory of Planned Behavior

In addition to college readiness, intention to persist is impacted by choice. Expanding on the Theory of Reasoned Action (Ajzen & Fishbein, 1977), the Theory of Planned Behavior (TPB) considers the impact of personal beliefs upon behavior. According to (TPB), beliefs are categorized as behavioral (likely consequences), normative (other’s expectations), and control (factors impeding or accentuating behavior). An individual’s perceived control and intention is an efficacious predictor of individual behavior (Ajzen, 1991).

Intention to behave considers a person’s overall readiness to perform specific actions and is measured through a Reasoned Action Questionnaire tailored for specific studies. Intention directly impacts behavior and includes attitudes regarding behavior, subjective norms, and perceived control to perform. Behavior attitudes is the level that performance of a behavior is valued (positively or negatively). Subjective norm considers societal pressure to undertake a particular behavior. Perceived control to perform is a person’s perception to accomplish certain behaviors or tasks. These perceptions are based one’s situations and experiences. Control is considered volitional where perceptions must include necessary skills and environment to accomplish tasks (Fishbein, Ajzen, 2010).

Methodology

This study employed a survey-driven quantitative research methodology. The Survey of Entering Student Engagement (SENSE), a product from the Center for Community College Student Engagement (CCSSE), was used to measure variables impacting GED credentialed
community college students’ persistence. Anchored by an expansive literature review, this study constructs an analytical model predicting the impact of faculty/advising intervention and student college readiness upon student persistence. Data analysis included descriptive analysis, factor analysis, and logistic regression. SPSS 23.0 was used to conduct descriptive, exploratory factor analysis (EFA) and logistic regression; and an AMOS add-on to SPSS was used to conduct confirmatory factor analysis (CFA).

Assumptions

It is assumed that subjects answered the SENSE survey honestly and voluntarily. Anonymity and confidentiality was preserved as this study used secondary data obtained from the Center for Community College Student Engagement. No identifiers were included and hence there was no way to identify any individual survey taker.

Limitations

1. This study is limited to participants who voluntarily agreed to take the SENSE survey.
2. This study’s results and conclusions are based on self-reported data regarding GED credentialed community college persistence.
3. This study considers faculty andragogy, professional advising practices and student college readiness as primary factors for development of a predictive model of student persistence.

Delimitations

This study was confined to disaggregated data and included only GED credentialed students. The focus was on the impact of college readiness, faculty and advising intervention upon student intention to persist at community college. Only those participants self-identifying as earning a GED credential were included in the study.
Definition of Terms

*Adult Basic Education* – Instruction designed for those adults who function below that expected of high school graduates, those who are unable to manage the use of the English language, and those not possessing basic job skills.

*Adult learner* – A person who doesn’t meet the generally accepted definition of a traditional student.

*Adult literacy* – Adults obtaining basic skills, including English, reading, writing, and ability to problem-solve to become self-reliant citizens.

*Andragogy* – The theory of educating adults.

*Benchmark* – Achievement standards usually regarding achievement performance.

*College Readiness* - A list of knowledge, skills, and attributes a student should possess to succeed in entry-level college courses. Examples include reading, writing, oral communication and critical thinking.

*Community college*– An open access institution of higher education conferring associate degrees, diplomas and certificates for the purpose of transferring to a university or employment setting.

*GED/HiSET* – General Education Development and High School Equivalency Test are earned credentials considered equivalent to high school completion for those who pass a series of standardized exams in content areas.

*Pedagogy* – Educational theory and practice often in the context of teaching style.

*Persistence*– Student’s continued behavior leading to student goal achievement.
SENSE Survey – Administered to community college students in weeks four and five of their entering semester. It collects and analyzes data about institutional practices and student behaviors.

Supplemental Instruction – A program providing student assistance by peer-run sessions using discussion and processing of course content.

Traditional student – Typically one who enrolls in college immediately after high school graduation and is often pursuing a full-time course of study.

Organization of the Study

Chapter 1 of the study has presented the introduction, the background of the problem, the statement of the problem, the purpose of the study, the questions to be answered, the research hypotheses, the significance of the study, a brief description of the methodology, the assumptions, limitations, delimitations, and the definitions of terms.

Chapter 2 is a review of relevant literature. It addresses the following topics: Andragogical (adult learning) method, efficacious professional advising techniques, and student community college readiness.

Chapter 3 presents the methodology used in the study, including the research design; population and sampling procedure; and the instruments and their selection or development, together with information on validity and reliability. Each of these sections concludes with a rationale, including strengths and limitations of the design elements. The chapter goes on to describe the procedures for data collection and the plan for data analysis.

Chapter 4 presents the results of the study using various analytical and predictive modeling techniques. Chapter 5 concludes this dissertation with a discussion of the findings, providing implication for practitioners and potential future studies for researchers.
CHAPTER 2

REVIEW OF THE LITERATURE

The task of educating persons to become self-reliant, productive citizens is a complex one. For many past generations, access to post-secondary education was an unattainable dream. During the twentieth century, the advent of community colleges significantly increased college accessibility. On the surface, this seeming positive sociological phenomena brings to students and institutions many challenges including, overall college readiness as indicated by the rise in student need of developmental coursework, coordinating curriculum objectives for transfer purposes, varying outcome criteria by funders for judgment of institutional effectiveness, and purposeful partnering with community business leaders to line up curriculum to employment needs (Cohen, Brawer & Kisker, 2014).

Economic need and flagging retention/persistence rates drew numerous initiatives to increase success of community college students. A notable initiative was the 2004 initiative, “Achieving the Dream” that partnered with several organization, including but not limited to the Lumina foundation, American Association of Community Colleges (AACC), Community College Leadership Program at the University of Texas-Austin (CCLP), and Community College Research Center, Teachers College, Columbia University (CCRC). This initiative developed five criteria to measure performance including, successful completion of developmental course to move onto college courses, completion of “gatekeeper” (often English) courses, earning greater than “C” grades, semester to semester persistence, and procurement of marketable credentials (Brock, et.al, 2007). Achieving the Dream continues its focus on more than 200 community colleges and minimizing achievement gaps by using evidenced-based institutional
change with the hope of changing public policy and increasing the recognition of education’s importance through public engagement.

Connecting a significant motivation for higher education, another nationally known community college success initiative called Complete College America considered the importance of obtaining market valued credentials:

Completion is the key when it comes to advanced education. To fully enjoy the benefits of higher knowledge and skills, one must graduate. Dropping in for a couple of course at the local campus rarely makes much of a difference for long-term student success. Therefore, it is vitally important that states ensure that students have the opportunity to pursue the full range of higher education pathways that not only increase the likelihood of college completion, but also landing good careers. (Bosworth, 2010, p. i)

It should be noted that neither of these initiatives considers the specific underserved GED population though “the 2010 U.S. Census has indicated that more than 39 million adults aged 16 and older in the United States lack a high school credential and are not enrolled in any educational program” (GED Testing Service, 2014). For many, the dream remains unattainable until years of underemployment motivates courageous persons to face their fears/barriers and continue their education through the General Education Development (GED) program (Comings, 2007).

Adult basic education programs and service to GED students “may be among the most personally and economically impactful educational offerings community colleges offer” (Ryder, & Hagedorn, 2012, p. 29). Seemingly a noble cause, GED courses are generally located in continuing education departments and considered a community service of many community colleges. Potential challenges to effective administration of GED programs include funding
securement, outcome measurement, validity of educational efforts beyond community service, and underutilization of current community college faculty (Cohen, et. al., 2014). In other institutions, GED curriculum is subsumed under the umbrella of adult basic education (ABE).

The adult learner presents many challenges to higher educational institutions. Much has been written regarding adult learner barriers (Knowles, Holton III, & Swanson, 2015; Compton, Cox, & Laanan, 2006; Cross, 1981), but there continues to be research gaps concerning the partnership of institutional intervention (faculty/advising) and college readiness upon the persistence of GED credentialed community college students. This literature review will consider the nature of adult learning, earning a GED as an expression of adult learning, college readiness of GED credentialed students and institutional intervention attempts at increasing persistence for this student population.

The Nature of Adult Learning

Traditionally, college has been viewed as a time when recently graduated high schoolers go off to college to acquire skillsets that will make them competitive in their career of choice and become productive self-reliant citizens. There exists a whole population of citizens who either chose not to continue their education or for various life situations, postponed post-secondary education. In fact, future projections as students aged 25 to 34 are projected to increase 20% and those 35 and older will increase 25% by 2021 (National Center for Educational Statistics [NCES], 2013). As such, institutions of higher learning are challenged to better understand and meet the needs of this burgeoning population.

Toward a Definition of the Adult Learner

Much of the literature assumes that adult learners are complex and possess a multi-dimensionality of learning which defies simple definition. For this literature review, an adult
learner is defined as a person who did not enroll immediately after high school graduation, possess markers (family, employment, etc.) that would societally be understood as adult characteristics and intend to pursue methodical and continued educational activities (Darkenwald & Merriam, 1982.). Moving beyond age demarcation, adults as lifelong learners capture the spirit of Malcolm Knowles early theory of andragogy asserting that “as a person grows and matures, his self-concept moves from one of total dependency (as is the reality of the infant) to one of increasing self-directedness” (Knowles, 1973, p. 45). The maturation process of recognizing tending to family obligations, recognizing personal goals and exploring career aspirations cannot be accomplished in a vacuum. Rather, for many adult learners, the presence of community can be the difference between success and failure (O’Keeffe, 2013). Post-secondary institutions are in the enviable position to provide service to adult learners, often who are part of the marginalized working class, an exhibition of their missions. From the adult learner’s perspective, pedagogy and institutional policies alike must become learner-centered (Sutherland & Crowther, 2008). Colleges and universities must consider their governance through fiscal accountability, production of societal self-reliant students and ever increasing interaction with community based business partners (Jongbloed, Enders, & Salerno 2008).

**Theoretical Perspectives of Adult Learner Needs**

Though the adult learner is often very focused on securing market valued credentials, serving their needs can be enigmatic. As such, considering only more obvious barriers, such as financial is not particularly helpful to fully grasp the needs and situation of the adult learner. Perhaps an under-analyzed barrier to adult learners are psychological needs like general anxiety caused by an inability to navigate the world of higher education. The development of adult learner cohorts, faculty professional development, and provision for student to contextualize
their learning in their local communities has the potential to address this kind of psychological barrier (Goto & Martin, 2009). As most adult learners inherently are looking for individual and societal/cultural relevancy in their studies, the ability to discuss, collaborate, and apply materials presented in learning situations is extremely important to this student population (Hashim, Tan, & Rashid, 2015).

Many adult learners arrive on campus with high expectations of themselves (Wodlinger, 2007). Arriving from employment or life situations where success is preceded by hard work, many of these same persons fail to persist. As the numbers of adult learners continue to grow, institution of higher education are challenged to consider at least the following; review of program time lengths, increased experiential pedagogical methods, engagement opportunities directed at the needs of adult students, and soliciting student opinions during (not at exit) a student’s college career (Compton, Cox, & Laanan, 2006).

Failure of adult learners’ persistence is arguably multi-faceted. It is reasonable to understand that adult learners who for example have many years in the employment world would understand themselves primarily as employees rather than students. Those in the academy (faculty and administrators) can uncritically assume that complex academic processes fit all student populations. Thus, adult learners might conclude their previous employment situations and future aspirations are of little relevance to their academic pursuits (Berker & Horn, 2004). This would be unfortunate as adult learners often are self-directed and motivated. An adult learner for instance when confronted by a traditional lecture format might instinctively question the life application of their course. Classroom methods whereby students are held responsible for their own learning through discussion, presentations and group projects, give the adult learner the opportunity to contextualize class materials. Numerous theorists (Brokfield, 1983; Knowles,
1984; Merriam, 2001) have posited that adult learners assimilate information differently than traditionally aged students, crave information presented in contextualized fashion and look to utilize the new-found information in their sphere of influence.

One such theory having the potential of impacting students is the work of Robert Kegan (1994) who considered self-directed learning in the context of postsecondary institutions. Educators are tempted to believe that adult learners will automatically be self-directed and intuitively participate and learn. Kegan believes the role of the institution is to teach adults to be self-directed and understand their role in transformative rather than prescriptive terms. He believes the goal of education is to encourage adult learners to move beyond their current perspective and engage in the process of meaning-making when they judge themselves as incapable of completing academic expectations. Ultimately, the institution’s mission is to transform the student by recognizing their needs, not just instilling skill or behavioral change (Carnevale & Desrochers, 2003).

As a primary need for the adult learner is self-direction, assistance with goal accomplishment is paramount. The adult learner assumes an educational institutions’ mission is to provide them the resources and opportunity to develop applicable goals/objectives for their personal and professional lives. The challenge is a coherent description of such goal that incorporates multiple life issues beyond those of monetary nature. This is especially true for those students in adult basic education programs directed at students who have decided to pursue post-secondary education. A general understanding of academic planning raises the possibility of further academic success (Zafft, 2008). Self-directed learning was measured by Guglielmino (1977) who developed a self-directed learning scale. The Self-directed Learning Readiness Scale (SDLRS) is a 41-item measure assessed by a 5-point Likert scale. The scale was found to
be valid (Long & Agyekum, 1983). Hoban, Lawson, Mazmanian, Best, and Seibel (2005) assert that efficacious use of self-directed learning scales and literature must move from prescriptive use of perception to engagement with disciplines such as neurobiology and social psychology (Hoban, et. al., 2005).

As adult learners’ perceptions and motivations are often influenced by family dynamics and/or employment expectations, it is vital to connect educational tasks in the classroom with future aspirations. Adult students thereby gain more self-confidence, complete tasks and press on to goal attainment (Wigfield & Cambria, 2010). When this population of learners realize academic success, they more readily see an interconnectedness of classroom and real life experiences. Increased confidence levels lead to a reevaluation of personal and employment goals. This change is captured in transformational learning theory, which considers how the adult learner processes cultural, moral and academic contexts, thereby increasing a sense of meaning and persistence in their studies (Sandlin, Wright, Clark, 2013).

An examination of theory provides a sense of grounding for adult education programs and educational administration in general. Those charged with administering adult education programs will do well to consider the theoretical underpinnings to adult student persistence in the postsecondary setting.

Meeting Adult Learner Campus Needs

Some adult learner come to postsecondary education with histories of pedagogic methods and institutional policies which devalued students by failing to take into consideration the unfamiliarity of college life. Unfortunately, student perception of institutions as uncaring and/or even punitive is very likely. This judgment may cause adult learners’ reluctance to formal education settings and consequential delays in entering postsecondary education (Wojecki,
The practice of college campuses scheduling activities only during traditional school hours could leave adult learners devalued and believing they do not matter. (Donaldson & Townsend, 2007).

Meeting the academic and life needs of the adult learner include creative class scheduling, online academic advising, and offering of certificates nested within degree programs (Tate, Klein-Collins, & Steinberg, 2011). The adult learner needs to be made aware of the institution’s recognition of their unique situations. A promising method is to designate campus advocates with institutional authority to solve student problems and is among a variety of student service policies designed to increase retention of adult students (Bailey & Marsh, 2010).

Postsecondary institutions (community colleges in particular), though facing financial limitations must invest in student lives through the implementation of student engagement practices. These would include, but are not limited to: academic goal setting, mandatory orientations first year experiences courses, encouragement to join learning communities that take into consideration non-traditional student schedules, early alert interventions for struggling students, and active communication with advising staff McClenney, Marti, & Adkins (2012). Providing adult learners opportunities to share their struggles managing time has proven very effective to both address fears and increase planning abilities regarding the amount and times classes are taken. Overwhelmed adult students need encouragement and advice to manage their busy and complicated lives (Graham and Gisi 2000).

The financial and institutional impact of adult students upon community college campuses is inestimable. The levels of enrollment and acquisition of meaningful marketplace credentials, are the primary ways the needs of the adult student are taken seriously and the
United States will continue to be competitive in a global economy (Chaloux, 2008; U.S. Department of Education, 2006).

**Legislative History of Adult Learners in Adult Basic Education Programs**

Historically, the adult learning process had been undergirded by the idea of literacy. Though most today would limit literacy as basic communicative and computational skills, there existed citizens in past generations who were considered literate in daily activities but wouldn’t have been able or even willing to try to read from daily newspapers or magazines (Davison, 1962). For clarity in this study, adult literacy will be defined as the process of acquiring the ability to read, write and solve mathematical problems to function in daily life situations.

Though numerous adult basic education programs exist, few participate. Whether from a perceived lack of relevancy, simple accessibility, or lack of funding, many eligible Americans choose not to participate in these remarkable programs. In fact, approximately 39 million of American citizens cannot read (U.S. Department of Education, 2013). As the need for skilled labor increases, it becomes apparent that concerted efforts to educate the United States citizenry is needed. This realization resulted in the creation of the Basic Education Act, first under the auspices of the Office of Economic Opportunity prior to movement to the Office of Education in 1966. Throughout the 1970’s the act was expanded to include service to persons as young as 16, Native Americans and those needing bilingual adult education. By the end of the 1970’s there was expansion of the philosophy that adult basic education is the primary means to achieve functional ability in one’s personal and professional lives.

The evolution of the Adult Basic Education Act in the 1980’s was revealed in the 1984 and 1988 amendments. The Reagan administration elevated adult literacy to the national spotlight but for purposes of fiscal responsibility chose not to increase federal appropriations.
The administration’s answer was to increase the use of volunteers. The concerns over decreased funding included disregarding current adult basic education programs, efficacy of volunteers vs. paid staff, and the increased strain of raising funds from the private sector.

The 1988 amendment included a significant reversal in funding decisions with the federal government appropriating 200 million dollars to state’s adult basic literacy programs. Funding to for-profit agencies providing adult literacy services were significantly restricted and a greater emphasis on English and workplace literacy was made (Rose, 1991)

The 1990’s saw the enactment of the National Literacy Act (1992). This legislation created the National Institute for Literacy charged with training adult education agencies, instituting research and publishing results for adult education best practices. In addition, National Workforce Demonstration programs were created to coordinate services between education, business and industry. Sorely needed, this act also encouraged states to develop measurable criteria for efficacious instruction and management of adult literacy programs. Reminiscent of the original 1966 legislation, was the passage of the Workforce Investment Act. Title II of this act for the first time considered the impact of providing literacy services to families. Significant to this act were an increased ability and emphasis on individual agencies applying for grants and reporting standardized provider statistics.

From 2000 to 2010, federal appropriations to states for adult literacy increased by 19%, while enrollment also increased by approximately one million over the same period. In 2009, President Barak Obama announced a goal for every American to commit to obtaining one year of higher education or career training. It’s been estimated that 93 million adults don’t possess the ability to be successful in either college or workplace settings. Thus, the need for adult literacy is greater than ever. (U.S. Department of Education, 2013)
GED: An Expression of Adult Learning Theory

GED Credentialed Student Barriers to Persistence

Since 1942, the GED credential has served as the primary vehicle for those who failed to earn a traditional high school diploma and as second chance to pursue purposeful further education. Like many non-traditional students, adult learners possessing GED credentials present challenges to post-secondary institutions. First, in an era of public funding cuts and increased public scrutiny, colleges and universities are tempted to emulate private sector business models for their primary means of governance. This reality has the potential of creating unnecessary layers of administration, increased number of department providing identical services, a decreased willingness to share important information regarding students, and a move from protecting institutional rather than student matters (Friedman, 2015). Though understandable in tenuous times, institution driven policy becomes antithetical to the adult learners needs.

Another major barrier is non-academic factors for GED credentialed adult learner success in college. Many adult learners involuntarily reenter the education system because of life events such as divorce or other potential issues of financial instability. Students struggling with chaotic life issues, fail to understand themselves as students, question their ability, and wonder if the pressure of school will be worth the emotional and financial cost (Kasworm, 2008). The literature details numerous general challenges for adult learners pursuing postsecondary education with GED credentials. One that is often overlooked by institutional personnel is emotional difficulties. Even on a small campus managing building and classroom numbers, academic advising, financial aid, parking, and hours of services such as the library, can be insurmountable (Brickman & Braun, 1999). Busy adult learners juggle multiple life roles and
are forced to make tough decisions when for instance, one’s work schedule changes and going to work means missing class and risking academic failure. Institutional personnel are challenged not only to show compassion but also to refer students to others in similar situations as a potential social network to support students through notetaking, study groups, and childcare (Lundberg & Creasman, 2008). Finally, in some cases campus architects can forget that signage’s primary purpose is direction not aesthetic value. Ineffective signage can derail the new adult community college student’s academic career before it begins (O’Banion, 2013).

GED Credentialed Students and College Readiness

The GED as Predictor of College Readiness

The literature affirms the ambiguity regarding the rigor of the GED program constituting college readiness. Reder (2007) found non-statistically significant differences in the number of developmental courses taken by GED credentialed and high school graduates. Contrarily, problems like aspiring for a passing grade instead of not striving for one’s best on the test, memorization of test questions rather than understanding content, and a disregard for finding relevancy in the material exacerbates the ill-preparedness of the GED credentialed community college student. (Garvey 2011). Students often struggle; with having minimal experience of natural/physical sciences and math to successfully manage the completion of general education courses required in transfer programs (Aud, et al.).

Those who are unable to meet college requirements in math, reading and writing through standardized tests must enroll in remedial coursework. Those students entering college with a GED credential were more likely than high school graduates to take developmental math and writing courses (Tokpah, Padak, 2003). Taking remedial coursework and resulting in non-credit often becomes a primary reason for student attrition (Bailey, 2009).
GED credentialed students have the daunting task of managing college requirements with less college preparation than their high school graduate counterparts. One study revealed that only 35% of those completing a GED credential participated in college preparatory classes prior to dropping out compared to over 53% of high school graduates (Malkus & Sen, 2011). Marginal students lacking in credits or struggling with attendance could easily judge the GED option would be easier than the rigor of traditional high school. In fact, GED test takers prepared for an average of 32 hours (Zhang, Han, & Patterson, (2009). Unfortunately, this kind of preparation does not necessarily translate into postsecondary education success. Heckman, Humphries, & Kautz (2014) noted:

On outcomes that matter, as a group, GED recipients are not equivalent to high school graduates. High school graduates outperform GED recipients in terms of their earnings, employment, wages, labor market participation, self-reported health, and college completion. Graduate are less likely to use alcohol, commit crime, or go on welfare (pg. 3).

Institutional Intervention: Empowering GED Credentialed Students

The Nature of Academic Advising

As student retention continues to challenge postsecondary institutions (Lau, 2003), the role of academic advising has become a major topic of discussion (Drake, 2011). Despite a renewal in conceptualizing the impact of advising on student persistence, academic advising is not new to higher education. During the 1870s, a major change occurred whereby college students were afforded elective course choices in their general curricula. Faculty specialization and need for increasing research resulted in the advent of academic advising positions in higher educational institutions. Students quickly utilized these persons as their primary advocates in
their pursuit of post-secondary education (Gordon, Habley, & Grites 2008). Successful academic advising proceeds well beyond the perfunctory process of course registration, rather mentoring relationships with students have proven effective in persistence efforts (Young-Jones, Burt, Dixon, & Hawthorne, 2013). Results from the 2015-16 Ruffalo Noel-Levitz Student Satisfaction Inventory report that 80% of students found important that their academic advisor expressed concern about their success, but only 53% admitted this was their personal experience. Successful advising must be student driven (Ruffalo Noel Levitz, 2016).

Student persistence is positively correlated with perception of the student advising process and student loyalty to the postsecondary institution (Vianden, & Barlow, 2015). Passionate academic advisors understand themselves as a resource for students (Young-Jones et al., 2013), possess the necessary educational paths to guide students to reach their desired goals (Robbins, 2012) and understand themselves as a significant force in the student’s academic success (Young-Jones et al., 2013).

A general goal of postsecondary institutions is the development of self-reliant citizens. Academic advising is a major process to that end. It must contain clear boundaries for both student and advisor alike (McClellan, 2013). Fearful, inexperienced students have the potential to become overly dependent on their academic advisor and cease taking responsibility for their own academic and life aspirations. Though institutions crave data regarding student satisfaction, the purposeful academic advisor must consider the task of creating self-reliant citizenry daily (Christian & Sprinkle, 2013).

Advising as an Expression of Educational Mission

A primary role of academic advising is to teach students how to consider their future aspirations. Institutions need to acknowledge the importance of the advisor as a necessary link to
student classroom experience. A novel approach to help students see advising as educational is to create a syllabus tool that academic advisors can utilize to remind students of their primary learning outcome; to fulfill life goals (Trabant, 2006). Student advising contact must be mandatory prior to registration (Johnson & Morgan, 2005). As postsecondary institutions face decreased state and federal appropriations, advising case-loads have increased. This reality is being addressed through a creative use of group advising almost mimicking classroom environments (Robbins, 2012) and to a lesser extent, virtual advising to reach more students with less personnel (Thompson & Prieto, 2013).

Another way to connect advising and classroom processes is to expose students to other’s stories. Considering their lack of understanding of college rubrics, GED credentialed students question their belongingness and ability to accomplish their academic goals. One approach to this quandary is to convince this student population that their background can impact their college experience in both negative and positive ways. Using a panel format, experienced (traditional and non-traditional) students were given the opportunity to review their past family situations, obstacles they faced upon college entrance, and coping skills that led to their success. Likewise, students were given the same opportunity to share. This process benefitted students for various reasons including, a recognition of the value of their unique situation, motivation to replicate success strategies in others, and challenge the idea that students must somehow fit themselves into prescribed academic roles (Stephens, Hamadani & Destin, 2014).

It is vital that adult students recognize the presence and value of campus support services. Students who believe the institution is not concerned with their needs are less likely to persist (Park, & Choi 2009). Students must be exposed to purposeful advising throughout their entire program (Wyatt, 2011) thereby transmitting the message that the institution believes the process
is important for their attainment of life aspirations (Braxton, Doyle, Hartley, Hirschy, Jones, & McLendon, 2014). The above is particularly important for the adult learner entering college with GED credentials. They will necessarily benefit from the presence of flexible and compassionate policies and people (Chiang, & Hawley, 2013).

Advising as an Expression of Academic Planning

The temptation of an academic planning process is to limit its context to semester course sequencing. To serve as a bridge from student to employee, an academic must consider a student’s inner workings (confidence and propensity to discipline), institutional factors (mission, applicable services, funding sources), and community employment setting (economic development) when judging the plan’s efficacy (Lattuca & Stark, 2009).

As advisors are often understood by students as an “expert” in all fields, there might be the temptation for both student and advisor to quickly agree on registration for general education courses without reflection on student needs and institutional resources. The literature (Wyatt, 2011; Kuh, et. al., 2007; Trabant, 2006) suggests multiple benefits of developing academic plans for college students. Whether termed “roadmaps” or “pathways, academic plans must make sense to the student, connected to documented 4-year institutional transfer guides and market valued employment credentials, and accepted by faculty. The resulting collaboration between faculty and student services allows for partnership between the student and institution (Jenkins & Cho, 2013).

Faculty Course Syllabi Impact Upon Student Persistence

Whether as a student motivator or a simple means to communicate pedagogical expectations, a well-crafted syllabus serves as a roadmap for student success. This is particularly important to the GED credentialed student who by nature of their experience would have limited
experience with course syllabi (Slattery & Carlson, 2005). As a roadmap, the syllabus must be detailed enough to provide necessary information like due dates and grading rubrics but a review of it during the initial and subsequent class periods could provide greater security for otherwise anxious students (Harrington & Gabert-Quillen 2015).

Another major need for adult (and particularly GED credentialed) students is a clear presentation regarding grading policies. It is not unusual to consider course grades as an objective measurement of learning. As simplistic view as this has the potential raise instances of cheating but also self-depreciating attitude ultimately leading to dropping out (Weimer, 2002). Possibly using a learner-centered approach to grading by using the term assessment can help students’ anxiety and potential lack of classroom and institutional engagement. Effective assessment should include clear (and compassionate) explanation of expectations, timely instructor feedback, and review of areas of needed growth through an invitation to consult with the instructor (Angelo & Cross, 1993).

Though fearful, adult learners believe institutions and faculty main responsibility is to partner with them for purposeful learning situations. This can be accomplished by setting a positive tone encouraging students to visit instructors not only for course assistance but relationship building. Students wo believe that their instructors truly care about them and their craft will more likely have a greater sense of belonging in the class. In addition, faculty who provide students rationale for and potential approaches for success on assignments, quizzes and/or exam can reduce overall anxiety. Finally, instructors who transparently disclose their own academic struggles has the potential for students to see them as advocates rather than cold purveyors of information (Harnish, et al., 2011).
Faculty Instructional Method’s Impact Upon Student Persistence

Student centered faculty interaction tends to result in higher student satisfaction (Pascarella & Terenzini, 1977, McArthur, 2005). Moving toward this goal, faculty must balance the needs of the student, institution and the marketplace to ensure students are successful in the broadest sense of the term. Faculty then serve as mentors to their students (Capps, 2012).

Effective pedagogy, utilizing various teaching methods and encouraging students to critically think about subject matter, helps students see the overall value in education for their lives. Pedagogy using reduced reliance upon traditional lecture, requiring individual meetings with faculty, and using focused small groups designed to allow peers to teach one another, helps students take greater responsibility in their learning process (Wade, 2011). It is not uncommon for GED credentialed students to have a minimal scope of reading experiences and might struggle with textbook makeup. Adult learners sometimes imbued with fear and often facing financial limitations, but believing education will result in life/employment goals must be given open and honest information regarding how exactly required textbook reading will increase student learning experiences. (Kenner, Weinerman, 2011).

Course design and lesson plan development should include surveying student situations and needs. The development of a cooperative learning environment based in learner interest and life situations can be formulated through icebreakers. Questions should be tied to course expectations and outcomes (Eberly Center, 2016). This approach helps students move from simple remembering content to motivating students to own material in an individual and group context (Krathwohl, 2002). Students quickly see the value of and can apply the skills learned regarding teamwork.
Adult learners possessing GED credential have the potential to become quickly overwhelmed with class proceedings they judge as trivial or worse can come in conflict with other students who have differing opinions. Astute instructors use this potential volatility to give student opportunities to problem solve (Dirkx, 2008). Active learning results in students recognizing the applicability in the material for their own situations. Presentations with disembodied facts and figures and no real-life correlation will be forgotten. Engaging students in problem-solving can be accomplished through structured games, case studies or hands on activities. College students have varying learning styles (Harrell & Bower, 2011) and educators will acknowledge this by using multiple teaching methodologies during class (Russell, 2006). Failure to do so can cause students to disengage and increase the risk for dropping out. Another efficacious teaching method is the use of anecdotal information to help students retain class material and benefit from hearing other’s personal experience. At times, the class environment can become stale. Reasons like extended time since a break, time of day/night or seemingly lifeless but required information can all cause this kind of situation. Instructors are challenged to remember that their very reason for existence is to help students grow as persons (Emerick-Brown, 2013).

Instructors in student-focused classrooms encourage class members to share their experience to reaffirm class materials and remind students of their value to the class. Engaged discussion is encouraged where instructors are enthused by both the material and the students. Instructors can combat GED credentialed student insecurity by making themselves available outside of class either through office hours or before and after class (Stes, Gijbels, Van Petegem, 2008).
Most GED credentialed students have experienced teaching predominantly in traditional classroom settings. As such, the physical classroom setting is extremely important for student engagement. Wherever possible, instructors are encouraged to organize desks, chairs and other teaching objects to enhance interactive and contextualized learning (Park & Choi, 2014). For example, desks or chairs could be set up in circular fashion demarcating one group from another during group activities. Another common technique is to set up desks so all students face each other rather than the traditional line fashion that GED credentialed students remember from their high school days. When they are given a voice in the development of classroom environment GED credentialed students are given an opportunity to build decision making skills and are reminded of the mission of postsecondary education; to create critical thinking productive citizens (Veltri, Banning, & Davies, 2006).

By focusing on educational methodology and physical classroom space, learning opportunities can be enhanced. Students will more likely integrate material into their own lives and apply it to current and potential work situations. Instructors are challenged to give at least equal value to people and content to heighten the probability of student success.

Previous Class Experience’s Impact Upon Student Persistence

The GED student often has a history of making bad choices, strained family relationships, low self-worth and lack of follow through (Heckman, Humphries, & Mader, 2010). The cumulative effect of bad decisions become negative perceptions of self. Many GED students who continue into postsecondary education come with negative classroom experiences including being ridiculed for perceived inadequate oral responses in class and a perception they lack the necessary cognitive ability to be successful in school. They carry shame, regret, anger, anxiety and a general judgment that they don’t really belong (Marschall, Davis, 2012). This
population of student can be particularly reluctant to speak out. Instructor comments must be framed positively even if wrong answers might be stated. Considering student fears is imperative to creating an atmosphere where students will begin to consider classroom content meaningful and practice the process of critical thinking (Rocca, 2010).

Fear can negatively affect self-efficacy. Some GED credentialed students believe they are incapable of reaching their goal of earning postsecondary credentials but understand they must have them to meet life needs. Past failures motivate students to hide any lack of ability for fear of the cycle repeating itself. (Hsieh, Sullivan, & Guerra, 2007).

A very promising program that addresses pedagogical method and negative student experiences is the institution of supplemental instruction programs. Students who have displayed mastery over course material are hired as Supplemental Instruction (SI) leaders. Peer facilitators are hired and responsible to attend and take notes during regular class meetings, and schedule supplemental instruction sessions for at least two hours per week. Students are free to use this optional service to review course material and have answered questions or concerns they might have. Some instructors, becoming more comfortable with this process, allow SI leaders to help students quietly during regular class time (Cerna, Platania, & Fong, 2012).

Positive classroom environment where students believe they matter will motivate student success. GED credentialed students will move beyond their fears and engage in successful academic behaviors include attendance during voluntary study skills seminars, be able to articulate importance for particular classes, consult with employers regarding scheduling needs, finding study areas with less distractions, and making needs known to instructors (Wirth & Padilla, 2008). These actions become examples of how GED credentialed community college students take responsibility for their actions and move toward becoming self-reliant citizens.
Summary

This literature review began with a consideration of the potential barriers of the adult learner and a history of the General Education Development (GED) program. The adult learner cannot be categorized by simple age or any other demographic means. The adult learner is one who chooses to return to school and finds value in education’s ability to fulfill their goals and dreams. The GED program originally began as a way that persons who discontinued their high school experience to militarily serve the United States. The original test has been revised four times since its inception in 1942. Though heralded by many and maligned by some, the GED program continues to stand as a primary means in which persons can continue their educational journey.

This literature review continued by demonstrating the impact of student service advisors, faculty and college readiness upon persistence of GED credentialed community college students. Regular communication and satisfaction with student services advisors has proven numerous times to provide inexperienced and fearful students with the necessary resources to be successful. The advisor and student must form a team with only one goal; student persistence. Mandatory meetings, advisor presence in first year experience courses and encouraging students to share life stories in safe settings are among a few researched based interventions proven to increase student persistence among GED credentialed community college students.

Next, this chapter considered the impact that faculty pedagogical method, interactive and purposeful syllabi, and previous student classroom experience have upon GED credentialed community college student persistence. Instructor use of contextualized learning, flexible class policies, recognition of adult learners need to balance multiple roles all have proven efficacious in increasing persistence with this student population. Sensitivity to previous experiences of
shame and embarrassment, has the potential to move a student past their fears and recognize the institution and its personnel have the student’s best interest in mind.

Finally, a review of pertinent literature regarding the importance of student college readiness upon persistence of GED credentialed students commenced. College readiness, though somewhat elusive to concrete definition, generally is recognized to be the possession of cognitive (discipline based) and non-cognitive (wherewithal to manage college life) skill sets to be successful in the college setting.
CHAPTER 3
RESEARCH METHODOLOGY

The purpose of this study is to investigate the impact of college readiness and institutional intervention upon GED credentialed community college student persistence. Utilizing a quantitative approach, the Survey of Entering Student Engagement (SENSE) will be used as the primary resource measuring college readiness, institutional intervention and other important variables. This chapter will discuss the methodology used throughout the study including a review of research questions, hypothesis statement, conceptual model, use of particular statistical techniques, ethical issues and limitations of this study.

Research Questions

Research questions were posed to study factors impacting persistence of students in community colleges possessing a General Equivalency Development (GED) credential. The following research questions guided this study:

1. What are the demographic characteristics of GED credentialed students who have participated in the 2014 SENSE survey?
2. What intercorrelations exist among variables measuring student college readiness and institutional intervention in the SENSE survey?
3. Are there statistically significant differences in demographic characteristics (e.g. age, marital status, children in the home, etc.), college readiness (skills, attitude, behavior) and institutional intervention (advisor/faculty support) between GED credentialed and high school diploma community college students?
4. What factors predict GED credentialed community college students’ intention to persist?

Hypothesis

A null and alternative hypothesis form will be utilized to frame applicable research questions in this study. Only questions two through five will be listed as question one pertains to descriptive analysis.

H₀₁: There is no intercorrelations among variables measuring student college readiness and institutional intervention in the SENSE survey.

H₀₂: There are no statistically significant differences in demographic characteristics (e.g. age, marital status, children in the home, etc.), college readiness (skills, attitude, behavior) and institutional intervention (advisor/faculty support) between GED credentialed and high school diploma community college students.

H₀₃: There are no factors that predict GED credentialed community college students’ intention to persist.

Research Design

This study will use a cross-sectional analytic design, where data was collected at a particular moment in time. This method allows research to be accomplished in an efficient manner, allowing for analysis of multiple variables regarding attitudes and opinions to be measured simultaneously. Though cause-and-effect relationships cannot be deduced in this method, inference and generalization is possible (Creswell, 2015). Specifically, this analytical cross-sectional design will consider the relationship of the construct of college readiness and the intention to persist in GED credentialed community college students.
Survey Instrument

The Center for Community College Student Engagement serves community colleges by providing ongoing research through publication and journal articles for purposes of increasing persistence and graduation rates through student engagement. The center has produced and annually administers the Community College Survey of Student Engagement (CCSSE), The Community College Faculty Survey of Student Engagement (CCFSSE), and The Survey of Entering Student Engagement (SENSE), which considers the earliest college student experiences.

This study utilized a well-recognized large national survey, Survey of Entering Student Engagement (SENSE), as the means to measure GED credentialed community college students’ college readiness, intention to persist and other crucial variables. The SENSE question bank focuses on institutional practices and student behaviors during students’ earliest college experiences. Data once collected is analyzed and member colleges receive regular reports to utilize data to better understand students and enact improved quality measures. This data regarding early intervention is useful in improving course completion rates and rates of student persistence beyond the first term of enrollment. The survey also considers research embedded institutional practices to support and retain entering students during the earliest part of their academic careers.

SENSE is administered at member community and technical colleges in weeks four and five of the fall term. The survey generally takes no longer than 45 minutes for completion. Member colleges of the (CCCSE) provide a list of courses typically taken in the first semester. These include developmental writing/math (excluding ESL), first year college-level English, first year college-level math, and student success/first year experiences courses. CCCSE then
randomly samples course sections from member colleges who have agreed to administer the 
SENSE survey.

As SENSE is sampled at the classroom level, full-time students will be enrolled in more 
classes than part-time students, and thus will be more likely to be sampled. After much study 
following the completion of the field test, CCCSE decided this sampling bias would be 
addressed by weighting results using Integrated Post-Secondary Education Data System (IPEDS) 
data to correct for college size. To assist in this process, the CCCSE web reporting site provides 
capability to generate data in either weighted or unweighted formats. The organization also 
provides particular rationale to assist institutional researchers in making decisions regarding use 
of the data.

Member colleges receive various tools and institutional reports including “Key Findings 
(executive summary) and access to the SENSE online reporting system. Reports contain mean 
and frequencies for the current cohort and individual colleges, benchmarks, comparisons 
between colleges (liked-size colleges), and the option to request custom reports. In addition, 
member colleges receive access to a downloadable data file, codebook for institutional use and 
multiple print copies of “Key Findings” are made available to community college presidents.

The SENSE survey questions attempt at gathering relevant student information regarding 
their first impressions of college processes like admissions, placement testing, orientation, 
registration, financial aid, relationships with faculty, advisors and other students, types of 
academic behavior, and general sense of supported belonging. The 2014 cohort SENSE survey 
instrument contained 38 questions. A copy of the survey is included as appendix A.
**Pilot Study**

In 2007, 22 community colleges administered the *SENSE* pilot survey and obtained 13,233 usable surveys. Students entering their first semester and returning students responded to the survey. First year college level English, math, and all developmental education courses (excluding ESL) course were administered the original survey. The pilot *SENSE* survey included a series of core questions with additional specified modules. Goal commitment and student success courses were two major modules included in this pilot (CCCSE.2007).

In 2008, 89 community colleges volunteered for the *SENSE* field test survey and obtained 57,547 usable surveys. Like the *SENSE* pilot, classes were randomly selected from first-year college English, math and developmental courses (excluding ESL). In addition, colleges were given the opportunity to administer now three focus modules: student success courses, commitment and support, and financial aid. Students in the field tests included both first term and returning (CCCSE, 2008). The first national administration of the *SENSE* occurred in fall 2009.

**Reliability and Validity**

Currently there is no official reliability/validity study for the *SENSE* survey but is due to be completed in January 2019. Therefore, other studies testing college readiness constructs will be reviewed here. “When used in connection with tests and measurements, reliability is based on the consistency and precision of the results of the measurement process.” (Urbina, 2014). Factors comprised of *SENSE* question making up the college readiness construct were confirmed in previous studies. For instance, Le, Casillas, Robbins and Langley (2005) utilized exploratory and confirmatory factor analysis correlating demographic and achievement score variables to test the reliability of the Student Readiness Inventory. Similarly, Hoban, Lawson, Mazmanian, Best
and Seibel (2005) measured medical students’ willingness to engage in self-directed learning. They specifically considered the love of learning and utilizing faculty as partners in the learning process. Finally, Smith, Murphy and Mahoney (2003) tested the reliability of their Readiness for Online Learning survey that resulted in a satisfactory Cronbach alpha of 0.83. The construct factors included confidence in academic skills, and willingness to communicate with classmates and instructors.

According to Cronbach and Meehl, (1955) validity must be discussed through four categories:

The categories into which the Recommendations divide validity studies are: predictive validity, concurrent validity, content validity, and construct validity. The first two of these may be considered together as criterion-oriented validation procedures…The investigator is primarily interested in some criterion which he wishes to predict…If the criterion is obtained sometime after the test is given, he is studying predictive validity. If the test score and criterion score are determined at essentially the same time, he is studying concurrent validity…Content validity is established by showing that the test items are a sample of a universe in which the investigator is interested…Construct validation is involved whenever a test is to be interpreted as a measure of some attribute or quality which is not operationally defined. (pp. 281-282)

As the validity study for the SENSE survey will not be completed until January 2019 and SENSE survey items were taken from the CCSSE survey, evidence for validity will be taken from the CCSSE survey. The CCSSE validation research study considered relationships between engagement and outcome (GPA, course completion, etc.). Though not primarily an institutional evaluative tool, the survey provides evidence that can motivate change in
institutional policy and procedures. The study’s approach was three-pronged; linking CCSSE survey results with Florida community colleges (provided by Florida Department of Education), CCSSE Hispanic Student Success Consortium and 24 of the original Achieving the Dream participating colleges. The linking of these studies added to the needed community college specific research base and addressed student diversity. In addition, academic success, early academic experiences, persistence, completion, and longevity (number of terms enrolled, credit hours completed, etc.) were measured. The study used statistical methods including correlations, and multiple and logistic regression, controlled for student academic and demographic characteristics. Conclusions included strong consistency among the three studies, student engagement as proxy for student academic achievement, and CCSSE benchmarks (active/collaborative learning, student effort, academic challenge, student-faculty interaction, support for learners) were predictably related to student outcomes. The “support for learners” benchmark (institutional intervention) had the strongest impact on persistence levels. (McClenney, Marti, & Adkins, 2012).

Population and Sample

Member colleges have the opportunity to participate in on-going research regarding community college student engagement and success. The SENSE survey is administered during the fourth and fifth weeks of the fall academic term and is aimed at entering students. Survey items focus on institutional practices and student behaviors that research has shown to be correlated with academic success.

“CCSSE utilizes a three-year cohort (2012 through 2014) of participating colleges in all of its data analyses, including the computation of benchmark scores. This cohort is referred to as
the 2014 CCSSE Cohort” (CCSSE, 2016a). This cohort included a total of 106,840 respondents. The SENSE survey sample obtained by this researcher totaled, 26,204 students from community colleges nationwide. 1,459 students were identified as General Education Development (GED) graduates. The criterion for that identification was respondents’ answer to survey question #36 “What is the highest academic certificate or degree you have earned?

Data Collection

The survey data is collected through an in-class paper survey during weeks four and five of the fall academic term. Each survey came with a pre-printed serial number. Question 39 of the survey offers students the option to include their student identification number. “Student identifiers are not included in institutional reports, nor are they stored on any web-connected server. However, institutional contacts may submit a request for encrypted data files including student-level identifiers” (CCSSE, 2016b). Using pre-determined procedures, survey administrators are responsible to maintain regular communication with institutional administrators and faculty, schedule surveys, provide student assistance (through use of a CCSSE provided script), ensure smooth completion of and return of the survey.

This researcher contacted the Center for Community College Student Engagement (CCCSE) who administered the SENSE survey and provided the necessary materials through the completion of a Data Use Agreement. After approval to utilize the 2014 SENSE survey dataset, CCSSE research staff emailed this researcher (at no cost) the dataset in .csv format and data was uploaded into SPSS 23.0.
Conceptual Model

An analysis of college readiness and resulting intention to persist cannot be separated from the student’s personal situation and internal belief system. Building upon andragogical theory, Knowles (1978), Cross (1981) proposed the Characteristics of Adults as Learners (CAL) to increase an understanding of life-long learners’ unique situations and barriers. The CAL model dichotomizes variables into either personal or situational characteristics. Personal characteristics are those which consider the student’s age, physical health, socio-economic status, language, and maturity level. Situational characteristics consider the conditions in which learning takes place including family/employment responsibilities, effective support systems and academic learning settings.

As the adult-learner must manage increased life responsibilities, college readiness isn’t limited to possession of an unlimited bank of discipline related nor academic classroom skills. Rather, college readiness requirements are fulfilled in an adult learners’ willingness to find relevancy in the material for their daily life situation (Chickering, 1981; Knowles, 1980; 1981; Terrell, 1990).

Adult learner theory presupposes how effective advising and faculty intervention should take seriously adult learner experience, need for personal development, and andragogy where student have input regarding class procedures. In addition, this model application was influenced by Knowles et. al.’s (1998) “andragogy in practice model” which considers the learner’s thirst for contextualized knowledge, self-understanding, learning experiences, high motivation to learn, and belief that education will provide personal benefit. This model and study hypothesize that advisor and faculty support will increase the GED credentialed community college students’ ability to problem-solve and be self-directed.
Figure 3.1. Applying Knowles’ (1980) theory of andragogy.

The model was also analyzed through logistic regression, considering the impact of operationalized latent and observed variables originating from the SENSE survey. Confirmatory factor analysis (CFA) was utilized to test latent variable structures and overall significance of the conceptual models’ pathways.

Variables in the Study

**Dependent (Endogenous) Variable**

*Intention to Persist.* This study’s dependent variable was the intention to persist at a community college. Results were contrasted considering differences between GED credentialed and high school diploma community college students. The original variable AGAINCL was measured by survey question 25: “When do you plan to take classes at this college again?” The
original question was assessed using a 4-point Likert scale with the following options (1) “I will accomplish my goal(s) during this semester/quarter and will not be returning”, (2) “I have no current plans to return”, (3) “Within the next 12 months”, and (4) “Uncertain”. Through recoding, the research created a new dichotomous variable “Persist” using a scale of “Not Persist=0, Persist=1”.

Independent (Exogenous) Variables

Demographics. A group of seven variables captured participants’ demographic characteristics. These variables included participants’ number of hours working per week, self-reported high school grades, gender, age, marital status, presence of children in the household, race/ethnicity, students taking developmental classes, and first generation status. Questions #24b, #28, #29, #30, #31, #32, #35, and derived SENSE survey codebook demographics was used for demographic characteristics analysis.

College Readiness. For this study, college readiness was an exploratory factor analysis construct taken from questions #19 and #21 in the SENSE survey. Question #19 asked, “During the first three weeks of your first semester/quarter at this college, about how often did you do the following?” This question was assessed by a 4-point Likert scale from never (1) to four or more times (4). Question #21 asked, “Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter. Within a class, or through another experience at this college…”. This question assessed by a 5-point Likert scale from strongly disagree (1) to strongly agree (5). Both exploratory and confirmatory factor analyses will be used examine the college readiness construct in this study.

Advisor Support. Advisor support was an exploratory factor analysis construct taken
from 5 items in question 18, pertaining to academic advising. Question 18 required students to consider the following: “Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter.” Specifically, it asked whether students were able to meet with an advisor, advisors helped students select course of study, assistance with academic goals and formal planning was offered, advisors assisted students in identifying appropriate courses to be taken in the first semester, and students had someone to review the appropriate number of courses to take consider outside the class life stressors. Question #18 was measured by a 5-point Likert scale moving through a continuum of strongly disagree (1) to strongly agree (5).

**Faculty Support.** Faculty support was an exploratory factor analysis construct taken from 3 items in question 18, pertaining to faculty intervention in the classroom. As previously stated, Question 18 required students to consider the following: “Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter.” Specifically, these items addressed; whether faculty clearly explained course grading policies, explained course syllabi, and whether students had clear direction of how to contact their faculty. Question #18 was measured by a 5-point Likert scale from strongly disagree (1) to strongly agree (5).

**Data Analysis**

A quantitative research approach was utilized for this study. Statistical analytical methods included, descriptive, comparative and factor analyses. Additionally, logistic regression was utilized. IBM SPSS 23.0 was used to conduct descriptive, comparative, exploratory factor and logistic regression analysis; and an AMOS add-on to SPSS was used to conduct confirmatory factor analysis.
Descriptive and Comparative Analysis

Research question #1: What are the demographic characteristics of GED credentialed students who have participated in the 2014 SENSE survey? RQ 1 was explored through conducting descriptive statistics. Descriptive statistics is part of a process that characterizes (Urdan, 2010), and constitutes (Mertler, Vannatta, 2013) data to disclose estimates and relationships to make reliable inferences (Tabachnick, Fidell, 2013). The purpose of this question will be to more fully understand the GED credentialed (often adult learner) community college student. This was accomplished through the use of response frequencies and central tendencies (means, standard deviations) regarding general demographic characteristics (gender, age, race/ethnicity), life balance (hours worked per week, marital status, children in the household) and academic experience (self-reported high school grades).

Factor Analysis (Exploratory and Confirmatory)

Research question 2: What intercorrelations exist among variables measuring student college readiness and institutional intervention in the SENSE survey? was answered through exploratory and confirmatory factor analysis. Factor analysis is utilized to reduce the number and regroup variables into a cluster (construct) to measure commonalities (Mertler, Vannatta, 2013).

The researcher’s goal in exploratory factor analysis is to produce a set of parsimonious (simple) factors (Tabachnick & Fidell, 2013) that have passed screening for normality, linearity, and multicollinearity. Statistical criteria for analysis results included eigenvalues greater than 1.0, and >.05 factor loadings (Mertler & Vannatta, 2013). Following statistical program produced analytical tools like scree plots, correlation matrices commonality in items, those items that did not meet the previous standard will be left out of the hypothesized constructs. Construct
reliability will be accomplished by the use of Cronbach’s alpha coefficient, which measures how close variables are related as a group. According to Creswell (2014), an alpha value of .7 and higher is considered acceptable. Two other statistical measures, the Kaiser–Meyer–Olkin (KMO) and Bartlett’s tests of sphericity are used to judge whether the data is suitable for factor analysis (Mertler & Vannatta, 2013).

Confirmatory factor analysis (CFA) is the process of testing the relationship between observed variables and conceptual constructs. Procedurally, CFA includes developing models informed by empirical studies, and determining a “goodness of fit” that often includes chi-square (> .90 good fit), root mean square error of approximation (RMSEA) (.05 to .08 close fit), and comparative fit index (CFI) (Schumaker, Lomax, 2016). For this study, EFA and CFA will be executed to explore advisor/faculty support, and college readiness constructs. Structural equation modeling analysis was grounded in the CFA results.

Comparative Analysis

Research question #3: Are there statistically significant differences in demographic characteristics (e.g. age, marital status, children in the home, etc.), college readiness (skills, attitude, behavior) and institutional intervention (advisor/faculty support) between GED credentialed and high school diploma community college students? was answered through a combination of cross-tabulation with Pearson chi-square, and independent sample t tests to see whether there existed significant differences.

The analytic method chosen was driven primarily by variable type and assumptions met. Nonparametric cross-tabulation with Pearson chi-square is used when researchers wish to analyze nominal variables, and to consider whether demographic variables are dependent upon membership in groups (Leech, Barrett, Morgan, 2015). Pearson chi-square testing is utilized
when comparing expected versus observed results (goodness to fit). Testing the null hypothesis, researchers determine whether any differences are a result of chance. Small chi-square value indicates a good fit, thus suggesting independence between variables analyzed. Contrarily, a large chi-square value shows a poor fit, need to reject the null hypothesis, and relationship between the two variables (Tabachnick & Fidell, 2013). The following formula is a mathematical expression of chi-square:

$$\sum \frac{(f_e - f_o)^2}{f_o}$$

The consideration of variables (demographic, advisor support, faculty support) upon students with high and low college readiness scores was accomplished through the use of independent samples t tests. Data samples must be independent, variance of groups being compared are equal, and the dependent variable must be approximately normally distributed (Morgan et al., 2013). The following formal is a mathematical expression of a t-score:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

**Logistic Regression Analysis**

Research question 4: What factors predict GED credentialed community college students’ intention to persist? was answered through a logistic regression equation. A logistic regression analysis was conducted to predict GED credentialed community college intention to persist in their academic endeavors as the dependent variable and two blocks of independent variables. The first block of independent variables included demographic characteristics while block two was rooted in constructs created through exploratory and confirmatory factor analyses. Since the
dependent variable, intention to persist for this study is dichotomous, logistic regression was chosen as the appropriate statistical method (Hosmer & Lemeshow, 2010).

**Missing Data Imputation**

Though the SENSE survey is offered in class through a paper format, it is highly probable that students not recognizing the institutional and personal value, would skip questions and not complete the survey. Those skipped questions have the potential to negatively impact the predictive power of the equation. Missing data is generally characterized on an increasing negative continuum from random to not random.

A number of alternative, albeit problematic methods exist in which to address this problem. Three common ones are addressed here. The first is a simple deletion of cases and/or variables. Missing data occurring either infrequently or based in a small number of variables will have minimal impact. Contrarily, missing data spread throughout the database, encompassing multiple variables can reduce one’s sample size drastically. Another method, involves creating equations for the missing values using logistic regression. Though complicated, this method appeals to some because it can be used in longitudinal data analysis. Finally, if the missing items are random, the expectation maximization (EM) method would be warranted. The goal is to eliminate bias in the missing values.

After assuring that missing items is truly random (variance t-tests, Little’s MCAR test), the expectation (E) step considers parameters such as correlations to find a conditional expectation. Using log-likelihood, missing observations are imputed through a logistic regression process. Maximum likelihood estimation is used as there was no missing data. This process continues until convergence is attained (Tabachnick & Fidell, 2013).
After careful consideration of various methods to address missing data, the decision was made to utilize a listwise deletion method, excluding data from those respondents who didn’t compete all survey questions within the analyses frame. After the listwise deletion, sufficient power remained for valid analyses.

Limitations

First, the SENSE dataset was limited only to the 2014 cohort of students thereby limiting longitudinal interpretation. The second limitation is that the SENSE survey is based in self-reported data. The need for honest and complete information is key for useful statistical analysis. Student misinformation regarding potentially embarrassing admission of students being placed into developmental classes for example, could result in unreliable data. Correlating institutional data to survey results would ameliorate the situation. The third limitation is the presence of “yes or no” type questions. By reducing these items to “yes” or “no” reduces the variability of the data. Rather it would be preferable to assess the likelihood of each of these responses using a Likert-type scale for the responses. An example is question #37 where students were asked to “indicate whether your goal(s) for attending this college include the following”. Students had three separate sub-questions, 37a “to complete a degree”, 37b “to obtain an Associate degree”, and 37c “to transfer to a 4-year college or university”. This is an error in the survey design. Potentially, a student could answer yes for all three sub-questions and produce duplicate answer and increase data problems. Positing this question using Likert-scale method would provide data that was more useful to both the researcher and institution.

Fourth, there were no questions regarding family or friend influence upon the decision to attend college or find extra-institutional support. Additional questions regarding students’ social
capital would provide a more well-rounded picture of student persistence barriers. Finally, the use of secondary data analysis without institutional persistence data and confined to the variables provided, resulted in a minimally defined dependent variable “intent to persist” causing a poor logistic regression model fit.

Delimitations

This study was delimited to colleges willing to pay the fees to become a member. This study was also delimited to students attending community colleges. Finally, the SENSE was delimited to students under the age of 18 as question 30 (AGENEW) referred to self-identified ages of 18 and 19. By implication, full time online students were delimited as the survey was administered using a paper based format in community college classrooms.

Ethical Concerns

An application to conduct research involving human participants was submitted August 2, 2016 for the Iowa State University Institutional Review Board meeting on August 16, 2016. As this study uses a secondary data source (SENSE), with no identifiers available to this researcher, nor any way to identify individuals, there was no ethical issue.

This study utilized secondary data collected from the SENSE survey created by the Center for Community College Student Engagement. The data was de-identified where all participant identifiers had been removed prior to the dataset being available to this researcher. In addition, the data was reported in aggregate fashion to prevent any disclosure of identifying information.

Summary

This study sought to consider the relationship between institutional intervention and college readiness and intent to persist in General Educational Development (GED) credentialed
community college students. This chapter included an overview of the methodology guiding the study, including the research questions, hypotheses, research design, survey instrument, pilot study, population and sample, data collection, conceptual framework, variables in the study, data analysis, ethical considerations, limitations, and delimitations. The study will utilize a quantitative research design using a national survey.

The following two chapters will present the results of the study reviewed in this methodology section and discuss the finding’s significance of the findings and implications for future research, policy, and practice. The overall goal of this study is to propose data based best practices regarding intent to persist of GED credentialed community college students.
CHAPTER 4
FINDINGS

This chapter provided an overview of the study’s results through the analysis of tables, figures, and explanations. The first section included descriptive statistics containing demographic characteristics and other variables related to academic outcomes, life responsibilities, and intention to persist. The descriptive analysis was conducted for the entire sample, high school diploma and GED credentialed student groups respectively. Second, exploratory factor analysis (EFA) outcomes provided possible constructs of college readiness and other key factors influencing community college student intent to persist, were reported. Confirmatory factor analysis (CFA) results also produced a reduced and finalized model of latent variables. Both EFA and CFA were conducted on GED credentialed students. Third, results of comparative analysis (t-test, cross-tabulation) were reported. Using research question three, the comparative analysis compared key variables, including college readiness and institutional intervention between high school diploma and GED credentialed students. Finally, a logistic regression analysis was conducted to provide a summary of how college readiness and institutional intervention predicted GED credentialed students’ intention to persist in community college.

Findings Related to Research Question 1

To describe the characteristics of the sample, a descriptive analysis was conducted on all students, that included high school diploma, and GED credentialed student groups respectively. Table 4.1 presents the frequency and percentage of the variables used in this analysis.
Table 4.1  
Frequency for all, high school diploma, and GED credentialed participants

<table>
<thead>
<tr>
<th>Variables</th>
<th>All students (n=26,203)</th>
<th>HS Diploma (n=22,032)</th>
<th>GED Credential (n=1,459)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>11,2471 (42.9)</td>
<td>9,851 (44.7)</td>
<td>628 (43.0)</td>
</tr>
<tr>
<td>Female</td>
<td>14,048 (53.6)</td>
<td>11,831 (53.7)</td>
<td>805 (55.2)</td>
</tr>
<tr>
<td>Missing (nonresponse)</td>
<td>908 (3.5)</td>
<td>350 (1.6)</td>
<td>26 (1.8)</td>
</tr>
<tr>
<td>Age 18-24</td>
<td>21,844 (83.3)</td>
<td>20,089 (91.2)</td>
<td>662 (45.4)</td>
</tr>
<tr>
<td>25-39</td>
<td>2,853 (10.9)</td>
<td>1,483 (6.7)</td>
<td>584 (40.0)</td>
</tr>
<tr>
<td>≥40</td>
<td>991 (3.8)</td>
<td>432 (2.0)</td>
<td>212 (14.5)</td>
</tr>
<tr>
<td>Missing (non-response)</td>
<td>515 (2.0)</td>
<td>28 (.1)</td>
<td>1 (.1)</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black/African American</td>
<td>4,201 (16.0)</td>
<td>3,442 (15.6)</td>
<td>287 (19.7)</td>
</tr>
<tr>
<td>Hispanic, Latino, Spanish</td>
<td>5,558 (21.3)</td>
<td>4,962 (22.5)</td>
<td>248 (17.0)</td>
</tr>
<tr>
<td>White</td>
<td>13,078 (49.9)</td>
<td>11,304 (51.3)</td>
<td>753 (51.6)</td>
</tr>
<tr>
<td>Other</td>
<td>2,525 (9.6)</td>
<td>2,089 (9.5)</td>
<td>145 (9.9)</td>
</tr>
<tr>
<td>Missing (non-response)</td>
<td>368 (3.2)</td>
<td>235 (1.1)</td>
<td>26 (1.8)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1,909 (7.3)</td>
<td>1,031 (4.7)</td>
<td>335 (23.0)</td>
</tr>
<tr>
<td>No</td>
<td>23,730 (90.5)</td>
<td>20,950 (95.1)</td>
<td>1,120 (76.7)</td>
</tr>
<tr>
<td>Missing (non-response)</td>
<td>564 (2.2)</td>
<td>51 (.2)</td>
<td>4 (.3)</td>
</tr>
<tr>
<td>Children</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3,826 (14.6)</td>
<td>2,338 (10.7)</td>
<td>673 (46.2)</td>
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<tr>
<td>No</td>
<td>21,735 (82.9)</td>
<td>19,578 (88.8)</td>
<td>778 (53.3)</td>
</tr>
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<td>Missing (non-response)</td>
<td>642 (2.5)</td>
<td>116 (.5)</td>
<td>8 (.5)</td>
</tr>
<tr>
<td>Hours Worked</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Working</td>
<td>9,452 (36.1)</td>
<td>8,086 (36.7)</td>
<td>619 (42.4)</td>
</tr>
<tr>
<td>1-20 Per Week</td>
<td>7,124 (27.2)</td>
<td>6,349 (28.8)</td>
<td>258 (17.7)</td>
</tr>
<tr>
<td>21-30 Per Week</td>
<td>3,975 (15.2)</td>
<td>3,550 (16.1)</td>
<td>155 (10.6)</td>
</tr>
<tr>
<td>30+ Per Week</td>
<td>4,060 (15.5)</td>
<td>3,142 (14.3)</td>
<td>336 (23.1)</td>
</tr>
<tr>
<td>Missing (non-response)</td>
<td>1,592 (6.1)</td>
<td>905 (4.1)</td>
<td>91 (6.2)</td>
</tr>
<tr>
<td>High School GPA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>1,675 (6.4)</td>
<td>1,458 (6.6)</td>
<td>36 (2.5)</td>
</tr>
<tr>
<td>A- to B+</td>
<td>7,694 (29.4)</td>
<td>6,850 (31.1)</td>
<td>215 (14.7)</td>
</tr>
<tr>
<td>B</td>
<td>6,085 (23.2)</td>
<td>5,321 (24.2)</td>
<td>253 (17.3)</td>
</tr>
<tr>
<td>B- to C+</td>
<td>6,686 (26.2)</td>
<td>5,857 (26.5)</td>
<td>433 (29.7)</td>
</tr>
</tbody>
</table>
As indicated in Table 4.1, nearly 54% of the entire sample were female students. Traditionally aged students (18-24 years old) accounted for over 83% of the total sample population. As expected, White (51.3%), Hispanics (21.3%), and Black/African-Americans (16.0%) comprised the three most represented race/ethnicity groups. For all students ($n=26,203$), 7.3% and 14.6% of respondents were married and had children respectively. Regarding employment status, those not working accounted for 36.1% of the total sample. Those working 30 or less and greater than 30 weekly hours were 42.4% and 15.5% respectively. A self-reported GPA grade of B or better accounted for grade or better accounted for 59% of total sample. With respect to factors impacting academic progress, students taking developmental courses, first generation students, and intending to persist accounted for 59.6%, 41.9%, and 68.5% respectively.
Though distribution of both female (53.7%) and male (44.7%) students were relatively similar to the total sample, a greater proportion of students aged 18-24 (91.2) existed. White (51.3%), Hispanics (22.5%), and Black/African-American (15.6) comprised the three most represented race/ethnicity groups.

The GED credentialed group differed in numerous demographic characteristics. Those students of non-traditional age (25-39) were considerably larger comprising 40%. Not surprisingly, more GED credentialed students reported being married (23.0%) and having children at home (46.2%). Those GED credential students not working comprised 42.4%. This same group had a relative decreased (34.5) percentage of self-reported GPA of B or above high school GPA. Finally, 75.5% of GED credentialed students reported being enrolled in developmental courses.

Findings Related to Research Question 2

Exploratory and confirmatory factor analyses were conducted to establish the constructs surrounding college readiness and institutional intervention for GED credentialed community college students. The exploratory factor analysis was run using IBM SPSS 23.0, and the confirmatory factor analysis was analyzed using AMOS Graphics 24. Both the exploratory and confirmatory factor analyses were conducted using the SENSE survey dataset of 1,459 self-reported GED credentialed students.

**Exploratory Factor Analysis**

Considering only data from the GED student subset, fifteen observed variables were identified as potential institutional intervention and college readiness items based on a review of the literature. Five factors, (1) advisor support, (2) faculty support, (3) college readiness skill
sets, (4) college readiness student networking, and (5) college readiness attitude were identified. Necessary assumptions, including sample size to variable ratio was checked. Urdan (2010) suggests that adequate sample sizes should be at least 30 cases for the first variable and 10 for each variable thereafter. The sample size of 1,459 cases was adequate to conduct the exploratory factor analysis. Assumptions of linearity and normality were not enforced as this factor analysis was exploratory in nature (Mertler & Vannatta, 2013; Tabachnick & Fidell, 2007). Linear regression analysis and an accepted variance inflation factor (VIF) of less than 3.0 were used to test the absence of multicolinearity (Mertler & Vannatta, 2013).

Constructs with eigenvalues greater than 1.0 were accepted as constructs of college readiness and institutional intervention. Items with loadings greater than .70 were accepted as adequate elements of the construct (Mertler & Vannatta, 2013). The exploratory factor analysis was conducted using a Varimax rotation. The KMO measure of sampling adequacy was .826 and Bartlett’s test of sphericity showed a statistical significance $p<.001$, thus showing adequacy of conducting a factor analysis. Within the context of principle component extraction, five constructs with eigenvalues greater than 1 were extracted. All factor loadings exceeded .60. Factor loadings greater than .63 are considered very good (Comrey & Lee, 1992; Tabachnick & Fidell, 2013). Constructs producing a Cronbach’s alpha greater or equal to .70 were accepted (Mertler & Vannatta, 2013; Tabachnick & Fidell, 2013; Urdan, 2010).
Table 4.2
*Exploratory Factor Analysis Results*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Factor loading</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>College Ready Skill Sets (α = .854)</strong></td>
<td></td>
</tr>
<tr>
<td>I learned to understand my academic strengths and weaknesses.</td>
<td>.862</td>
</tr>
<tr>
<td>I learned skills and strategies to improve my test-taking ability.</td>
<td>.832</td>
</tr>
<tr>
<td>I learned to improve my study skills (note-taking, highlighting, etc.).</td>
<td>.820</td>
</tr>
<tr>
<td><strong>College Ready Student Networking (α = .769)</strong></td>
<td></td>
</tr>
<tr>
<td>Participated in a student-initiated (not required) study group outside of class</td>
<td>.861</td>
</tr>
<tr>
<td>Participate in a required study group outside of class</td>
<td>.814</td>
</tr>
<tr>
<td>Work with classmates outside of class on class projects or assignments</td>
<td>.808</td>
</tr>
<tr>
<td><strong>College Ready Attitude (α = .783)</strong></td>
<td></td>
</tr>
<tr>
<td>I have the motivation to do what it takes to succeed in college.</td>
<td>.875</td>
</tr>
<tr>
<td>I am prepared academically to succeed in college</td>
<td>.844</td>
</tr>
<tr>
<td><strong>Advisor Support (α = .844)</strong></td>
<td></td>
</tr>
<tr>
<td>An advisor helped me to select a course of study, program or major</td>
<td>.850</td>
</tr>
<tr>
<td>An advisor helped me to identify courses I needed during my 1st semester</td>
<td>.826</td>
</tr>
<tr>
<td>An advisor helped me to set academic goals and to create an achievement</td>
<td>.812</td>
</tr>
<tr>
<td>I was able to meet an advisor at times convenient for me</td>
<td>.701</td>
</tr>
<tr>
<td><strong>Faculty Support (α = .813)</strong></td>
<td></td>
</tr>
<tr>
<td>All instructors clearly explained course syllabi</td>
<td>.868</td>
</tr>
<tr>
<td>All instructors clearly explained course grading policies</td>
<td>.842</td>
</tr>
<tr>
<td>I knew how to get in touch with my instructors outside of class</td>
<td>.734</td>
</tr>
</tbody>
</table>

**College Readiness Skill Sets.** The College Ready Skill Set construct produced an eigenvalue of 2.102, while explaining 14.2% of the variance. The results of the exploratory factor analysis for the College Ready Skill Sets construct are displayed in Table 4.2 and in Figure 4.2. The items in the construct reflected students’ perception of academic skill improvements. The variables were analyzed using scores from a 5-point Likert-style scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). All items of the construct produced loadings greater than .820. The
Advisor Support construct included Question 21_b (I learned to understand my academic strengths and weaknesses, .862), Question 21_c (I learned skills and strategies to improve my test-taking ability, .832), and Question 21_a (I learned to improve my study skills – listening, note-taking, highlighting readings, working with others, etc., .830). The reliability analysis revealed that the College Readiness Skill Sets construct produced an alpha reliability coefficient (Cronbach’s α = .854). The reliability analysis also revealed that the alpha reliability would not be improved if any of the items were removed from the construct.

**College Readiness Student Networking.** The College Ready Student Networking construct produced an eigenvalue of 1.424, while explaining 9.5% of the variance. The results of the exploratory factor analysis for the College Readiness Student Networking construct are displayed in Table 4.2 and in Figure 4.2. The items in the construct reflected students’ action initiating contact with fellow students for group study purposes. The variables were analyzed using scores from a 4-point Likert-style scale ranging from 1 (never) to 4 (four or more times). All items of the construct produced loadings greater than .800. The College Readiness Student Networking construct included Question 19_j (Participate in a student-initiated (not required) study group outside of class, .861), Question 19_i (Participate in a required study group outside of class, .814), and Question 19_h (Work with classmates outside of class on class projects or assignments, .808). The reliability analysis revealed that the College Readiness Student Networking construct produced an alpha reliability coefficient (Cronbach’s α = .769). The reliability analysis also revealed that the alpha reliability would not be improved if any of the items were removed from the construct.
**College Readiness Attitude.** The College Readiness Attitude construct produced an eigenvalue of 1.068, while explaining 7.1% of the variance. The results of the exploratory factor analysis for the College Readiness Attitude construct are displayed in Table 4.2 and in Figure 4.2. The items in the construct reflected students’ perception they are ready to succeed in the college setting. The variables were analyzed using scores from a 5-point Likert-style scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). All items of the construct produced loadings greater than .840. The College Readiness Attitude construct included Question 18_t (I have the motivation to do what it takes to succeed in college, .875), and Question 18_u (I am prepared academically to succeed in college, .844). The reliability analysis revealed that the College Readiness Attitude construct produced an alpha reliability coefficient (Cronbach’s $\alpha = .783$). The reliability analysis also revealed that the alpha reliability would not be improved if any of the items were removed from the construct.

**Faculty Support.** The Faculty Support construct produced an eigenvalue of 1.658, while explaining 11.0% of the variance. The results of the exploratory factor analysis for the Faculty Support construct are displayed in Table 4.2 and in Figure 4.2. The items in the construct reflected students’ belief that faculty provided resources to be successful in the classroom. The variables were analyzed using scores from a 5-point Likert-style scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). All items of the construct produced loadings greater than .730: The Faculty Support construct included Question 18_n (All instructors clearly explained course syllabi, .868), Question 18_m (All instructors clearly explained course grading policies, .842), and Question 18_o (I knew how to get in touch with my instructors outside of class, .734). The reliability analysis revealed that the Faculty Support construct produced an alpha reliability
coefficient (Cronbach’s $\alpha = .813$). The alpha reliability would not be improved if any of the items were removed from the construct.

**Advisor Support.** The Advisor Support construct produced an eigenvalue of 4.765, while explaining 32.8% of the variance. The results of the exploratory factor analysis for the Advisor Support construct are displayed in Table 4.2 and in Figure 4.2. The items in the construct reflected student’s perception that academic advisors provided information to make informed decisions regarding academic programs and considered students’ life responsibilities when arranging meeting times. The variables were analyzed using scores from a 5-point Likert-style scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). All items of the construct produced loadings greater than .650. The Advisor Support construct included Question 18_e (An advisor helped me to select a course of study, program, or major, .861), Question 18_g (An advisor helped me to identify the courses I needed to take during my first semester/quarter, .830), Question 18_f (An advisor helped me to set academic goals and to create a plan for achieving them, .820), and Question 18_d (I was able to meet with an academic advisor at times convenient for me, .657). The reliability analysis revealed that the Advisor Support construct produced an alpha reliability coefficient (Cronbach’s $\alpha = .844$). The alpha reliability would not be improved if any of the items were removed from the construct.

**Confirmatory Factor Analysis**

The objective of confirmatory factor analysis (CFA) is testing whether there exists an appropriate data fit to a hypothesized model. Here, a confirmatory factor analysis was conducted on college readiness’ and institutional intervention’s impact upon the intent to persist for GED credentialed community college students. The evaluation of the CFA model fit analyzed modification index values, including the chi-square goodness-of-fit statistic and fit
indices values. Due to a relatively large sample size, the model fit was analyzed based on numerous measures including, Chi square ($\chi^2$), CMIN/df ($\chi^2$/df), CFI, RMSEA, IFI, NFI, and TLI.

Confirmatory factor analysis was conducted to confirm the EFA results with the data set using an AMOS 24 plug-in for SPSS 23.0 version. A model of measurement based on the EFA results was constructed and fitted on all GED credentialed students. The resulting CFA was conducted with a data set reduced by listwise deletion. After deletion, the sample contained 1,358 GED credentialed students.

**Statistical Model Fit Options**

**Chi-square goodness-of-fit.** Many fit indices are available for examining appropriate CFA model fit, including chi square goodness-of-fit statistic, RMSEA, CFI and RFI. The model chi square goodness-of-fit statistic is a conventional test of overall model fit but includes a major limitation that “the larger the sample size, the more likely a model will fail to fit via using the $\chi^2$ goodness of fit test” (Barrett, 2007). It is thereby recommended that researchers utilize numerous fit indices to determine appropriate model fit.

**Root mean square error of approximation measure.** The RMSEA has been recommended as an appropriate fit index by Byrne (2016) for reasons including model misspecification, satisfactory model quality, and appropriate confidence intervals being built upon these measures. The RMSEA specifically examines the overall model fit when parameters are unknown and the population’s covariance matrix were available (Byrne, 2016). Byrne also suggests that appropriate values are less than .05.

**Comparative fit index.** A greater than .90 CFI range is acknowledged as an indication of a well-fitting model (Byrne, 2016). However, Byrne (2016) and Hooper Coughlan, & Mullen
(2008) noted that Hu and Bentler (1999) had suggested a value of greater than .95 as a more appropriate cut off value. This research project utilized chi square model fit statistics, RMSEA, and CFI, to measure model fit.

**Relative fit indices (IFI, TLI, NFI).** Relative fit indices consider a comparison between a baseline (uncorrelated variables) to the tested model. They can either be normed (Normed Fit Index) or non-normed (Incremental Fit Index, Tucker-Lewis Index). Good fit thresholds include ≥ 0.90 for IFI/TLI, and ≥ 0.95 for NFI (Hooper, et al., 2008).

**Results**

Reviewing the literature and based on a theoretical framework of andragogy (Knowles, 1984), self-determination (Ryan & Deci, 2000) and planned behavior (Ajzen, 1991), five latent constructs were specified in a college readiness and institutional intervention model. Factors from the EFA were brought forward in CFA measuring GED credentialed community college students.

The specified CFA model consisted of 15 observed variables based in five facets. The fit of the five-facet model was as follows: CMIN/df = 259.785, df = 80, CFI = .979, RMSEA = .041. Values for each index indicated a good fit. Goodness-of-fit indicators and item factor loadings illustrated a parsimonious model are reported in Tables 4.3 and 4.4 respectively. Latent factor loadings revealed significance (<.001). The CFA model is shown in Figure 4.1.

<table>
<thead>
<tr>
<th>Model</th>
<th>n</th>
<th>χ²</th>
<th>df</th>
<th>χ²/df</th>
<th>CFI</th>
<th>RMSEA</th>
<th>NFI</th>
<th>IFI</th>
<th>TLI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intent to Persist GED</td>
<td>1358</td>
<td>259.785</td>
<td>80</td>
<td>3.247</td>
<td>0.979</td>
<td>0.041</td>
<td>0.969</td>
<td>0.979</td>
<td>0.972</td>
</tr>
<tr>
<td>Advisor Support</td>
<td>Estimate</td>
<td>Std. Estimate</td>
<td>S.E.</td>
<td>p-value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>----------</td>
<td>---------------</td>
<td>-------</td>
<td>---------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>An advisor helped me to select a course of study, program or major.</td>
<td>1.000</td>
<td>.798***</td>
<td>.032</td>
<td>&lt;.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>An advisor helped me identify courses I needed.</td>
<td>.927</td>
<td>.812***</td>
<td>.031</td>
<td>&lt;.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>An advisor helped me to set academic goals.</td>
<td>1.005</td>
<td>.778***</td>
<td>.035</td>
<td>&lt;.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I met with an advisor at convenient times.</td>
<td>.697</td>
<td>.652***</td>
<td>.029</td>
<td>&lt;.001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Faculty Support</th>
<th>Estimate</th>
<th>Std. Estimate</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All instructors clearly explained course syllabi.</td>
<td>1.000</td>
<td>.841***</td>
<td>.020</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>All instructors clearly explained course grading policies.</td>
<td>.977</td>
<td>.831***</td>
<td>.034</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>I know how to get in touch with my instructors outside of class.</td>
<td>.781</td>
<td>.650***</td>
<td>.033</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>College Readiness – Skill Sets</th>
<th>Estimate</th>
<th>Std. Estimate</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I learned to understand strength/weaknesses</td>
<td>1.000</td>
<td>.837***</td>
<td>.024</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>I learned skills to improve test-taking ability.</td>
<td>1.127</td>
<td>.796***</td>
<td>.037</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>I learned to improve study skills (listening, note-taking, highlight readings, etc.).</td>
<td>.945</td>
<td>.806***</td>
<td>.031</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>College Readiness – Student Networking</th>
<th>Estimate</th>
<th>Std. Estimate</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participate in student initiated study group outside of class (not required).</td>
<td>1.000</td>
<td>.816***</td>
<td>.018</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Participate in a required study group outside of class.</td>
<td>.867</td>
<td>.694***</td>
<td>.042</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Work with classmates outside of class on class projects or assignments.</td>
<td>1.117</td>
<td>.692***</td>
<td>.055</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>College Readiness - Attitude</th>
<th>Estimate</th>
<th>Std. Estimate</th>
<th>S.E.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have the motivation to do what it takes to succeed in college.</td>
<td>1.000</td>
<td>.756***</td>
<td>.019</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>I am prepared academically to succeed in college.</td>
<td>1.297</td>
<td>.857***</td>
<td>.070</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

### Notes

***p<.001, **p<0.01, *p<0.05

Figure 4.1. First-order CFA model results for GED credentialed students
Findings Related to Research Question 3

Comparative analysis using *t*-test and cross-tabulation statistical methods was used to answer the third research question, regarding the presence of statistically significant differences in demographic variables such as age, HS grade, marital status, children in the home, enrollment status, developmental classes taken, and first generation student status, college readiness, and institutional intervention variables between GED credentialed and high school diploma recipient community college students. Cross-tabulation/Pearson chi-square tests were used for nominal and dichotomous variables (no implied order and two levels), while independent *t*-tests were conducted on those ordinal and scale (rank) variables (Urdan, 2010; Morgan et al, 2013).

Nominal/dichotomous variables analyzed in this study included race/ethnicity, marital status, children in the home, enrollment status, 1st generation status, and developmental classes taken. Phi coefficient was utilized 2 x 2 cross tabulations and Cramer’s *V* for larger cross-tabulations (Tabachnick & Fidell, 2013). Analysis through *t*-test method of ordinal and scale variables included age, self-reported high school grade, advisor support, faculty support, college ready student networking, college ready skill sets, and college ready attitude. Tables 4.5 through 4.11 highlight results of *t*-tests and Chi-Square noting only those results containing significant differences between both groups.

*Results of independent t-tests*

Analysis through *t*-test method considered whether statistically significant differences existed in background characteristics (age, self-reported HS GPA), college readiness (skills, attitude, and behavior) and institutional intervention (advisor/faculty support) variables between GED credentialed and high school diploma community college students. Table 4.5 and 4.6
provides a summary of testing statistics of the independent samples t-tests on age, HS grade, advisor support, faculty support, and college readiness.

Table 4.5
Means, Standard Deviations, and Independent Samples t-Test Results on Age, and HS Grade (n=1,459 GED Credential and 22,032 HS Graduate)

<table>
<thead>
<tr>
<th></th>
<th>GED Credential</th>
<th>HS Graduate</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.69</td>
<td>1.11</td>
<td>.367</td>
<td>31.157</td>
<td>&lt;.001</td>
<td>[0.55, 0.62]</td>
</tr>
<tr>
<td>SD</td>
<td>.710</td>
<td>.377</td>
<td></td>
<td>1508.918</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.96</td>
<td>3.07</td>
<td>1.186</td>
<td>23.789</td>
<td>&lt;.001</td>
<td>[0.82, 0.97]</td>
</tr>
<tr>
<td>HS Grade</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Age: 1=18-24, 2=25-39, 3=40+. HS Grade: 1=A, 2=A- to B+, 3=B, 4=B- to C+, 5=C, 6=C- or lower.

As shown in Table 4.5, GED credentialed and high school diploma holders were found significantly different in age and self-reported high school grades. Specifically, GED credentialed community college students were significantly older than those possessing a high school diploma ($t=44.832, p<.001$). The mean age difference was approximately two years. In addition, GED credential student self-reported GPA was approximately $1/2$ letter grade lower than those students possessing a high school diploma ($t=23.789, p<.001$).
Table 4.6
Means, Standard Deviations, and Independent Samples t-Test Results on Advisor Support, Faculty Support, College Ready Student Networking, College Ready Skill Sets, and College Ready Attitude (n = 1,459 GED Credential and 22,032 HS Graduate)

<table>
<thead>
<tr>
<th></th>
<th>GED Credential</th>
<th>HS Graduate</th>
<th>t</th>
<th>df</th>
<th>p</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adv. Support</td>
<td>3.75</td>
<td>.934</td>
<td>3.68</td>
<td>.903</td>
<td>3.083</td>
<td>22929</td>
</tr>
<tr>
<td>Fac. Support</td>
<td>4.37</td>
<td>.637</td>
<td>4.32</td>
<td>.633</td>
<td>2.481</td>
<td>23056</td>
</tr>
<tr>
<td>CR Stu. Net.</td>
<td>1.35</td>
<td>.599</td>
<td>1.40</td>
<td>.625</td>
<td>-2.918</td>
<td>1636.241</td>
</tr>
<tr>
<td>CR Skill Sets</td>
<td>3.99</td>
<td>.826</td>
<td>3.86</td>
<td>.829</td>
<td>5.824</td>
<td>23324</td>
</tr>
<tr>
<td>CR Attitude</td>
<td>4.40</td>
<td>.685</td>
<td>4.38</td>
<td>.693</td>
<td>1.068</td>
<td>23162</td>
</tr>
</tbody>
</table>

Note. Adv. Support: 1=Strongly Agree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree. Fac. Support: 1=Strongly Agree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree. CR Stu. Net. 1=Never, 2=Once, 3=Two or Three Times, 4=Four or More Times. CR Skill Sets 1=Strongly Agree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree. CR Attitude 1=Strongly Agree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree.

GED credentialed students had significantly higher faculty support ($t=2.964, p=.003$), advisor support ($t=3.083, p=.002$), and college ready skill set ($t=5.824, p<.001$) compared to high school diploma community college students. Faculty/advisor support and college ready behavior were measured by a seven and five item construct respectively based on the factor analysis results (see EFA sections for details). GED credentialed students were significantly lower on college ready behavior ($t=-2.918, p=.004$) than those students possessing a high school diploma. College ready attitude was found not to be significantly different between the two groups.
Results of Cross-tabulations

Table 4.7  
Cross-tabulation on Marital Status for Student Groups

<table>
<thead>
<tr>
<th></th>
<th>Student Groups</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GED</td>
<td>HS</td>
</tr>
<tr>
<td>Married Yes</td>
<td>335</td>
<td>1031</td>
</tr>
<tr>
<td>Expected Count</td>
<td>84.8</td>
<td>1281.2</td>
</tr>
<tr>
<td>% within GEDvsHS</td>
<td>23.0%</td>
<td>4.7%</td>
</tr>
<tr>
<td>No</td>
<td>1120</td>
<td>20950</td>
</tr>
<tr>
<td>Expected Count</td>
<td>1370.2</td>
<td>20699.8</td>
</tr>
<tr>
<td>% within GEDvsHS</td>
<td>77.0%</td>
<td>95.3%</td>
</tr>
<tr>
<td>Total</td>
<td>1455</td>
<td>21981</td>
</tr>
<tr>
<td>Count</td>
<td>1455.0</td>
<td>21981.0</td>
</tr>
<tr>
<td>Expected Count</td>
<td>1455.0</td>
<td>21981.0</td>
</tr>
<tr>
<td>% within GEDvsHS</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Note. Phi = .189

Table 4.7 presented the cross-tabulation on marital status. A chi-square test for association was conducted between marital status and possession of GED or HS credentials. All expected cell frequencies were greater than five. There was a statistically significant association between marital status and GED or HS credentials, $\chi^2(1, n=23,436) = 835.677, p < .001$. There was a smaller than typical association (Morgan et al., 2013), between marital status and GED vs HS credentials, $\phi = 0.189$. Table 4.2 indicates that GED credentialed students (23.0%) were more likely to be married than those with HS diplomas (4.7%).
Table 4.8  
Cross-tabulation on Children Living at Home for Student Groups

<table>
<thead>
<tr>
<th></th>
<th>Student Groups</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GED</td>
<td>HS</td>
</tr>
<tr>
<td>Children</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>673</td>
<td>2338</td>
</tr>
<tr>
<td>Expected Count</td>
<td>187.0</td>
<td>2824.0</td>
</tr>
<tr>
<td>% within GEDvsHS</td>
<td>46.4%</td>
<td>10.7%</td>
</tr>
<tr>
<td>No</td>
<td>778</td>
<td>19578</td>
</tr>
<tr>
<td>Expected Count</td>
<td>1264.0</td>
<td>19092.0</td>
</tr>
<tr>
<td>% within GEDvsHS</td>
<td>53.6%</td>
<td>89.3%</td>
</tr>
<tr>
<td>Total</td>
<td>1451</td>
<td>21916</td>
</tr>
<tr>
<td>Expected Count</td>
<td>1451.0</td>
<td>21916.0</td>
</tr>
<tr>
<td>% within GEDvsHS</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Note. Phi = .257

Table 4.8 presented the cross-tabulation on children living in the home. A chi-square test for association was conducted between children living in the home and students possessing GED or HS credentials. All expected cell frequencies were greater than five. There was a statistically significant association between marital status and GED or HS credentials, $\chi^2 (1, n=23,367) = 1546.324, p < .001$. There was a smaller than typical association (Morgan et al., 2013), between children living in the home and GED vs HS credentials, $\phi = 0.257$. Table 4.3 indicates that GED credentialed students (46.4%) were more likely to have children living in the home than those with HS diplomas (10.7%).
Table 4.9
Cross-tabulation on Enrollment Status for Student Groups

<table>
<thead>
<tr>
<th>Enrollment Status</th>
<th>Part-time</th>
<th>Count</th>
<th>Expected Count</th>
<th>% within GEDvsHS</th>
<th>Full-time</th>
<th>Count</th>
<th>Expected Count</th>
<th>% within GEDvsHS</th>
<th>Total</th>
<th>Count</th>
<th>Expected Count</th>
<th>% within GEDvsHS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GED</td>
<td>HS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>498</td>
<td>5479</td>
<td>5977</td>
<td>371.2</td>
<td>5605.8</td>
<td>5977</td>
<td>34.1%</td>
<td>24.9%</td>
<td>25.4%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>961</td>
<td>16553</td>
<td>17514</td>
<td>1087.8</td>
<td>16426.2</td>
<td>17514</td>
<td>65.9%</td>
<td>75.1%</td>
<td>74.6%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>1459</td>
<td>22032</td>
<td>23491</td>
<td>1459.0</td>
<td>22032.0</td>
<td>23491</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

Note. Phi = .051

Table 4.9 presented the cross-tabulation on enrollment status. A chi-square test for association was conducted between enrollment status and students possessing GED vs. HS credentials. All expected cell frequencies were greater than five. There was a statistically significant association between enrollment status and GED or HS credentials, $\chi^2(1, n=23,491) = 61.915, p < .001$. There was a smaller than typical association (Morgan et al., 2013), between enrollment status and GED vs HS credentials, $\varphi = 0.051$. Table 4.4 indicates that GED credentialed students (34.1%) were more likely to be enrolled on a part-time basis than those with HS diplomas (24.9%).
Table 4.10  
*Cross-tabulation on First Generation Status for Student Groups*

<table>
<thead>
<tr>
<th></th>
<th>Student Groups</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GED</td>
<td>HS</td>
</tr>
<tr>
<td><strong>First Gen.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>774</td>
<td>8654</td>
</tr>
<tr>
<td>Expected Count</td>
<td>585.6</td>
<td>8842.0</td>
</tr>
<tr>
<td>% within GEDvsHS</td>
<td>53.1%</td>
<td>39.3%</td>
</tr>
<tr>
<td>No</td>
<td>685</td>
<td>13378</td>
</tr>
<tr>
<td>Expected Count</td>
<td>873.4</td>
<td>13189.6</td>
</tr>
<tr>
<td>% within GEDvsHS</td>
<td>46.9%</td>
<td>60.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1459</td>
<td>22032</td>
</tr>
<tr>
<td>Expected Count</td>
<td>1459.0</td>
<td>22032.0</td>
</tr>
<tr>
<td>% within GEDvsHS</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

*Note.* Phi = .068

Table 4.10 presented the cross-tabulation on first generation status. A chi-square test for association was conducted between first generation status and students possessing GED vs. HS credentials. All expected cell frequencies were greater than five. There was a statistically significant association between first generation status and GED or HS credentials, $\chi^2(1, \ n=23,491) = 108.002, \ p < .001$. There was a smaller than typical association (Morgan et al., 2013), between first generation status and GED vs HS credentials, $\varphi = 0.068$. Table 4.5 indicates that GED credentialed students (53.1%) were more likely to be first generation students than those with HS diplomas (39.3%).
Table 4.11  
**Cross-tabulation on Developmental Classes for Student Groups**

<table>
<thead>
<tr>
<th>Dev. Class</th>
<th></th>
<th>Student Groups</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>GED</td>
<td>HS</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
<td>1102</td>
<td>12743</td>
<td>13845</td>
</tr>
<tr>
<td>expected</td>
<td></td>
<td>855.0</td>
<td>12990.0</td>
<td>13845.0</td>
</tr>
<tr>
<td>% within GED vs HS</td>
<td>76.7%</td>
<td>58.4%</td>
<td>59.5%</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td>335</td>
<td>9088</td>
<td>9423</td>
</tr>
<tr>
<td>expected</td>
<td></td>
<td>582.0</td>
<td>8841.0</td>
<td>9423.0</td>
</tr>
<tr>
<td>% within GED vs HS</td>
<td>23.3%</td>
<td>41.6%</td>
<td>40.5%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1437</td>
<td>21831</td>
<td>23268</td>
</tr>
<tr>
<td>expected</td>
<td></td>
<td>1437.0</td>
<td>21831.0</td>
<td>23268.0</td>
</tr>
<tr>
<td>% within GED vs HS</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

*Note. Phi = .090*

Table 4.11 presented the cross-tabulation on developmental classes taken. A chi-square test for association was conducted between first generation status and students possessing GED vs. HS credentials. All expected cell frequencies were greater than five. There was a statistically significant association between developmental classes taken and GED or HS credentials, $\chi^2(1, n=23,268) = 187.710$, $p < .001$. There was a smaller than typical association (Morgan et al., 2013), between developmental classes taken and GED vs HS credentials, $\phi = 0.090$. Table 4.6 indicates that GED credentialed students (76.7%) were more likely to have taken a developmental class than those with HS diplomas (58.4%).

**Findings Related to Research Question 4**

A 2-block hierarchical logistic regression was conducted to assess the extent to which identified variables (HS grade, gender, age, marital status, race/ethnicity, enrollment status, developmental classes taken, number of hours worked for pay weekly, advising support, faculty support, college readiness skill sets, college readiness attitude, college readiness student networking; Questions 28, 29, 30, 31, 35, 18d, 18e, 18f, 18g, 18n, 18m, 18o, 18a, 18b, 18c, 18t,
18u, 19h, 19i, 19j predicted GED credentialed students’ intention to persist (dependent variable). To accomplish and justify this statistical analysis, the original dependent variable question posed “When do you plan to take classes at this college again?” (againcl) was recoded to a dichotomous variable “Persist” using a scale of “Not Persist=0, Persist=1”. In addition, the use of logistic regression benefits the researcher as the general assumptions of normality, linearity, and equal variance resulted are not required (Mertler & Vannatta, 2013).

For this study, the logistic regression focused on the probability of predicting GED credentialed students’ intention to persist in community college. Goodness-of-fit ($\chi^2$, df, $p$, and $-2$ log likelihood), model accuracy of classification and description of result variables included in the model [$\beta$, Exp($\beta$)/Odds Ratio, and Wald test] were analyzed and interpreted.

**Logistic Regression - Intention to Persist**

A 2-block hierarchical logistic regression was chosen to analyze the extent that college readiness and institutional intervention predicted students’ intention to persist as shown in Figure 4.2. Block one included demographic characteristics, and block two included enrollment status, student taking at least one developmental course, advising support and faculty support. Thirteen variables in all were chosen and informed by this study’s conceptual framework comprising of the theory of andragogy, self-determination, and planned behavior. The logical regression analysis was accomplished using IBM SPSS 23.0 software. The specific independent variables included HS grade, gender, age, marital status, race/ethnicity, full or part-time enrollment status, developmental classes taken, number of hours worked for pay weekly, advising support, faculty support, college readiness skill sets, college readiness attitude, and college readiness student networking. Of those, the logistic regression revealed six significant predictors of GED
students’ intention to persist, including gender, race/ethnicity (White, Non-Hispanic), first generation student, students taking at least one developmental course, advisor support, and faculty support.

According to the Hosmer–Lemeshow test and the \(-2\) log likelihood for goodness of fit, the results of the logistic regression indicate that the predictors were statistically reliable in distinguishing between students who intended to persist and those who did not intend to persist \((-2\) log likelihood = 1,169.020, \(\chi^2(13) = 52.394, p < .001\)). The model correctly classified 78.2% of the cases. The sensitivity indicated that 99.5% of the students who intend to persist were correctly identified as having persistence intentions but was not all accurate in predicting those not intending to persist. The specificity revealed that 3.4% of the students who do not intend to persist were correctly identified as not intending to persist.

\[\text{Figure 4.2. Model of college readiness and institutional intervention upon intention to persist}\]
The logistic regression results for all predictor variables retained and all variables in the model can be found in Table 4.12, and Appendix C respectively. Race/Ethnicity (White/Non-Hispanic) had the highest predictive value ($\beta = .624$) of intention to persist. Gender ($\beta = -.431$); first generation enrollment status ($\beta = .157$); student taking at least one developmental class ($\beta = -.436$); advisor support ($\beta = .175$), and faculty support ($\beta = .258$) had predictive values above $\beta = .100$ and thus also were statistically significant predictors of intention to persist (Mertler & Vannatta, 2013).

The gender (sex) variable indicated that female students are 1.538 times ($p = .004$) more likely to intend to persist in community college than male students. The race/ethnicity variable indicated that white/non-Hispanic students are 1.867 times ($p = .048$) more likely to intend to persist than non-white students. Those students with a first-generation enrollment status were 1.422 times are more likely ($p = .025$) than those with at least one parent who earned a bachelor’s degree to intend to persist at community college. The developmental class variable revealed that students enrolled in at least one developmental class were 1.703 times ($p = .017$) more likely to intend to persist than those students not enrolled in developmental classes.

Further, those students who took advantage of advisor supports were 1.191 times ($p = .047$) more likely to intend to persist than those students who indicated they did not utilize advisor supports. Finally, those students who indicated they utilized faculty supports were 1.295 times ($p = .040$) more likely to intend to persist than those who indicated not utilizing faculty supports.
<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>Wald</th>
<th>df</th>
<th>p</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school grade</td>
<td>.067</td>
<td>1.529</td>
<td>.21</td>
<td>.216</td>
<td>1.069</td>
</tr>
<tr>
<td>Gender (female)</td>
<td>.431</td>
<td>8.222</td>
<td>1</td>
<td>.004**</td>
<td>1.538</td>
</tr>
<tr>
<td>Age</td>
<td>.079</td>
<td>2.712</td>
<td>1</td>
<td>.100</td>
<td>1.082</td>
</tr>
<tr>
<td>Marital Status (no)</td>
<td>.228</td>
<td>1.337</td>
<td>1</td>
<td>.241</td>
<td>1.257</td>
</tr>
<tr>
<td>Race/Ethnicity (non-white)</td>
<td>.624</td>
<td>3.901</td>
<td>6</td>
<td>.048*</td>
<td>1.867</td>
</tr>
<tr>
<td>First Generation Student (non-1st)</td>
<td>.352</td>
<td>5.022</td>
<td>1</td>
<td>.025*</td>
<td>1.422</td>
</tr>
<tr>
<td>At least one developmental class taken (no)</td>
<td>.436</td>
<td>5.723</td>
<td>1</td>
<td>.017*</td>
<td>1.703</td>
</tr>
<tr>
<td>Weekly hours worked</td>
<td>-.026</td>
<td>.190</td>
<td>1</td>
<td>.663</td>
<td>.974</td>
</tr>
<tr>
<td>Advisor Support</td>
<td>.175</td>
<td>3.956</td>
<td>1</td>
<td>.047*</td>
<td>1.191</td>
</tr>
<tr>
<td>Faculty Support</td>
<td>.258</td>
<td>4.234</td>
<td>1</td>
<td>.040*</td>
<td>1.295</td>
</tr>
<tr>
<td>College ready – skill set</td>
<td>.038</td>
<td>.134</td>
<td>1</td>
<td>.715</td>
<td>1.039</td>
</tr>
<tr>
<td>College ready – attitude</td>
<td>.178</td>
<td>2.318</td>
<td>1</td>
<td>.128</td>
<td>1.194</td>
</tr>
<tr>
<td>College ready – student networking</td>
<td>-.129</td>
<td>1.121</td>
<td>1</td>
<td>.290</td>
<td>.879</td>
</tr>
<tr>
<td>Constant</td>
<td>1.840</td>
<td>5.979</td>
<td>1</td>
<td>.014*</td>
<td>0.159</td>
</tr>
</tbody>
</table>

† *p ≤ .05. **p ≤ .005.

Thirteen independent variables were inputted into the logistic regression analysis in two blocks and analyzed on the dependent variable intention to persist. Of the 13 variables inputted, six variables were retained for the final model. The results of the chi-square analysis, –2 log likelihood, and Hosmer–Lemeshow test indicate that the model was statistically significantly reliable in distinguishing between students who intend to persist at community college and those who have indicated they will not.

**Summary**

In this chapter, student participant’ demographic characteristics were reviewed and analyzed. Next, constructs were created through exploratory factor analysis and became the
foundation for confirmatory factor analysis (CFA). The CFA tested a model of measurement on community college student possessing either a high school diploma or General Equivalency Diploma (GED). Third, a comparative analysis was accomplished using t-test and cross-tabulation statistical methods. Specifically, possible statistical differences in demographic variables, college readiness, and institutional intervention was explored. Finally, a binary logistic regression was conducted to assess the probability to which college readiness and institutional intervention predicts students’ intentions to persist in community college. Chapter 5 will consider the finding’s meanings, practice implications and future research options.
Retention and persistence in community college has become a major topic for policy makers, administrators, faculty and staff. A student population which has historically struggled are those students possessing GED credentials (Long & Mullin, 2014). GED graduates are often first-generation college students, have minimal experience navigating the maze-like situations of higher education, and possess the often-cited socio-economic barriers of underserved populations. This is complicated by the reality that GED graduates left high school early, thereby not having the opportunity to gain both the educational awareness and confidence needed to be successful in post-secondary situations (Goodall, 2009). Whether motivated due to socio-economic or personal mission reasons, GED graduates, full of optimism enter post-secondary institutions and struggle to persist in fulfilling their academic and life dreams (Musgrave, 2014).

The presence of this often forgotten and underprepared population needs opportunities to earn the credentials (not simply short-term training) and degrees needed to obtain gainful employment. Short term training often results in lower earnings. As such, community colleges are challenged to rethink and redesign academic programs and student success services (Prince & Jenkins, 2005).

The purpose of this study is to recognize the unique needs of GED credentialed community college students but more importantly define and explore factors that predict persistence. Specifically, examination ensued regarding the impact of college readiness (behavior and attitude) and institutional intervention (faculty and advisor support) upon
persistence of community college students possessing the General Education Development (GED) credential.

Discussion of the Findings

Discussion of the Descriptive Analysis Findings

Through calculation of frequency statistics, a series of descriptive analyses was conducted on students with GED and high school credentials responding to the SENSE survey. In both groups, a greater percentage of students were female, white, did not work, took developmental courses and declared an intention to persist.

Demographic differences did exist between the GED credentialed and HS diploma student groups. A greater percentage of GED credentialed students were non-traditional aged (>25 years old), married, had children living in the home, had a greater instance of lower self-reported HS grades (B- to C+ vs. A- to B+), and were first generation students. These demographic characteristics are comparable to GED Testing Service data (Zhang, Guison-Dowdy, Patterson, & Song, 2011). For example, the 2004 cohort (2004-2010) of GED test passers beginning postsecondary education included approximately 50% female, 60% white, and 60% being first generation college students. Though approximately 54% of students were 24 or older, 15% of the population were between the ages of 15-18. This fact must be taken seriously when considering institutional policies for incoming community college students with GED credentials. The potential negative impact upon GED instruction and consequential move to post-secondary education include, but not limited to a pedagogy assuming that most students value self-reliance, student failure to recognize their GED study


as a bridge to post-secondary education and/or employment, and the educational attainment can be accomplished in extremely shortened time (Rachal & Bingham, 2004).

Discussion of Factor Analysis Findings

An exploratory factor analysis (EFA) was conducted and confirmed by confirmatory factor analysis (CFA) that included five latent variables (advisor support, faculty support, college readiness networking, college readiness attitude, and college readiness skill sets). Advisor and faculty support represent institutional intervention while networking, attitude, and skill sets are expressions of college readiness.

The latent variable advisor support focused on the value of providing guidance in selection of majors and courses. In addition, advisors are instrumental in setting student derived academic course goals and the creation of resulting academic plan to achieve them. The extant literature (Gordon, et al., 2008; Bahr, 2008) details numerous examples of advisors providing these kinds of services to students. As GED credentialed students possess limited exposure in integrating academic programming to either transfer or employment considerations, these findings confirm the paramount need of increased student self-efficacy and institutional support in this process.

The faculty support construct included items detailing faculty behavior directly related to student successful classroom participation. Specifically, helpful faculty support was found to include the use of purposeful syllabi that contain clear rubrics for grading, course expectations and possibly the greatest help to GED credentialed students, procedures to contact instructors outside of class. Course syllabi can no longer be static (Cummings, Bonk & Jacobs, 2002), rather be written as if it were a living document offering a roadmap for course success.
The final three latent variables, skillsets, attitude, and networking represented college readiness in this study. The emergence of these three factors was consistent with previous studies (Conley, 2007; Kyllonen, et al., 2014; Kuh, et al., 2006). The literature demonstrates that student academic skills, success motivation (classroom choices), and life issues all impact college readiness. This recognition of GED credentialed students’ multi-faceted situation potentially increases intention to persist in community college.

Discussion of Comparative Analysis Findings

The comparative analysis provided an evidenced based account of General Educational Development (GED) credentialed students in this study. An analysis of significant differences in demographic variables such as age, marital status, children in the home, enrollment status, developmental classes taken, first generation student status, and HS grade between GED credentialed and high school diploma community college students was conducted. Pearson chi-square and independent samples t-tests results indicate a rejection of the null hypothesis and revealed that GED students were older, more likely to be married, have at least one child in the home, and a reported lower HS GPA.

This study revealed that more high school diploma respondents self-reported GPA grades of B or better while more GED credentialed students reported greater frequency of B-grades or less. This is consistent with previous studies demonstrating academic deficiencies and life situations negatively impacted HS GPA and eventually motivated dropping out (Bridgeland, et al., 2006; Oreopoulos, 2007; Hickman, Bartholomew, Mathwig, & Heinrich, 2008; Bradley & Renzulli, 2011). Student life and academic barriers that are brought to community colleges underscores the importance of providing efficacious institutional intervention to increase potential persistence rates.
Discussion of Logistic Regression Analysis Findings

A logistic regression analyses was conducted using 13 independent variables and one dependent variable: intention to persist. Variables were entered into the logistic regression in two blocks including background characteristics, college readiness, advisor, and faculty support.

**Intention to persist.** The logistic regression analysis on the dependent variable intention to persist retained six variables in the GED credentialed community college student persistence model: gender; race/ethnicity, first generation student, taking at least one developmental class, advisor support, and faculty support. This indicates that in addition to student demographics, institutional intervention plays a significant role in predicting GED students’ intentions to persist at community college.

In this study, GED credentialed students who were female, White/non-Hispanic, and first generation were more likely to intend to persist, while contrarily, persistence intention was more for those enrolled in a developmental course. Surprisingly, self-reported first generation students were more likely to express an intention to persist in their college endeavors. The results of this study show that those reporting maleness, are persons of color, have at least one parent possessing a college degree, and enrolled in a developmental class has a significant negative impact on GED credentialed students’ intention to persist.

Kenner and Weinerman (2011) assert that often GED credentialed students are adult learners who have demonstrated success in non-academic settings. Developmental educators are charged with incorporating material into real life experiences. Those students courageously returning to school understand the value and connection of education to employment and must
not see developmental coursework as a necessary hoop in their educational experience. Jenkins and Weiss (2011) found an increased rate of persistence and retention for those GED credentialed students taking developmental courses who have committed to a deliberate concentration of courses.

Institutional intervention (faculty and Advisor Support) was found to positively influence student intention to persist. Questions most influential included those that focused on students developing academic plans, ascertaining courses needed to be taken, and communicating with instructors regarding class procedures. These results acknowledge both GED credentialed students naivete’ and belief that institutional personnel will provide pathways to persist.

The findings of the logistic regression analysis indicated that there is a statistically significant relationship between institutional intervention on the dependent variable of intention to persist for GED credentialed community college students and resulted in the rejection of the first hypothesis (H01). Though the model was able to correctly identify students who intend to persist (99.5%) it was NOT at all accurate in predicting those not intending to persist. This is typical when the outcome variable is skewed heavily. While the great majority of students intend to persist, many do not. This result occurred because no true variable “persist” existed in the original survey, thus leaving the researcher to user the variable “intent to persist” as the dependent variable.

Implications

Implications for Institutional Practice

The findings of this study provide a foundation for effective service to GED credentialed community college students by administrators, faculty and student service
personnel. The results also suggest development and application of approaches that consider
the need of students and educational institutions alike. The implications for practice of
institutional intervention and college readiness upon on GED credentialed community college
students are summarized thusly.

First, this study results in a greater understanding how institutional intervention
heightens student intention to persist. Interaction specifically considered a) how advising
staff’s provision of academic goal planning tools, and b) faculty’s willingness to make clear
course expectations/accessibility to assistance positively impacts GED credentialed student’s
intention to persist in community college. Practitioners are expected to understand their role in
nourishing this population’s self-determination (Ajzen, 1991) through supports and provide
contextualized learning environments (Knowles, 1980) to achieve their academic, employment
and life aspirations.

Advising Interaction

Academic goal planning provided by advisors must transcend recitation of courses
needed for degrees, but include a purposeful review of how majors and programs of study lead
directly to desired employment situations, and an emphasis that general skill sets are needed in
college differ greatly than those in a GED program. GED credentialed students in this study
self-identified a greater recognition of improved study skills, academic strengths/weakness, and
test-taking ability. This would suggest that the GED credentialed population demonstrates a
self-determination “intrinsic aspirations” (Deci & Ryan 2000). Helton (2005) reported that
students believed that academic activities and eventual success in a GED program could be
replicated at the college level when comprehensive institutional supports were implemented.
This can be accomplished initiating three practical approaches; creation of cohorts, use of occupational databases, and “bridging” GED classes and services with current post-secondary offerings.

An initial practical approach to this problem is the creation of a cohort (learning communities) of GED students assigned to specific academic advisors. In addition, GED credentialed students would complete orientations, first-year experience courses (facilitated by advising staff), and required gateway (developmental or college level) courses limited to students with GED credentials.

Learning communities provide students with support, safety, accountability, and a confidence that they belong in college (Engstrom & Tinto, 2008). Advisors who approach their craft actively and intrusively to include multiple student visits per semester, review of academic plans and referring to other services when needed are more likely to heighten student chances of success (Engle & Tinto, 2008). Advisors collaborating in this fashion offer hope and tools to GED credentialed students to increase confidence and take responsibility in their future.

A second approach to academic goal planning would include the use of an occupational database such as O*Net Online, sponsored by the United States Department of Labor, when developing student academic goal plans. The O*Net resource is searchable through career clusters, industries and job zones (job preparation needed). Though the process of employment acquisition can be potentially overwhelming, academic advisors (and other institutional representatives) can provide useful information and guidance in a minimal amount of time. It is not unusual for community college students to be undecided as to career aspirations, but clear academic advisement with a priority of helping students discern
economic and work value priorities will benefit them greatly (Brown & Associates, 2002). Advisors and other student service professionals who provide unencumbered information regarding employment aspirations motivates student’s beliefs and self-reliant behavior (Ajzen, 1991).

A third general approach is to develop models that bridge GED class and services to college options. Initially, this type of transition model could be realized through a redevelopment of course curriculum that weaves outcomes from both GED and college credit courses. This approach makes GED students aware of greater need to continue post-secondary studies but could also overwhelm GED instructors who have little freedom to adapt curriculum because of the limited time and great amounts of content to be covered (Zafft, 2008). A more deliberate transition program would include GED instructors and community college instructors co-teaching courses. Institutional investment, assessment of academic skills, commitment to contextualized learning, team-teaching pedagogy, and release time for faculty preparation have increased participation and securing of market-valued post-secondary credentials (Wachen, Jenkins, Belfield, & Van Noy, 2012). Student centered and pedagogically creative community college faculty’s intervention can positively impact GED credentialed students’ intent to persist.

In addition, the GED students (like all students) in this study arrive at our institutions with various levels of self-confidence and college readiness. Thus, community college student services and faculty are tasked with meeting the needs of this population by adapting the environment. Some practical examples of accomplishing this include, group and individual introductory meetings by assigned advisor to this population regarding the general goal of academic planning, providing examples of program/transfer plans for common career and
academic paths, and executing short workshops reviewing the application of classroom skills utilizing the GED curriculum materials.

*Faculty Interaction*

Often GED credentialed students are non-traditional age and possess numerous socio-economic and familial pressures. The educational pursuit can simply be one (albeit primary) voice competing for student attention. Experiencing multiple stressors, a sense of regret can lead to a judgment that their current situation is their primary barrier to life success. When faced with the decision to further their education, some are motivated to reach out for assistance (Hand & Payne, 2008), while others consider high school experiences the fault of instructors and judge they weren’t necessarily interested in their academic success (Komarraju, Musulkin, & Bhattacharya, 2010). This population’s varied and complex needs cannot be overstated. An often-overlooked resource are course syllabi.

Effective course syllabi must minimally include detailed information regarding instructor office hours/contact information, clearly demarcated due dates (not TBA), required work grading rubrics, textbook information and general course policies (Fink, 2013). GED credentialed students consider the instructor as the course authority and as such, are understood as the purveyor of resources to be successful in the course. This study showed that those resources must include an open communication by faculty as to non-classroom accessibility and specific grading rubrics for assessment purposes. Faculty must resist the temptation of assuming all students are homogenous and possess the basic wherewithal for successful classroom behavior. An effective course syllabus will address both these resources and become a literal roadmap for course success.
For this population, human connection and the perception they matter implied in faculty outside-classroom interaction is a primary factor for success. As GED credentialed students enroll in postsecondary education at later stages in their life than their high school graduate counterparts (Zhang, et al., 2011) and often have less understanding of college classroom mechanics, faculty should take seriously student readiness to learn, and the power they possess for relationship building (Knowles, 1980). Faculty enhance student trust by providing clear knowledge as to application of course materials to future goals. In addition, faculty are challenged to personally review or refer to other student services deliberate resources leading to college success. This balance of providing academic rigor and compassion to often under-prepared adult students can be very tricky. The temptation to judge a student’s placement in college due to apparent lack of basic academic (reading, writing, math) and course content skills must be avoided. Though the goal for all educational institutions is student procurement of life and market-valued information and credentials, faculty have the dubious task of balancing course content with student need (Schnee, 2008).

A promising resource to undergird the faculty mission is supplemental instruction. Supplemental instruction, voluntary to students, considers courses that traditionally pose academic difficulties, moderated by students who have successfully taken the course, and supplement rather than review class material. This type of instruction has proven to be successful. One such study reported increases in academic performance of males, increased pass rates in underrepresented minority populations, and an increase in registration for subsequent sequenced courses (Peterfruend, Rath, Xenos, & Bayliss, 2008).

It is vitally important for community college students to fully understand how they are assessed. This can be accomplished by faculty developing grading rubrics. Rubrics minimally
should contain a clear statement of the assignment/assessment objectives, criteria for evaluation, and a point scale using descriptive statements. The importance of using grading rubrics include fair and consistent grades being used, saves instructor time grading, and results in a better understanding of student strengths and weaknesses (Walvoord & Johnson-Anderson, 2010). In addition, the use of rubrics will decrease anxiety by providing knowledge of expectations and overall assessment criteria (Panadero et al., 2012) thereby increasing student efficacy (Andrade, Wang, Du, & Akawi, 2009) and self-regulation (Reynolds-Keefer 2010).

Pedagogical considerations (Developmental Education)

Though this study showed a higher rate of unpreparedness for GED credentialed students (especially math) than their high school graduate counterparts, students (GED credentialed or HS diploma) who completed developmental courses were more likely to persist in college (Guison-Dowdy & Patterson, 2011). Thus, it is reasonable to assert that developmental course success increases student willingness to succeed at the post-secondary level. Faculty have noteworthy influence on student success. Faculty, when advancing pedagogical method, should consider at least the following; contextualized learning and use of audio/visual supplements.

GED credentialed (often adult students) find relevancy when exposed to real-world situations. Wise instructors, giving students opportunities to share their life experiences in the context of classroom material, connect the educational process to employment opportunities (Clyburn, 2013). Contextualizing developmental curricula was found to overcome numerous barriers that are present in adult learners. One astute instructor attempting to explain the Pythagorean theorem in a developmental math class setting, brought in a ladder and a work safety manual to show geometric real-life applications (Showalter, Wollett, & Reynolds, 2014).
For the overwhelmed and anxious student in content driven courses like mathematics or history, theory becomes practical with the insertion of contextualized tutorial videos. Video tutorials as a supplemental pedagogical method to traditional lectures have shown promise extending instructor influence to adult students (Pan et al., 2012). Video course enhancement engaging multiples senses to heighten student learning (Bonk, 2008), offers students greater control over learning by being able to review material as needed (Hartsell & Yuen, 2006), and offer material in an attention heightening fashion (Branigan, 2005).

**Implications for Future Research**

This study explored the impact of institutional intervention and college readiness’ impact upon GED credentialed student’s intent to persist at community colleges. A result of this study was the creation of a model of institutional intervention and college readiness (Figure 4.7). Another result is a comparison between GED credentialed and high school diploma students using various statistical analyses. This study contributes to the growing body of literature and presents implications for future research in specific areas.

First, this study analyzes SENSE survey data captured during weeks four and five of student’s first semester and considers only intention to persist for GED credentialed students. The survey’s intention is improvement of institutional practices impacting student success. As GED credentialed students often have minimal understanding of college workings or the skills needed for success, the use of “front-gate” intentions to persist might not be representative of or consistent with best practices found in the ongoing literature concerning the power of engagement upon GED credentialed students or other high-risk populations. The researcher recommends replicating this study using a study administered later in a student’s career such as the Community College Survey of Student Engagement (CCSSE), which considers student
engagement and family support’s impact upon student success. Future studies can also consider
the impact upon student confidence associated with specific ethnicity and or age groups. In
addition, statistical techniques such as survival analysis could prove helpful to consider how
students follow through on their intent to persist.

Second, this study was limited to institutional intervention variables advising academic
planning and faculty as purveyors of classroom tools. Building upon current research on GED
credentialed students, would benefit community colleges’ attempt at increasing persistence rates
for this population. As the literature suggests that GED credentialed student’s primary reason for
community college attendance is to acquire market valued employment skills (Foster, Strawn &
Duke-Benefield, 2011), future study should include exploration of advising methods that focus
on career needs and pedagogical method’s impact on GED or other at-risk populations (Grubb,
2006 & Krathwohl, 2002).

Third, this study can be expanded upon by adapting the intent to persist model structure
by focusing on college readiness as a product of previous secondary education (traditional high
school and equivalency studies), rather than student attitude and behavior. This study considered
college readiness as inferred by student confidence and specific study patterns. Structural
equational modeling focused on college readiness would have been possible through inclusion of
variables such as study time, use of tutoring services and socio-economic factors.

Fourth, the study of this population may be enhanced through the addition of qualitative
research that focus on psycho-social differences between GED credentialed and high school
diploma holders entering community college. Institutions of higher education are challenged to
listen to the “voices” of this population.
Conclusions

GED credentialed students, often first-generation and underprepared, arrive at community colleges with complex and multifaceted needs. Sensitivity to this fact will motivate college administrators and other servants to develop procedures and offer programs that not only heighten chances of success, but also increase the probability of transfer to 4 year institutions.

This study sought answers to how institutional intervention and college readiness influences intention to persist in GED credentialed community college students. The study’s research goals were accomplished through the development of an intent to persist model, which describes institutional intervention and college readiness constructs, prediction on intention to persist, and interaction of those constructs and other factors. The study’s findings are instructive to community college administrators, educators, and researchers who are interested in community college student success.

This study contributed to extant literature on institutional intervention and student persistence by demonstrating how specific interventions of both faculty and academic advisors positively impact GED credentialed community college students. The GED student population has multifaceted issues and barriers inhibiting academic success. The intent to persist model provides options for community college personnel to heighten chances of persistence.
### SURVEY OF ENTERING STUDENT ENGAGEMENT

**APPENDIX A: 2014 (SENSE) SURVEY**

**Instructions:** It is essential that you use a No. 2 pencil to complete this survey. Mark your answer as shown in the following example:

- **CORRECT MARK:** ☑
- **INCORRECT MARKS:** ✗ ☒  ☐

1. Have you taken this survey in another class THIS SEMESTER/QUARTER?
   - Yes ☑
   - No ☐

2. Thinking about THIS SEMESTER/QUARTER, how would you describe your enrollment **at this college**?
   - Full-time ☑
   - Less than full-time ☐

3. Did you begin college at this college or elsewhere?
   - Started here ☑
   - Started elsewhere ☐

4. While in high school, did you earn college credit for one or more courses? (Mark all that apply)
   - No ☐
   - Yes, at this college ☑
   - Yes, at a different college ☐
   - Yes, at my high school ☑

5. In addition to taking courses at this college, were/are you also enrolled at a 4-year college or university during YOUR FIRST SEMESTER/QUARTER?
   - Yes ☑
   - No ☐

6. How many semesters/quarters have you been enrolled **at this college**?
   - This is my first semester/quarter ☑
   - This is my second semester/quarter ☐
   - This is my third semester/quarter ☐
   - This is my fourth semester/quarter ☐
   - I have been enrolled more than four semesters/quarters ☐

7. How many courses did you enroll in for YOUR FIRST SEMESTER/QUARTER **at this college**?
   - One ☐
   - Three ☐
   - Two ☐
   - Four or more ☐

8. Did you add or drop any classes within the FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER **at this college**?
   - Yes, without discussing my decision with a college staff member or instructor ☑
   - Yes, after discussing my decision with a college staff member or instructor ☐
   - No, I did not add or drop any courses ☐

9. Of the courses you enrolled in during YOUR FIRST SEMESTER/QUARTER **at this college**, how many did you drop after the first day of class?
   - None ☑
   - Two ☐
   - Four or more ☐
   - One ☐

10. When did you register for your courses for YOUR FIRST SEMESTER/QUARTER **at this college**? (Mark only ONE)
    - More than one week before classes began ☐
    - During the week before classes began ☑
    - During the first week of classes ☐
    - After the first week of classes ☐

---

**PLEASE DO NOT MARK IN THIS AREA**

**SERIAL #**
11. The following statements are about this college's orientation for new students. (Mark all that apply)
   - [ ] I took part in an online orientation prior to the beginning of classes
   - [ ] I attended an on-campus orientation prior to the beginning of classes
   - [ ] I enrolled in an orientation course as part of my course schedule during my first semester/quarter at this college
   - [ ] I was not aware of a college orientation
   - [ ] I was unable to participate in orientation due to scheduling or other issues

12. This set of items asks you about your earliest experiences at this college. To respond, please think about your experiences FROM THE TIME OF YOUR DECISION TO ATTEND THIS COLLEGE THROUGH THE END OF THE FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER.

   a. Before I could register for classes I was required to take a placement test (COMPASS, ASSET, ACCUPLACER, SAT, ACT, etc.) to assess my skills in reading, writing, and/or math
      [ ] Yes  [ ] No

   b. I took a placement test (COMPASS, ASSET, ACCUPLACER, SAT, ACT, etc.)
      [ ] Yes  [ ] No

   c. I was exempt from taking a placement test at this college
      [ ] Yes  [ ] No

13. My placement test scores indicated that I needed to take a Developmental course (also referred to as Basic Skills, College Prep, etc.) in the following areas. (Mark all that apply)

   - [ ] Didn't take a placement test
   - [ ] Developmental Reading
   - [ ] Developmental Writing
   - [ ] Developmental Math
   - [ ] Didn't place into any Developmental courses

14. This college required me to enroll in classes indicated by my placement test scores during my FIRST SEMESTER/QUARTER.
   [ ] Yes  [ ] No

15. With regard to financial assistance (scholarships, grants, or loans, etc.) to help with your college costs, mark a response for each of the following items.

   a. I applied for financial assistance (scholarships, grants, or loans, etc.)
      [ ] Yes  [ ] No

   b. I was notified I was eligible to receive financial assistance (scholarships, grants, or loans, etc.)
      [ ] Yes  [ ] No

   c. I received financial assistance funds (scholarships, grants, or loans, etc.) before classes began
      [ ] Yes  [ ] No

16. When did you first apply for financial assistance. (Mark only ONE)

   - [ ] 5 or more months before classes began
   - [ ] Less than 1 month before classes began
   - [ ] 1 to 2 months before classes began
   - [ ] After classes began
   - [ ] I did not apply for financial assistance

17. In which of the following types of courses were you enrolled during your FIRST SEMESTER/QUARTER at this college? (Respond to each item)

   a. Developmental Reading (also referred to as Basic Skills, College Prep, etc.)
      [ ] Enrolled  [ ] Not enrolled

   b. Developmental Writing (also referred to as Basic Skills, College Prep, etc.)
      [ ] Enrolled  [ ] Not enrolled

   c. Developmental Math (also referred to as Basic Skills, College Prep, etc.)
      [ ] Enrolled  [ ] Not enrolled

   d. An English course taught specifically for students whose first language is not English (ESL, ESOL)
      [ ] Enrolled  [ ] Not enrolled

   e. A course specifically designed to teach skills and strategies to help students succeed in college (e.g., a college success or student success course)
      [ ] Enrolled  [ ] Not enrolled

   f. An organized 'learning community' (two or more courses that a group of students take together)
      [ ] Enrolled  [ ] Not enrolled
18. This set of items asks you about your earliest experiences at this college. To respond, please think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter. (Respond to each item)

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. The very first time I came to this college I felt welcome</td>
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<tr>
<td>b. The instructors at this college want me to succeed</td>
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<td>c. All the courses I needed to take during my first semester/quarter were available at times convenient for me</td>
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<td>d. I was able to meet with an academic advisor at times convenient for me</td>
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<td>e. An advisor helped me to select a course of study, program, or major</td>
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<td>f. An advisor helped me to set academic goals and to create a plan for achieving them</td>
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<tr>
<td>g. An advisor helped me to identify the courses I needed to take during my first semester/quarter</td>
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<td>h. A college staff member talked with me about my commitments outside of school (work, children, dependents, etc.) to help me figure out how many courses to take</td>
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<tr>
<td>i. The college provided me with adequate information about financial assistance (scholarships, grants, loans, etc.)</td>
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<tr>
<td>j. A college staff member helped me determine whether I qualified for financial assistance</td>
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<tr>
<td>k. All instructors had activities to introduce students to one another</td>
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<tr>
<td>l. All instructors clearly explained academic and student support services available at this college</td>
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<td>m. All instructors clearly explained course grading policies</td>
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<td>n. All instructors clearly explained course syllabi (syllabuses)</td>
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<td>o. I knew how to get in touch with my instructors outside of class</td>
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<td>p. At least one college staff member (other than an instructor) learned my name</td>
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<td>q. At least one other student whom I didn’t previously know learned my name</td>
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<td>r. At least one instructor learned my name</td>
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<tr>
<td>s. I learned the name of at least one other student in most of my classes</td>
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<td>t. I have the motivation to do what it takes to succeed in college</td>
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<tr>
<td>u. I am prepared academically to succeed in college</td>
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</tbody>
</table>
19. During the FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER at this college, about how often did you do the following? (Respond to each item)

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Once</th>
<th>Two or three times</th>
<th>Four or more times</th>
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</thead>
<tbody>
<tr>
<td>a. Ask questions in class or contribute to class discussions</td>
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<td>b. Prepare at least two drafts of a paper or assignment before turning it in</td>
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<td>c. Turn in an assignment late</td>
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<tr>
<td>d. Not turn in an assignment</td>
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<tr>
<td>e. Participate in supplemental instruction (extra class sessions with an instructor, tutor, or experienced student)</td>
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<td>f. Come to class without completing readings or assignments</td>
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<td>g. Work with other students on a project or assignment during class</td>
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<tr>
<td>h. Work with classmates outside of class on class projects or assignments</td>
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<tr>
<td>i. Participate in a required study group outside of class</td>
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<tr>
<td>j. Participate in a student-initiated (not required) study group outside of class</td>
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<td>k. Use an electronic tool (e-mail, text messaging, Facebook, MySpace, class Web site, etc.) to communicate with another student about coursework</td>
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</tr>
<tr>
<td>l. Use an electronic tool (e-mail, text messaging, Facebook, MySpace, class Web site, etc.) to communicate with an instructor about coursework</td>
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<tr>
<td>m. Discuss an assignment or grade with an instructor</td>
<td></td>
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<tr>
<td>n. Ask for help from an instructor regarding questions or problems related to a class</td>
<td></td>
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<tr>
<td>o. Receive prompt written or oral feedback from instructors on your performance</td>
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<tr>
<td>p. Receive grades or points on assignments, quizzes, tests, or papers, etc.</td>
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<tr>
<td>q. Discuss ideas from your readings or classes with instructors outside of class</td>
<td></td>
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<tr>
<td>r. Discuss ideas from your readings or classes with others outside of class (students, family, co-workers, etc.)</td>
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<tr>
<td>s. Skip class</td>
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</tbody>
</table>
20. This section asks three questions about a variety of college services. Answer ALL THREE QUESTIONS for each service indicating (1) whether you knew about it, (2) how often you used it, and (3) how satisfied you were. To respond, please think about your experiences FROM THE TIME OF YOUR DECISION TO ATTEND THIS COLLEGE THROUGH THE END OF THE FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER.

<table>
<thead>
<tr>
<th>(1) Did you KNOW ABOUT IT?</th>
<th>(2) How often did you USE IT?</th>
<th>(3) How SATISFIED were you with it?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>a. Academic advising/planning</td>
<td></td>
<td></td>
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<tr>
<td>b. Career counseling</td>
<td></td>
<td></td>
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<tr>
<td>c. Job placement assistance</td>
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<td></td>
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<tr>
<td>d. Face-to-face tutoring</td>
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<tr>
<td>e. Online tutoring</td>
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<tr>
<td>f. Writing, math, or other skill lab</td>
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<tr>
<td>g. Financial assistance advising</td>
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<td></td>
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<tr>
<td>h. Computer lab</td>
<td></td>
<td></td>
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<tr>
<td>i. Student organizations</td>
<td></td>
<td></td>
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<tr>
<td>j. Transfer credit assistance</td>
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</tr>
<tr>
<td>k. Services to students with disabilities</td>
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</tr>
</tbody>
</table>

21. This set of items asks you about your earliest experiences at this college. To respond, please think about your experiences FROM THE TIME OF YOUR DECISION TO ATTEND THIS COLLEGE THROUGH THE END OF THE FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER. (Respond to each item)

**Within a class, or through another experience at this college:**

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neutral</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. I learned to improve my study skills (listening, note taking, highlighting readings, working with others, etc.)</td>
<td></td>
<td></td>
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<tr>
<td>b. I learned to understand my academic strengths and weaknesses</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>c. I learned skills and strategies to improve my test-taking ability</td>
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</tbody>
</table>

22. Thinking about your experiences FROM THE TIME OF YOUR DECISION TO ATTEND THIS COLLEGE THROUGH THE END OF THE FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER, what has been your MAIN source of academic advising [help with academic goal-setting, planning, course recommendations, graduation requirements, etc.]?

(Mark only ONE)

- Instructors
- Friends, family, or other students
- College Web site
- College staff (not instructors)
- Computerized degree advisor system
- Other college materials
23. Was a specific person assigned to you so you could see him/her each time you needed information or assistance?
   ☐ Yes  ☐ No

24. During the FIRST THREE WEEKS OF YOUR FIRST SEMESTER/QUARTER at this college, about how many hours did you spend in a typical 7-day week doing each of the following?

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>1-5</th>
<th>6-10</th>
<th>11-20</th>
<th>21-30</th>
<th>More than 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Preparing for class (in a typical 7-day week)</td>
<td></td>
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<tr>
<td>b. Working for pay (in a typical 7-day week)</td>
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</tr>
</tbody>
</table>

25. When do you plan to take classes at this college again?
   ☐ I will accomplish my goal(s) during this semester/quarter and will not be returning
   ☐ I have no current plans to return
   ☐ Within the next 12 months
   ☐ Uncertain

26. While in high school, did you

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Take math every school year?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Take math during your senior year?</td>
<td></td>
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</tr>
</tbody>
</table>

27. Would you recommend this college to a friend or family member?
   ☐ Yes  ☐ No

28. In what range was your overall high school grade average?
   ☐ A  ☐ A- to B+  ☐ B  ☐ B- to C+  ☐ C  ☐ C- or lower

29. Your sex:
   ☐ Male  ☐ Female

30. Mark your age group.

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Under 18</td>
<td></td>
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<tr>
<td>b. 18 to 19</td>
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<tr>
<td>c. 20 to 24</td>
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<tr>
<td>d. 25 to 29</td>
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<tr>
<td>e. 30 to 39</td>
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<tr>
<td>f. 40 to 49</td>
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<tr>
<td>g. 50 to 64</td>
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<tr>
<td>h. 65+</td>
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</tr>
</tbody>
</table>

31. Are you married?
   ☐ Yes  ☐ No

32. Do you have children who live with you and depend on you for their care?
   ☐ Yes  ☐ No

33. Is English your native (first) language?
   ☐ Yes  ☐ No

34. Are you an international student or nonresident alien?
   ☐ Yes  ☐ No

35. What is your racial/ethnic identification? (Mark only ONE)
   ☐ American Indian or Native American
   ☐ Asian, Asian American, or Pacific Islander
   ☐ Native Hawaiian
   ☐ Black or African American, Non-Hispanic
   ☐ White, Non-Hispanic
   ☐ Hispanic, Latino, Spanish
   ☐ Other

36. What is the highest academic certificate or degree you have earned? (Mark only ONE)
   ☐ None  ☐ Vocational/technical certificate
   ☐ GED  ☐ Associate degree
   ☐ High school diploma  ☐ Bachelor's degree
   ☐ Master's/Doctoral/Professional degree
37. Please indicate whether your goal(s) for attending this college include the following: (Respond to all three)
   a. To complete a certificate
   
   b. To obtain an Associate degree
   
   c. To transfer to a 4-year college or university

38. Who in your family has attended at least some college? (Mark all that apply)
   ○ Mother
   ○ Father
   ○ Brother/Sister
   ○ Child
   ○ Spouse/Partner
   ○ Legal Guardian
   ○ None of the above

39. Please provide your student identification number by filling in the corresponding ovals. For example, in the first column, indicate the first number or letter in your student ID number, and so forth. (OPTIONAL)
### Additional Items
(Please respond to these items if requested)

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 1 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 2 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 3 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 4 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 5 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 6 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 8 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 9 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 10|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 11|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 12|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

*Your responses will remain confidential.*

*No individual responses will be reported.*

Thank you for sharing your views.
APPENDIX B: INSTITUTIONAL REVIEW BOARD (IRB) STATUS

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1158 Pearson Hall
Ames, Iowa 50011-2917
515-294-1227
FAX 515-294-3007

Date: 8/16/2016
To: David Carson
2001 Shady Lane
Muscatine, IA 52761

CC: Dr. Linda Serra Hagedorn
E262 Lagomarcino Hall

From: Office for Responsible Research

Project Title: The influence of college readiness and institutional intervention upon persistence among GED credentialed community college students

The Co-Chair of the ISU Institutional Review Board (IRB) has reviewed the project noted above and determined that the project:

☐ Does not meet the definition of research according to federal regulations.
☒ Is research that does not involve human subjects according to federal regulations.

Accordingly, this project does not need IRB approval and you may proceed at any time. We do, however, urge you to protect the rights of your participants in the same ways you would if IRB approval were required. For example, best practices include informing participants that involvement in the project is voluntary and maintaining confidentiality as appropriate.

If you modify the project, we recommend communicating with the IRB staff to ensure that the modifications do not change this determination such that IRB approval is required.
## APPENDIX C: 2014 SENSE SURVEY CODEBOOK

<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
</table>
| **Item 1**
1. Have you taken this survey in another class this semester/quarter? | SRVAGAIN | 1 = Yes  
2 = No |
| **Item 2**
2. Thinking about this semester/quarter, how would you describe your enrollment at this college? | ENRLMENT | 1 = Less than full-time  
2 = Full-time |
| **Item 3**
3. Did you begin college at this college or elsewhere? | ENTER | 1 = Started here  
2 = Started elsewhere |
| **Item 4: While in high school, did you earn college credit for one or more courses? (Mark all that apply)**
4a. No | NOHS | 0 = No response  
1 = Response |
4b. Yes, at this college | THISC | 0 = No response  
1 = Response |
4c. Yes, at a different college | DIFFC | 0 = No response  
1 = Response |
4d. Yes, at my high school | MYHS | 0 = No response  
1 = Response |
| **Item 5**
5. In addition to taking courses at this college, were/are you also enrolled at a 4-year college or university during your first semester/quarter? | OTHERENR | 1 = Yes  
2 = No |
| **Item 6**
6. How many semesters/quarters have you been enrolled at this college? | TERMSENR | 1 = This is my first semester/quarter  
2 = This is my second semester/quarter  
3 = This is my third semester/quarter  
4 = This is my fourth semester/quarter  
5 = I have been enrolled more than four semesters/quarters |
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item 7</strong></td>
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</tr>
</tbody>
</table>
| 7. How many courses did you enroll in for your first semester/quarter at this college? | COURSENO | 1 = One  
2 = Two  
3 = Three  
4 = Four or more |
| **Item 8** |          |                                                                           |
| 8. Did you add or drop any classes within the first three weeks of your first semester/quarter at this college? | ADDROP  | 1 = Yes, without discussing my decision with a college staff member or instructor  
2 = Yes, after discussing my decision with a college staff member or instructor  
3 = No, I did not add or drop any courses |
| **Item 9** |          |                                                                           |
| 9. Of the courses you enrolled in during your first semester/quarter at this college, how many did you drop after the first day of class? | DROPNO  | 1 = None  
2 = One  
3 = Two  
4 = Three  
5 = Four or more |
| **Item 10** |          |                                                                           |
| 10. When did you register for your courses for your first semester/quarter at this college? | REGCLASS | 1 = More than one week before classes began  
2 = During the week before classes began  
3 = During the first week of classes  
4 = After the first week of classes |
| **Item 11: The following statements are about this college's orientation for new students. (Mark all that apply)** | |                                                                            |
| 11a. I took part in an online orientation prior to the beginning of classes | ONLORIEN | 0 = No response  
1 = Response |
| 11b. I attended an on-campus orientation prior to the beginning of classes | ONCORIEN | 0 = No response  
1 = Response |
| 11c. I enrolled in an orientation course as part of my course schedule during my first semester/quarter at this college | CSORIEN | 0 = No response  
1 = Response |
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
</table>
| 11d. I was not aware of a college orientation | NWORIEN | 0 = No response  
1 = Response |
| Item 11: The following statements are about this college's orientation for new students. (Mark all that apply) | | |
| 11e. I was unable to participate in orientation due to scheduling or other issues | UNAORIEN | 0 = No response  
1 = Response |
| Item 12: Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter. | | |
| 12a. Before I could register for classes, I was required to take a placement test (COMPASS, ASSET, ACCUPLACER, SAT, ACT, etc.) to assess my skills in reading, writing, and/or math | REQPTEST | 1 = Yes  
2 = No |
| 12b. I took a placement test (COMPASS, ASSET, ACCUPLACER, SAT, ACT, etc.) | TKPTEST | 1 = Yes  
2 = No |
| 12c. I was exempt from taking a placement test at this college | EXPTEST | 1 = Yes  
2 = No |
| Item 13: My placement test scores indicated that I needed to take a Developmental course (also referred to as Basic Skills, College Prep, etc.) in the following areas. (Mark all that apply) | | |
| 13a. Didn't take a placement test | NOTEST | 0 = No response  
1 = Response |
| 13b. Developmental Reading | NEEDREAD | 0 = No response  
1 = Response |
| 13c. Developmental Writing | NEEDWRIT | 0 = No response  
1 = Response |
| 13d. Developmental Math | NEEDMATH | 0 = No response  
1 = Response |
| 13e. Didn't place into any Developmental courses | NEEDNONE | 0 = No response  
1 = Response |
| Item 14 | | |
| 14. This college required me to enroll in classes indicated by my placement test scores during my first semester/quarter | REQCLASS | 1 = Yes  
2 = No |
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 15: With regard to financial assistance (scholarships, grants, or loans, etc.) to help with your college costs:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 15a. I applied for financial assistance | APPLIED | 1 = Yes  
2 = No |
| 15b. I was notified I was eligible to receive financial assistance | OFFERED | 1 = Yes  
2 = No |
| Item 15: With regard to financial assistance (scholarships, grants, or loans, etc.) to help with your college costs: | | |
| 15c. I received financial assistance funds before classes began | RECEIVED | 1 = Yes  
2 = No |
| Item 16 | | |
| 16. When did you first apply for financial assistance? | TIMEAPPL | 1 = 3 or more months before classes began  
2 = 1 to 2 months before classes began  
3 = Less than 1 month before classes began  
4 = After classes began  
5 = I did not apply for financial assistance |
| Item 17: In which of the following types of courses were you enrolled during your first semester/quarter at this college? | | |
| 17a. Developmental Reading (also referred to as Basic Skills, College Prep, etc.) | EDCPR | 1 = Enrolled  
2 = Not enrolled |
| 17b. Developmental Writing (also referred to as Basic Skills, College Prep, etc.) | EDCPW | 1 = Enrolled  
2 = Not enrolled |
| 17c. Developmental Math (also referred to as Basic Skills, College Prep, etc.) | EDCPM | 1 = Enrolled  
2 = Not enrolled |
| 17d. An English course taught specifically for students whose first language is not English (ESL, ESOL) | ENRLENG | 1 = Enrolled  
2 = Not enrolled |
| 17e. A course specifically designed to teach skills and strategies to help students succeed in college (e.g., a college success or student success course) | ENRLSSDC | 1 = Enrolled  
2 = Not enrolled |
| 17f. An organized "learning community" (two or more courses that a group of students take together) | ENRLOLC | 1 = Enrolled  
2 = Not enrolled |
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 18: Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 18a. The very first time I came to this college I felt welcome | WELCOME | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| 18b. The instructors at this college want me to succeed | WNTSCCD | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| 18c. All the courses I needed to take during my first semester/quarter were available at times convenient for me | CONVTIME | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| 18d. I was able to meet with an academic advisor at times convenient for me | AACONTIM | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| 18e. An advisor helped me to select a course of study, program, or major | AASELMAJ | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>18f. An advisor helped me to set academic goals and to create a plan for achieving them</td>
<td>ACADGOAL</td>
<td>1 = Strongly disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Disagree</td>
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<tr>
<td></td>
<td></td>
<td>3 = Neutral</td>
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<td></td>
<td></td>
<td>4 = Agree</td>
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<tr>
<td></td>
<td></td>
<td>5 = Strongly agree</td>
</tr>
<tr>
<td>18g. An advisor helped me to identify the courses I needed to take during my first semester/quarter</td>
<td>CRSADV</td>
<td>1 = Strongly disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Disagree</td>
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<tr>
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<td>3 = Neutral</td>
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<td>4 = Agree</td>
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<tr>
<td></td>
<td></td>
<td>5 = Strongly agree</td>
</tr>
<tr>
<td><strong>Item 18:</strong> Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter.</td>
<td></td>
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</tr>
<tr>
<td>18h. A college staff member talked with me about my commitments outside of school (work, children, dependents, etc.) to help me figure out how many courses to take</td>
<td>OSCOMM</td>
<td>1 = Strongly disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Neutral</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = Agree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Strongly agree</td>
</tr>
<tr>
<td>18i. The college provided me with adequate information about financial assistance (scholarships, grants, loans, etc.)</td>
<td>FAINFO</td>
<td>1 = Strongly disagree</td>
</tr>
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<td></td>
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<td>2 = Disagree</td>
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<tr>
<td></td>
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<td>3 = Neutral</td>
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<td></td>
<td></td>
<td>4 = Agree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Strongly agree</td>
</tr>
<tr>
<td>18j. A college staff member helped me determine whether I qualified for financial assistance</td>
<td>QUALFA</td>
<td>1 = Strongly disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Neutral</td>
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<tr>
<td></td>
<td></td>
<td>4 = Agree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Strongly agree</td>
</tr>
<tr>
<td>18k. All instructors had activities to introduce students to one another</td>
<td>ACTINTRO</td>
<td>1 = Strongly disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Disagree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Neutral</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = Agree</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = Strongly agree</td>
</tr>
<tr>
<td>Item</td>
<td>Variable</td>
<td>Responses</td>
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</tr>
</tbody>
</table>
| 18l. All instructors clearly explained academic and student support services available at this college | RESOURCE | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| 18m. All instructors clearly explained course grading policies | GRADEPOL | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| 18n. All instructors clearly explained course syllabi (syllabuses) | SYLLABI | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| 18o. I knew how to get in touch with my instructors outside of class | FACMEET | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| 18p. At least one college staff member (other than an instructor) learned my name | CSTAFNAM | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| 18q. At least one other student whom I didn't previously know learned my name | OSTUDNAM | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
</table>
| 18r. At least one instructor learned my name | FACNAM | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| 18s. I learned the name of at least one other student in most of my classes | STUNAM | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| 18t. I have the motivation to do what it takes to succeed in college | ITTAKES | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| 18u. I am prepared academically to succeed in college | ACRPRPD | 1 = Strongly disagree  
2 = Disagree  
3 = Neutral  
4 = Agree  
5 = Strongly agree |
| Item 18: Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter. | | |
| 19a. Ask questions in class or contribute to class discussions | ASKQUES | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19b. Prepare at least two drafts of a paper or assignment before turning it in | PREPDRFT | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
</table>
| 19c. Turn in an assignment late | LATETURN | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19d. Not turn in an assignment | NOTTURN | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19e. Participate in supplemental instruction (extra class sessions with an instructor, tutor, or experienced student) | SUPINSTR | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19f. Come to class without completing readings or assignments | NOTCOMPL | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19g. Work with other students on a project or assignment during class | PINCLASS | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19h. Work with classmates outside of class on class projects or assignments | PREPOUTC | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
</table>
| 19i. Participate in a required study group outside of class | GRPSTUDY | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19j. Participate in a student-initiated (not required) study group outside of class | NRGSTUDY | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19k. Use an electronic tool (e-mail, text messaging, Facebook, MySpace, class Web site, etc.) to communicate with another student about coursework | USEINTMG | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| Item 19: During the first three weeks of your first semester/quarter at this college, about how often did you do the following? | | |
| 19l. Use an electronic tool (e-mail, text messaging, Facebook, MySpace, class Web site, etc.) to communicate with an instructor about coursework | MAILFAC | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19m. Discuss an assignment or grade with an instructor | FACASSN | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19n. Ask for help from an instructor regarding questions or problems related to a class | CLASSREL | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
</table>
| 19o. Receive prompt written or oral feedback from instructors on your performance | FEEDBACK | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19p. Receive grades or points on assignments, quizzes, tests, or papers, etc. | RCVGRDS | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19q. Discuss ideas from your readings or classes with instructors outside of class | FACIDOC | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 19r. Discuss ideas from your readings or classes with others (students, family, co-workers, etc.) outside of class | OCIDEAS | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |

**Item 19:** During the first three weeks of your first semester/quarter at this college, about how often did you do the following?

<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
</table>
| 19s. Skip class | SKIPCL | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |

**Item 20.1:** Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter. Did you know about the following services?

<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
</table>
| 20.1a. Academic advising/planning | ACADPLNG | 1 = Yes  
2 = No |
| 20.1b. Career counseling | CAREERC | 1 = Yes  
2 = No |
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.1c. Job placement assistance</td>
<td>JOBPLACE</td>
<td>1 = Yes  2 = No</td>
</tr>
<tr>
<td>20.1d. Face-to-face tutoring</td>
<td>FFTUTOR</td>
<td>1 = Yes  2 = No</td>
</tr>
<tr>
<td>20.1e. Online tutoring</td>
<td>OLTUTOR</td>
<td>1 = Yes  2 = No</td>
</tr>
<tr>
<td>20.1f. Writing, math, or other skill lab</td>
<td>SKILLABS</td>
<td>1 = Yes  2 = No</td>
</tr>
<tr>
<td>20.1g. Financial assistance advising</td>
<td>FAADVS</td>
<td>1 = Yes  2 = No</td>
</tr>
<tr>
<td>20.1h. Computer lab</td>
<td>COMPLAB</td>
<td>1 = Yes  2 = No</td>
</tr>
<tr>
<td>20.1i. Student organizations</td>
<td>STUORG</td>
<td>1 = Yes  2 = No</td>
</tr>
<tr>
<td>20.1j. Transfer credit assistance</td>
<td>TRANSFCR</td>
<td>1 = Yes  2 = No</td>
</tr>
<tr>
<td>20.1k. Services to students with disabilities</td>
<td>DISABVS</td>
<td>1 = Yes  2 = No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.2a. Academic advising/planning</td>
<td>ACADPUSE</td>
<td>1 = Never  2 = Once  3 = Two or three times  4 = Four or more times</td>
</tr>
<tr>
<td>20.2b. Career counseling</td>
<td>CARCUSE</td>
<td>1 = Never  2 = Once  3 = Two or three times  4 = Four or more times</td>
</tr>
</tbody>
</table>

**Item 20.2:** Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter. How often did you use the following services?
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
</table>
| 20.2c. Job placement assistance | JOBPLUSE | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 20.2d. Face-to-face tutoring | FFTUSE | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 20.2e. Online tutoring | OLTUSE | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 20.2f. Writing, math, or other skill lab | SKLABUSE | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 20.2g. Financial assistance advising | FAUSE | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |

Item 20.2: Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter. How often did you use the following services?  

<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
</table>
| 20.2h. Computer lab | COMLBUSE | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
</table>
| 20.2i. Student organizations | STORGUSE | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 20.2j. Transfer credit assistance | TRNFCRAS | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |
| 20.2k. Services to students with disabilities | DISVSUSE | 1 = Never  
2 = Once  
3 = Two or three times  
4 = Four or more times |

**Item 20.3:** Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter. How satisfied were you with the following services?

<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
</table>
| 20.3a. Academic advising/planning | ACADPSAT | 0 = Not applicable  
1 = Not at all  
2 = Somewhat  
3 = Very |
| 20.3b. Career counseling | CARCSAT | 0 = Not applicable  
1 = Not at all  
2 = Somewhat  
3 = Very |
| 20.3c. Job placement assistance | JOBPLSAT | 0 = Not applicable  
1 = Not at all  
2 = Somewhat  
3 = Very |

**Item 20.3:** Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter. How satisfied were you with the following services?
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.3d. Face-to-face tutoring</td>
<td>FFTSAT</td>
<td>0 = Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Not at all</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Somewhat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Very</td>
</tr>
<tr>
<td>20.3e. Online tutoring</td>
<td>OLTSAT</td>
<td>0 = Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Not at all</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Somewhat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Very</td>
</tr>
<tr>
<td>20.3f. Writing, math, or other skill lab</td>
<td>SKLBSAT</td>
<td>0 = Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Not at all</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Somewhat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Very</td>
</tr>
<tr>
<td>20.3g. Financial assistance advising</td>
<td>FAADVSAT</td>
<td>0 = Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Not at all</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Somewhat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Very</td>
</tr>
<tr>
<td>20.3h. Computer lab</td>
<td>COMLBSAT</td>
<td>0 = Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Not at all</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Somewhat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Very</td>
</tr>
<tr>
<td>20.3i. Student organizations</td>
<td>STORGSAT</td>
<td>0 = Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Not at all</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Somewhat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Very</td>
</tr>
<tr>
<td>20.3j. Transfer credit assistance</td>
<td>TRCRASAT</td>
<td>0 = Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Not at all</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Somewhat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = Very</td>
</tr>
<tr>
<td>Item</td>
<td>Variable</td>
<td>Responses</td>
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</tr>
<tr>
<td><strong>Item 20.3:</strong> Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter. How satisfied were you with the following services?</td>
<td><strong>20.3k. Services to students with disabilities</strong></td>
<td>DISVSAT&lt;br&gt;0 = Not applicable&lt;br&gt;1 = Not at all&lt;br&gt;2 = Somewhat&lt;br&gt;3 = Very</td>
</tr>
<tr>
<td><strong>Item 21:</strong> Think about your experiences from the time of your decision to attend this college through the end of the first three weeks of your first semester/quarter. Within a class, or through another experience at this college:</td>
<td><strong>21a. I learned to improve my study skills</strong>&lt;br&gt;(listening, note taking, highlighting readings, working with others, etc.)</td>
<td>LNDSTUDY&lt;br&gt;1 = Strongly disagree&lt;br&gt;2 = Disagree&lt;br&gt;3 = Neutral&lt;br&gt;4 = Agree&lt;br&gt;5 = Strongly agree</td>
</tr>
<tr>
<td></td>
<td><strong>21b. I learned to understand my academic strengths and weaknesses</strong></td>
<td>LNDACAWK&lt;br&gt;1 = Strongly disagree&lt;br&gt;2 = Disagree&lt;br&gt;3 = Neutral&lt;br&gt;4 = Agree&lt;br&gt;5 = Strongly agree</td>
</tr>
<tr>
<td></td>
<td><strong>21c. I learned skills and strategies to improve my test-taking ability</strong></td>
<td>LNDSKLLS&lt;br&gt;1 = Strongly disagree&lt;br&gt;2 = Disagree&lt;br&gt;3 = Neutral&lt;br&gt;4 = Agree&lt;br&gt;5 = Strongly agree</td>
</tr>
<tr>
<td><strong>Item 22</strong></td>
<td><strong>22. What has been your MAIN source of academic advising</strong>&lt;br&gt;(help with academic goal-setting, planning, course recommendations, graduation requirements, etc.)?</td>
<td>PSOURACA&lt;br&gt;1 = Instructors&lt;br&gt;2 = College staff (not instructors)&lt;br&gt;3 = Friends, family, or other students&lt;br&gt;4 = Computerized degree advisor system&lt;br&gt;5 = College Web site&lt;br&gt;6 = Other college materials</td>
</tr>
<tr>
<td>Item</td>
<td>Variable</td>
<td>Responses</td>
</tr>
<tr>
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<tr>
<td><strong>Item 23</strong></td>
<td></td>
<td></td>
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</tbody>
</table>
| 23. Was a specific person assigned to you so you could see him/her each time you needed information or assistance? | ASNopers | 1 = Yes  
2 = No |
| **Item 24:** During the first three weeks of your first semester/quarter at this college, about how many hours did you spend in a typical 7-day week doing each of the following? | | |
| 24a. Preparing for class | Prepclases | 1 = None  
2 = 1-5 hours  
3 = 6-10 hours  
4 = 11-20 hours  
5 = 21-30 hours  
6 = More than 30 hours |
| 24b. Working for pay | Workpay | 1 = None  
2 = 1-5 hours  
3 = 6-10 hours  
4 = 11-20 hours  
5 = 21-30 hours  
6 = More than 30 hours |
| **Item 25** | | |
| 25. When do you plan to take classes at this college again? | Againcl | 1 = I will accomplish my goal(s) during this semester/quarter and will not be returning  
2 = I have no current plans to return  
3 = Within the next 12 months  
4 = Uncertain |
| **Item 26:** While in high school, did you: | | |
| 26a. Take math every school year? | Mathallf | 0 = Not applicable  
1 = Yes  
2 = No |
| 26b. Take math during your senior year? | Mathsnyr | 0 = Not applicable  
1 = Yes  
2 = No |
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 27</td>
<td>RECOCOLL</td>
<td>1 = Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = No</td>
</tr>
<tr>
<td>Item 28</td>
<td>HSGRADE</td>
<td>1 = A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = A- to B+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = B- to C+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 = C- or lower</td>
</tr>
<tr>
<td>Item 29</td>
<td>SEX</td>
<td>1 = Male</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = Female</td>
</tr>
<tr>
<td>Item 30</td>
<td>AGENEW</td>
<td>2 = 18 to 19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 = 20 to 21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 = 22 to 24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 = 25 to 29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 = 30 to 39</td>
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<tr>
<td></td>
<td></td>
<td>7 = 40 to 49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 = 50 to 64</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9 = 65+</td>
</tr>
<tr>
<td>Item 31</td>
<td>MARRSTAT</td>
<td>1 = Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = No</td>
</tr>
<tr>
<td>Item 32</td>
<td>CHILDREN</td>
<td>1 = Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 = No</td>
</tr>
<tr>
<td>Item 33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Variable</td>
<td>Responses</td>
</tr>
<tr>
<td>------</td>
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</tr>
</tbody>
</table>
| 33. Is English your native (first) language? | ENGNAT | 1 = Yes  
2 = No |
| Item 34 | | |
| 34. Are you an international student or nonresident alien? | INTERNAT | 1 = Yes  
2 = No |
| Item 35 | | |
| 35. What is your racial/ethnic identification? | DIVERSIT | 1 = American Indian or Native American  
2 = Asian, Asian American, or Pacific Islander  
3 = Native Hawaiian  
4 = Black or African American, Non-Hispanic  
5 = White, Non-Hispanic  
6 = Hispanic, Latino, Spanish  
7 = Other |
| Item 36 | | |
| 36. What is the highest academic certificate or degree you have earned? | DEGREE | 1 = None  
2 = GED  
3 = High school diploma  
4 = Vocational/technical certificate  
5 = Associate degree  
6 = Bachelor's degree  
7 = Master's/Doctoral/Professional degree |
| Item 37: Please indicate whether your goal(s) for attending this college include the following: | | |
| 37a. To complete a certificate | CERTPRGM | 1 = Yes  
2 = No |
| 37b. To obtain an Associate degree | ASSOCDEG | 1 = Yes  
2 = No |
| 37c. To transfer to a 4-year college or university | TR4YR | 1 = Yes  
2 = No |
<p>| Item 38: Who in your family has attended at least some college? (Mark all that apply) | | |</p>
<table>
<thead>
<tr>
<th>Item</th>
<th>Variable</th>
<th>Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>38a. Mother</td>
<td>MOTHED</td>
<td>0 = No response</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Response</td>
</tr>
<tr>
<td>38b. Father</td>
<td>FATHED</td>
<td>0 = No response</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Response</td>
</tr>
<tr>
<td><strong>Item 38: Who in your family has attended at least some college? (Mark all that apply)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38c. Brother/Sister</td>
<td>SIBLINED</td>
<td>0 = No response</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Response</td>
</tr>
<tr>
<td>38d. Child</td>
<td>CHILDED</td>
<td>0 = No response</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Response</td>
</tr>
<tr>
<td>38e. Spouse/Partner</td>
<td>SPOUCED</td>
<td>0 = No response</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Response</td>
</tr>
<tr>
<td>38f. Legal Guardian</td>
<td>LGUARDED</td>
<td>0 = No response</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Response</td>
</tr>
<tr>
<td>38g. None of the above</td>
<td>NONED</td>
<td>0 = No response</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 = Response</td>
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APPENDIX D: LOGISTIC REGRESSION COEFFICIENTS

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>Wald</th>
<th>df</th>
<th>p</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school grade</td>
<td>.067</td>
<td>1.529</td>
<td>.21</td>
<td>.216</td>
<td>1.069</td>
</tr>
<tr>
<td>Gender (female)</td>
<td>-.431</td>
<td>8.222</td>
<td>1</td>
<td>.004*</td>
<td>1.538</td>
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<tr>
<td>Age</td>
<td>.079</td>
<td>2.712</td>
<td>.100</td>
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<td>1.082</td>
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<tr>
<td>Marital Status (no)</td>
<td>.228</td>
<td>1.337</td>
<td>.241</td>
<td></td>
<td>1.257</td>
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<tr>
<td>Race/Ethnicity (non-white)</td>
<td>.624</td>
<td>3.901</td>
<td>6</td>
<td>.048*</td>
<td>1.867</td>
</tr>
<tr>
<td>First Generation Student (non 1st)</td>
<td>.352</td>
<td>5.022</td>
<td>.025*</td>
<td></td>
<td>1.422</td>
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<tr>
<td>At least one developmental class taken (no)</td>
<td>-.436</td>
<td>5.723</td>
<td>.017*</td>
<td></td>
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<tr>
<td>Weekly hours worked</td>
<td>-.026</td>
<td>.190</td>
<td>.663</td>
<td></td>
<td>.974</td>
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<tr>
<td>Advisor Support</td>
<td>.175</td>
<td>3.956</td>
<td>.047*</td>
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<td>1.191</td>
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<tr>
<td>Faculty Support</td>
<td>.258</td>
<td>4.234</td>
<td>.040*</td>
<td></td>
<td>1.295</td>
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<tr>
<td>College ready – skill set</td>
<td>.038</td>
<td>.134</td>
<td>.715</td>
<td></td>
<td>1.039</td>
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<tr>
<td>College ready – attitude</td>
<td>.178</td>
<td>2.318</td>
<td>.128</td>
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<td>1.194</td>
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<td>College ready – student networking</td>
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<td>1.121</td>
<td>.290</td>
<td></td>
<td>.879</td>
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<tr>
<td>Constant</td>
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<td>5.979</td>
<td>.014*</td>
<td></td>
<td>0.159</td>
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*p ≤ .05. **p ≤ .005
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