

Virginia's Middle College Program: Factors of Completion, Community College  
Success, and Participants' Perceptions of Student Support Services

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Dissertation submitted to the faculty of the  
Virginia Polytechnic Institute and State University  
in partial fulfillment of the requirements for the degree of

Doctor of Education

In

Career and Technical Education

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March 20, 2017

Blacksburg, Virginia

Keywords: Middle College, Community College Success

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**ABSTRACT**

The Middle College program, developed by the Virginia Community College System (VCCS), allows high school dropouts (herein referred to as “out of school youth”), ages 18 to 24, to increase their income and employability by pursuing a General Educational Development certificate (GED<sup>®</sup>), community college certificate or degree, and a workforce credential within a college campus environment (VCCS, 2010). The investigation presented herein analyzes selected factors related to community college success of Virginia Middle College completers who earned the GED<sup>®</sup> via the Middle College program at eight Virginia community colleges from 2006-2013. Initial foundational information was provided by the Virginia Community College Student Information System (VCCSIS) dataset. Quantitative research methods including contingency table and logistic regression were used to analyze selected factors leading to Virginia Middle College program completion and subsequent community college success, including attainment of a community college career studies certificate, a community college applied sciences degree, a community college transfer degree to a four-year college or university, and a workplace credential such as the Virginia Career Readiness Certificate (CRC). Virginia Middle College completers who achieved community college success in 2006-2013 were then administered a survey instrument to investigate the completers' perceptions of the effectiveness of the community college support services offered within the respective community college. Results indicate that age played an important role in GED completion within the Middle College program and that the younger aged participants were more likely to complete GED on time (within one year of enrollment in Middle College). A greater number of Middle College completers earned a community college career studies certificate than any other credential earned and different community colleges have statistically significant different proportions of earned degrees and certificates. With Middle College participants closely connected with staff in the program, the results of this study also suggested that coaching and mentoring further promoted success and completion of postsecondary pathways. Another finding was that attendance on college campuses apparently motivated students to complete their GED and transition to and complete a postsecondary certificate or degree.

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**GENERAL AUDIENCE ABSTRACT**

The Virginia's Middle College program allows high school dropouts, ages 18 to 24, to increase their income and employability by pursuing a General Educational Development certificate (GED®), community college certificate or degree, and a workforce credential within a college campus environment (VCCS, 2010). This study analyzes selected factors related to community college success of Virginia Middle College completers who earned the GED® via the Middle College program at eight Virginia community colleges from 2006-2013. Initial information was provided by the Virginia Community College Student Information System (VCCSIS) dataset. Virginia Middle College completers who achieved community college success in 2006-2013 were then administered a survey instrument to investigate the completers' perceptions of the effectiveness of the community college support services. Results indicate that age played an important role in GED completion within the Middle College program and that the younger aged participants were more likely to complete GED on time (within one year of enrollment in Middle College). A greater number of Middle College completers earned a community college career studies certificate than any other credential earned and different community colleges have statistically significant different proportions of earned degrees and certificates. With Middle College participants closely connected with staff in the program, the results of this study also suggested that coaching and mentoring further promoted success and completion of postsecondary pathways. Another finding was that attendance on college campuses apparently motivated students to complete their GED and transition to and complete a postsecondary certificate or degree.

## ACKNOWLEDGEMENTS

The quest to complete this doctoral degree was an extremely long and difficult journey. Without the support of many individuals, I would have never completed this professional and personal milestone. Friends, family members, colleagues and supervisors continually encouraged me along the way. Without the support of my wife, Kathryn, this would not have happened. Our two sons, Jack and Mason, were quite patient and understanding when I was not able to contribute to family togetherness. Achieving this milestone has both professional and personal meanings for me. My dream of becoming a “*Hokie*” is now a reality with the completion of this doctoral degree.

First, I would like to thank Dr. Elizabeth Crowther, President of Rappahannock Community College (RCC) and the staff of Rappahannock Community College. Their support made this degree and project possible. Many staff members shared encouraging words and their professional approach inspired me to complete this work. Wendy Kang, Director of the Higher Education Innovation State Council for Virginia (SCHEV), Carrie Douglas, Director of Research and Evaluation, Randall Stamper, Assistant Vice Chancellor for Career Pathways, Caroline Thurston, Director of Middle College with the Virginia Community College System (VCCS) and Jim Andre and Rochelle Fisher at the VCCS provided countless hours of collaboration and support for this project. My personal friend, Allison Bond, also assisted with document formatting. I appreciate all of their kind words and support. Thank you all!

A dissertation is not possible without the support and guidance of a strong dissertation committee. My committee members spent a great deal of their time providing feedback, guidance, and needed revisions. Graduate students within the Laboratory for Interdisciplinary Statistical Analysis (LISA) at Virginia Tech, including Yiming Peng, were extremely helpful in assisting me with data analysis and software usage. Yiming Peng deserves special recognition for his additional assistance with recoding and data analysis and interpretation of results.

The topic of Middle College is very meaningful to me. As an average student in high school and later, a high school and middle school educator and elementary school administrator, and now a community college administrator, I have seen many learners struggle with secondary and postsecondary degree attainment. Success seems to always come through hard work and persistence. Persistence has allowed me to complete this degree. Others who struggle with degree attainment should always remember to never give up trying.

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## CHAPTER I INTRODUCTION

Educational leaders at all levels are focusing on strategies to prepare high school graduates for success in college by implementing programs that provide access to college support services and workforce readiness courses; many of which are taking place in on-campus college environments. Within the higher education arena, no group seems to work harder at this challenge than the community college educators and administrators. For example, in the United States, over 1.6 million adults aged 18 and older do not have a high school diploma or its equivalent, and many more lack literacy skills in key areas such as math or reading that may prevent employment (U.S. Census Bureau, 2010). To serve these populations, educators and administrators of two- and four-year colleges are now offering programs throughout the Commonwealth of Virginia from GED® test preparation to tutoring in English language-based life skills. One strategy, in the form of a precollege intervention program within Virginia, involves planned re-entry of out-of-school youth into the community college system.

In 2003, the Virginia Community College System (VCCS) implemented a program entitled “Middle College<sup>1</sup>”. Virginia’s Middle College is a program that allows out-of-school youth aged 18 to 24 to increase their income and employability skills by pursuing a GED®, community college education, and a workforce certification within a college environment.

Middle College is a college recovery/entry and school-to-career transition program for students who have been identified as having at-risk characteristics which led to dropping out of school, not completing a diploma or GED®, and often being unemployed or underemployed. The Middle College program has shown some initial success in credentialing students at the GED® level. Since inception of the program in 2003 within the original eight community colleges, the VCCS has implemented Middle College programs in one additional location of the 23 community colleges within the Commonwealth of Virginia. However, from 2006 to 2013, due to the limited number of these programs statewide and the relatively small population of Middle

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<sup>1</sup> Refer to definitions section beginning on page 11 of this study.

College participants, only 96 Virginia Middle College completers<sup>2</sup> successfully completed community college credentials in Virginia. However, as previously stated, these students were at one time non-completers within the secondary education setting. By attaining a postsecondary credential, they have indeed accomplished a major milestone.

In order to expand the number of career studies certificates and degrees in all of its colleges, the VCCS has interest in Middle College results. As stated in the VCCS Achieve 2015 strategic plan mission statement, Middle College is one of many initiatives to support students with barriers to college and employment. This mission reads:

*“...to contribute to the economic and civic vitality of the Commonwealth and its international competitiveness, through increasing access to affordable education and training for more individuals so they acquire the knowledge and skills to be successful in an ever-changing global economy (VCCS, 2013, para. 1).”*

Middle College programs target out-of-school youth to complete their GED<sup>®</sup> and enroll and complete a community college certificate or degree. Coupled with an array of community college support services such as tutoring and remedial/developmental courses, these programs aim to produce positive results in college readiness and attainment of community college certificates and degrees.

Middle College programs in Virginia are typically organized by community college program managers who work with at-risk adults aged 18 to 24. Housed on campus at a Virginia Community College, the program is designed to increase a participant’s income and employability by completing a GED<sup>®</sup>, community college education, and a workforce certification in a college environment. The program managers typically facilitate the recruitment, pre-assessment, and evaluation of all candidates who submit an application to become part of the program. They also coordinate the interviewing of qualified applicants and arrange students’ access to classroom instruction in both academics and employability skill training. Furthermore, program managers provide appropriate mentoring and infuse linkages to necessary social

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<sup>2</sup> A complete definition is found on page 13 of this study.

services to overcome barriers; assist students in obtaining a GED<sup>®</sup> and entering into community college education/training, military, apprenticeship and employment; oversee the administration of testing; and advise students and conduct annual program assessments. Program managers typically serve as the primary representative of the Middle College program at internal and external meetings and events, and recruit, supervise, and manage program staff.

Middle College programs are typically designed to “hand hold” students through enrollment to completion of a certificate or degree program at the community college. Most program managers make personal contact with the program participant through enrollment in Middle College, entry into community college coursework, and completion of a certificate or degree. Great attention is given to individuals in the program to foster success. These success elements, called community college support services, typically attempt to create an environment conducive to program completion. Although many other programs exist at the community college to promote student success, Middle College programs attempt to create goals that are documented and tracked through individual student learning plans.

### **Purpose of the Study**

The purpose of this exploratory study was to investigate selected factors leading to Virginia Middle College program completion, continued completion of a community college education, and a workforce certification within a college environment. For this study, college success is measured by attainment of a community college applied sciences degree, community college transfer degree, community college career studies certificate, and/or a workforce certification. To first identify potential Middle College student and program factors of success, secondary data (McMillan & Schumacher, 2006) collected through the Virginia Community College System Student Information System (VCCSIS) were analyzed. The greatest benefits of using secondary data for this study included data quality and increased sample size. The VCCSIS contains complete transcript information on every student who enrolls in college-credit and non-credit workforce preparatory courses. The VCCS (2010) reported that the number of students enrolled in Middle College had increased from 2008 to 2010. These programs may serve as viable options for out-of-school youth who may not be able to pursue subsequent future educational opportunities (Achieve, Inc., 2009; Dynarski, Gleason, Rangarajan, & Wood, 1998;

Wise, 2008). Appendix A depicts the progression of Middle College participants toward completion of a community college certificate or degree.

### **Statement of the Problem**

The Middle College program has existed for fourteen (14) years in Virginia. Over these years, there have been many success stories related to serving its clientele. Many completers of the program have gone on to earn a sustainable livelihood and have become contributing citizens to their community. There is, however, a lack of research confirming the success of the program and identifying factors that lead to this success. Therefore, the problem addressed in this study was the lack of opportunities and programs for high school dropouts to re-engage in a pathway to completion of credentials through post-secondary and workforce programs; which will ultimately lead to higher level employment opportunities and wages.

### **Research Questions**

The overarching research question for this study was *what factors influence successful completion of the Virginia Middle College program and community college success?* Appendix B lists the factors identified in the review of literature that may be connected to successful completion and the analytic procedures used for each research question. The following three research questions guided this research study:

Research Question 1.1: What is the relationship between each of the selected personal characteristics (age, gender, and ethnicity) and GED<sup>®</sup> completion status of 2006-2013 Virginia Middle College completers?

Research Question 1.2: What is the relationship between selected educational characteristics (community college attended, ACT WorkKeys<sup>®</sup> test score levels, and overall community college GPA) and the community college success of the 2006-2013 Virginia Middle College completers?

Research Question 2.1: What are the Virginia Middle College completers' perceptions of Middle College support services?

## **Rationale for the Study**

The findings of this exploratory investigation will benefit Virginia Community College (VCCS) faculty and administrators as well as K-12 educators in Virginia by providing information regarding the impacts of community college support services on out-of-school youth. The VCCS and individual community colleges within Virginia, who continue to fund the Middle College programs, are very interested in knowing the effectiveness of Middle College and which community college support services promote community college success. The VCCS is working hard to define and adhere to a specific model to deliver Middle College programs. VCCS must establish meaningful, appropriate performance measures and identify sustainable funding sources.

Since the goal of Virginia Middle College programs is to support targeted 18-24-year old out-of-school youth through completion of the GED certificate and community college certificate or degree, research should be conducted to gather information on the effectiveness of current Virginia Middle College program and student-support services. The VCCS is also very eager to “recapture” a lost population of college students who otherwise would have no option to transition and complete a postsecondary certificate or degree. The effort to attract any and all students has become critical to the financial sustainability of community colleges.

New knowledge relating to Virginia Middle College effectiveness and success will inform and benefit Virginia post-secondary education administrators and decision-makers as well as politicians, who must make important decisions regarding the future of Middle Colleges in Virginia. The overall importance of this study relates to the identification of the variables that lead to effective Middle College programs. Barriers to completion are very complex; however, factors outlined in this study may help to identify specific services used to assist in program guidance and planning. Since successful post-secondary participation seems to increase workforce participation and decrease unemployment (Pascarella & Terenzini, 2005), colleges are discovering a need to prepare and support out-of-school youth who are underprepared for college-level work.

## **Research Methodology**

Quantitative research methodology was used to conduct this study. It was conducted by analyzing secondary data obtained from the VCCS database, coupled with a survey of 2006-2013

Virginia Middle College completers. The researcher gathered data from the VCCSIS on one continuous independent personal variable (age) and two categorical independent personal characteristics (gender and race/ethnicity), three independent academic variables (community college attended, ACT WorkKeys<sup>®</sup> assessment scores, and community college certificate/degree completion), and one level of the dependent variable, Middle College GED<sup>®</sup> on-time completion (within one year of entry into the program). Existing data obtained from the VCCS were extracted, coded, and uploaded into JMP PRO (Version 11) software.

The data assembled for the study were mostly analyzed using contingency tables (also referred to as cross-tabulations or cross-tabs) for research questions 1.1 and 1.2, with the exception of the continuous independent variable, age. Contingency tables use a matrix format that displays the frequency distribution of the variables. It is often used to record and analyze the relationship between two or more categorical variables (JMP, 2013). Logistic regression was used to analyze the relationship of age and GED<sup>®</sup> completion/non-completion due to the nominal (binary) classification of the Y variable (GED<sup>®</sup> completion/non-completion) and X variable (age) as a continuous variable.

### **Theoretical Framework of the Study**

This study is closely associated to the theory of self-efficacy. Self-efficacy is the extent to which a person believes that he or she can reach his or her personal goals. Psychologist Albert Bandura, as a foundational aspect of his social cognitive theory, first developed this theory in 1977 as a belief in one's ability to achieve success in life would most likely occur through a person's internal competence. This can play a major role in how individuals approach future personal goals and challenges. Because out-of-school youth have never truly experienced much, if any, educational success in school, their ability to perform is inherently diminished. By purposely addressing personal inadequacies through external factors; such as positioning the struggling learners within a community college environment for learning or by placing services and personnel to promote ongoing success, these learners, through heightened self-efficacy, that is, believing they can perform well, are more likely to view and embrace a challenging task as something that is achievable rather than something to be cast out (Bandura, 1988). A more detailed discussion of Bandura's theory of self-efficacy is provided in Chapter II of this document.

## **Limitations**

Limitations to this study were as follows:

1. Several data elements employed (such as race and gender) were self-reported data gathered from student records in the VCCSIS and from a survey conducted with Middle College program completers. Because of this self-reporting, in some cases response rates were generally low, inadequate answers could not be probed for a more relevant response, and if an item puzzled a respondent, there was no interpreter to explain each question. Some of the data on educational characteristics used in this study (such as age/birthdate, first generation college student status, family income level, and family size) were self-reported by study participants through the community college student application process. Those data were assumed, for the purposes of this study, to be accurate and reliable.
2. Question order bias might have occurred because the respondent could study the whole questionnaire before answering the first question (Rossi, Wright, & Anderson, 1983). These data, therefore, were subject to reporting bias.
3. The study was limited to the eight Middle College programs in Virginia, so the results may not be generalized and no inferences can be drawn to other programs and states.

## **Delimitations**

Delimitations of the study included:

1. The researcher chose to use secondary data, stemming from the need to incorporate existing data provided the VCCS. Secondary data elements were used that involved the independent and dependent variables within the research questions, which were formulated upon review of the literature.
2. The secondary dataset and participant survey were only tied to Middle College programs within the Commonwealth of Virginia. The decision to utilize secondary data stems from the need to incorporate existing data provided by the VCCS into the research. The VCCS has collected this information in order to report program improvements and successes to various stakeholders including state legislators, Middle College managers, and other college personnel. However, although these secondary data exist, the VCCS has not attempted to report findings to constituents.

Other projects and priorities set by the VCCS continually create barriers limiting the opportunity to explore outcomes of the program. The researcher matched the secondary data elements that involved the independent and dependent variables within the research questions which were formulated upon review of the literature.

As previously stated, the secondary dataset and participant survey were only tied to Middle College programs within the Commonwealth of Virginia. The findings are not intended to be generalized to other programs that exist in other states. Programs in other states would not be considered identical in design and structure; therefore, other state programs were not pursued in the research.

### **Assumptions**

The main assumption made within this study was related to the accuracy of the self-reported data contained within the data elements of the VCCSIS student database. Also, by conducting an Internet survey, there was an assumption that every respondent had readily available Internet access, an accessible e-mail address, and the proper technology that was compatible with the Survey Monkey<sup>®</sup> Internet site.

### **Definitions**

The following definitions apply to this study:

***Adult basic education (ABE):*** An education program that typically serves adults (18 years or older or have been released from compulsory attendance policies within their school system). The participants typically have limited skills and education, including GED<sup>®</sup> preparation (U.S. Department of Education, 2006).

***Adult secondary education (ASE):*** Programs for adults with low educational functioning level (EFL) that is below the high school ninth grade level (U.S. Department of Education, 2006).

***Associate of Arts and Sciences (AA&S) degree:*** A community college degree that is awarded to students majoring in a specialized curriculum and planning to transfer to a four year college or university after graduation.

***Associate of Applied Science (AAS) degree:*** A community college degree awarded to students majoring in occupational-technical curricula and planning to obtain part-time or full-time jobs immediately after graduation.

***At-Risk Student:*** A term used to describe a student who requires intervention in order to succeed academically. At-risk students are less likely to transition successfully into adulthood and achieve livable income wage levels. Characteristics of at-risk students may include or behavioral/emotional problems, tardiness, absenteeism, and having other disconnections with school.

***Career Studies Certificate (CSC):*** A community college certificate awarded to students who complete one of the approved non-degree curricula (typically less than two years in length) such as computer applications specialist, welding, culinary arts, computer-aided drafting, or emergency medical technician.

***Career readiness:*** According to ACT, this is a term that “involves three major skill areas: *core academic skills* and the ability to apply those skills to concrete situations in order to function in the workplace and in routine daily activities; *employability skills* (such as critical thinking) that are essential in any career area; and *technical, job-specific skills* related to a specified career pathway” (ACT, 2008).

***Career readiness certificate (CRC):*** A portable skills credential that assures employers that a job applicant actually has the basic skills they seek. A CRC provides employers, career seekers, and workforce professionals with information and access to the Virginia Skills Bank (Virginia’s Career Readiness Certificate, 2014).

***Course load:*** A term used to describe the threshold of credit hours taken by community college students each semester. A course load of 15 credit hours taken each semester at the community college is considered a full-time course load, whereas less than 15 credit hours per semester indicate a part-time course load.

***Cohort:*** A group of community college students who entered the community college in fall of a specific year seeking completion of a community college associate or transfer degree, community college certificate, or career studies certificate.

***College readiness:*** The level of preparation a person needs in order to enroll and succeed (without remediation) in credit-bearing general education courses that meet requirements for a certificate or associate, or baccalaureate degree (Conley, 2007a).

***Community college success:*** Measured by attainment of a community college associate or transfer degree or community college career studies certificate.

***Community college support services:*** Those services within the community college that encompass recruitment, admissions, and counseling personnel. According to the VCCS, community college support services also typically involve a mixture of retention strategies such as supplemental instruction, remedial/developmental coursework, comprehensive learning assistance center/lab work, tutoring and study skills courses, mid-term progress checking, organized student study groups, and/or online learning support.

***Cumulative college GPA:*** Refers to cumulative course grade point average for each semester completed for community college certificate and degree completers within the study population. Developmental education courses do not count toward cumulative college GPA.

***Developmental course enrollment:*** Participation in remedial college courses, which are below entry level in the students of college mathematics and English composition.

***Educational Functioning Level (EFL):*** is a measure of adult educational progress, and is not the same as a grade level typically found in public schools. The functioning level, as defined by the National Reporting System for Adult Education, is comprised of four levels of Adult Basic Education and two levels of Adult Secondary Education (National Reporting System, 2001).

***Financial aid status:*** An indicator for eligible students based upon income level and defined as receiving federal Pell grant funds to attend a community college.

***Fiscal year (FY):*** A term used to describe a budget and academic year. In Virginia and most states, the year begins on July 1<sup>st</sup> and ends on June 30<sup>th</sup> of the following year. For the purposes of this study, students in FY 2008 academic cohort, for instance, would enroll in fall semester of 2007, spring semester of 2008 and summer semester of 2008.

**General Education Development (GED®) certificate:** A group of five tests (reading, writing, mathematics, social studies, and science) that measure skills that correspond to those of recent high school graduates.

**GED® completer:** A person who passes all five tests that comprises skills that correspond to those of recent high school graduates. Upon successfully passing all five tests, the participant receives a credential called the GED® that certifies 12th grade abilities (VDOE, 2011, para. 3).

**Grade point average:** A student's cumulative academic achievement at a college, calculated by dividing the total number of grade points received by the total number of credits attempted at the completion of a certificate or degree program. GPA within this study was only extracted at the conclusion of the certificate or degree program.

**Graduation rate:** A student success measure that is the ratio of students in the community college who earn a certificate or two-year degree within 150% of normal time frame, or complete at least a 2-year transfer program that counts as credit toward a bachelor's degree and allows the student to enter a bachelor's program as a third-year student. As of 2008 in Virginia, graduation rate is calculated as a percentage of the students entering the freshman class four years prior. These data now account for students who moved and those who were held back or promoted. The graduation rates track individual students from year to year using the Commonwealth's longitudinal student data system (VDOE, 2010).

**Income relative to poverty level:** Categorizes total family income as reported on financial aid applications, by family size in relation to federal poverty level income thresholds. The calculation for dependent students is based on parents' income. The calculation for independent students is based on their own income. Income thresholds are based on the U.S. Census Bureau's 2010 poverty levels in the year preceding enrollment. A value of 100 or less means the family is at or below the poverty income level.

**Middle College:** A program that admits out-of-school youth aged 18 to 24 and is designed to increase a participant's income and employability skills by pursuing a GED®, community college education, and a workforce certification in a college environment. Middle College is an out-of-school youth intervention/college entry/school-to-career transition program for students who

have been identified as having at-risk characteristics which led to dropping out of school, not completing a diploma or GED<sup>®</sup>, and often being unemployed or underemployed.

***Middle College completer:*** The Virginia Community College System defines a Middle College completer as a person who attains a GED<sup>®</sup> within one year of enrollment in the Middle College program. This definition was purposely designed as specified by the VCCS in order for participants to quickly complete a GED<sup>®</sup> and subsequently enroll in the community college setting. Although additional students completed their GED<sup>®</sup> within the Middle College program beyond one year after enrollment and continued on to enrolling in the community college, they are not included in this study.

***On-time GED<sup>®</sup> completion:*** Within the VCCS Middle College program, on-time GED<sup>®</sup> completion is defined as attainment of a General Education Development Certificate (GED<sup>®</sup>) within one year of enrollment in the Middle College program.

***Out-of-School Youth:*** A student who has dropped out of high school.

***Poverty level:*** The U. S. government's definition of poverty is based on total income received. Every individual within the family is considered poor if the family's total income is less than the family threshold (U. S. Census Bureau, 2000).

***Retention rate:*** A student success measure that is the percentage of students who enroll in the spring, summer, or fall in their first year at a community college and re-enroll in their second year at the community college toward a certificate or associate degree completion.

***Socioeconomic status (SES):*** An economic calculation of a person's work experience and of an individual's or family's economic and social position in relation to others, based on income, education, and occupation.

***Test for Adult Basic Education (TABE<sup>®</sup>):*** The nation's leading adult basic education diagnostic assessment to meet the diverse needs of adult students, the TABE measures basic reading, mathematics, and language skills, and also has optional spelling, vocabulary, and language mechanics tests (McGraw Hill, 2014, para 1).

**Transfer rate:** The rate at which students in the community college complete transfer courses and officially transfer to a four-year institution.

**Unclassified students:** Students who have not yet identified the program in which they are interested.

**Underserved populations:** Includes students from low-income families and those who are first-generation college student attendees.

**Virginia Skills Bank:** A searchable database yielding data on the varied skill levels of Virginia's workforce.

### **Descriptions of Independent and Dependent Variables**

The following descriptions apply to the independent and dependent variables used in this study:

**ACT WorkKeys:** The categorical independent variable “ACT WorkKeys” is coded as “CRC” and is defined as level of achievement of a Middle College participant on the ACT WorkKeys test, also known as the Career Readiness Certification test.

**Age:** The continuous independent variable “age” is coded as “BIRTHDATE” and is defined as a participant’s birthdate as of the first time that the participant attempted the GED<sup>®</sup>. The age of the students in this study ranged from 18-24 years of age. Age of the participant is verified by Middle College personnel using birth certificate documentation at the time of enrollment in the Middle College program.

**College:** The categorical independent variable “college” is coded as “COLLEGE” and denotes the community college that the Middle College program participant attended.

**Community college success:** The categorical dependent variable “community college success” is coded as “DEGREE” and is measured by attainment of a community college associate or transfer degree or community college career studies certificate.

**Cumulative College GPA:** The continuous independent variable “cumulative GPA” is coded as “GPA” and refers to cumulative course grade point average for each semester completed for

community college certificate and degree completers within the study population. Developmental education courses do not count toward cumulative college GPA.

**Gender:** The categorical independent variable “gender” is coded as “SEX” and is defined as the sex of the participant within this study. Male and female students were both included in this study. This was a self-reported variable at the time of enrollment in the Middle College program.

**Race:** The categorical independent variable “race” is coded as “ETHNIC\_GROUP” and is defined as the classification system used to categorize students into distinct groups by ethnic affiliation. Race is reported by the participant at the time of enrollment in the Middle College program.

### **Summary**

The purpose of this study was to explore some of the unknowns within the Middle College program in Virginia. The results will provide community college staff and administrators with information about many facets of a successful Middle College program. However, this is only the beginning research and additional studies are important to implement. Many additional research questions should be analyzed in the future.

## **CHAPTER II**

### **REVIEW OF THE RELATED LITERATURE**

This chapter begins with an outline of the characteristics of out-of-school youth and historical information on adult education programs in Virginia. An overview of the similarities and differences of Middle College and Early College programs is presented as evidence of the significance of program completion within the community college setting. The theoretical framework for this study is also discussed. The remaining sections in the literature review outline the national reporting system, General Education Development (GED<sup>®</sup>), characteristics of college readiness, community college success, Virginia Community College placement testing, and ACT WorkKeys<sup>®</sup> assessments.

#### **Characteristics of Out-of-School Youth**

Over the years, many research studies on student engagement have shown that students who are able to understand and internalize the connections between school and work are more actively engaged in their academic tasks and will be more likely to succeed in high school (Blustein, Juntunen, & Worthington, 2000; Fredricks, Blumenfeld, & Paris, 2004). Thus, those who graduate with a post-secondary degree typically enter the workforce with the appropriate level of knowledge and skills, which eventually leads to a successful career (ACT, 2006a; ACT, 2006b; ACT, 2008, Barton, 2000; National Association of Manufacturers, 2005; Rojewski, 2002). However, many educators throughout the nation have voiced concerns that American K-12 students are not successfully transitioning to post-secondary opportunities and are not trained to compete in a world-class global economy (Berlin & Sum, 1988; Raines, 2006; USDOE, 2008), which puts the nation's competitive workforce at risk (ACT, 2008a; Friedman, 2005). Also, scores on community college-entrance exams are not increasing, which ultimately presents one of many barriers toward a pathway to a community college credential. To compound this issue, researchers contend that the majority of the US high school graduates who enter community colleges are not academically prepared for entry (Conley, 2007a, 2007b; Flippo & Caverly, 2009).

With post-secondary education and workforce training as the only true pathways to opportunity and success (Gates Foundation, 2009), President Barack Obama's proposed American Graduation Initiative was poised to create a variety of opportunities to improve college

readiness as a whole and strengthen pathways through community college certificate, training, and degree programs. But will legislation and a focus on readiness be the answer to the skills gap in the United States? To produce the needed 5 billion two-year and four-year college graduates by 2020, the nation must incorporate other options to higher education.

Subsequently, K-12 school systems have plenty of work to do to prepare students to be college ready. ACT (2009) reported that only 23% of the 2009 high school graduates were prepared to earn a “C” average or higher in two-year and four-year college and university coursework. ACT also found that more than 75% of the 2012 graduates were not ready for two-year and four-year college-level studies. This may somewhat explain the issue of students dropping out of two-year and four-year colleges every nine seconds in the US (Lehr, Bremer, Cosio, & Thompson, 2004). These circumstances have focused attention on all universities and community colleges as they increase their role in college readiness and career readiness in the United States.

College readiness is not the only community college and university issue facing the nation. With increased costs of two- and four-year colleges in America, many students will encounter financial barriers upon entering and completing college (Baum & Ma, 2007). Thus, of the more than six million community college students nationwide, only 35% of the 800,000 first-year, full-time students graduate within three years.

In order to prepare students for college-level work and address a national imperative, the challenge includes increasing the number of students who successfully enter and complete post-secondary opportunities (Day & McCabe, 1998; Kuh, 2005; Lavin & Hyllegard, 1996; Ntiri, 2001). On average, 25 out of every 100 students drop out in the first year of higher education (Northeastern University Center for Labor Market Studies, 2009) and 25% attend college full time, with the remaining 75% having additional responsibilities such as family commitments and job duties (Complete College America, 2011). To address these problems, attention has previously focused on increasing high school curriculum standards and lowering dropout rates, while simultaneously connecting students through practicum experiences (Ravitch, 2009; Thornburgh & Sunday, 2006).

Typically, grant programs specifically target participant success that have barriers to employment. Additional support staff members such as tutors, counselors, and teachers are

utilized within the Middle College program. However, very little research exists in terms of the level of overall effectiveness of additional personnel and support services.

Cho and Karp (2012) found that students who enrolled in a college success skills course in their first semester were more likely to earn credit within the first year and were more likely to persist to the second year. The study also found that students who took placement testing and were placed into developmental education courses were more likely to earn college-level credits within the first year of college if they also enrolled in a student success course in the first semester (Cho & Karp). Student success in courses, such as Student Developmental (SDV) courses, may assist students by providing overviews of college policies and procedures including effective study habits, career and academic planning, and other college resources available to students (VCCS, 2014). The utilization of research-based best practices such as mandatory placement, program evaluation, community college support services, and decreased use of adjuncts is increasing among developmental programs at U.S. community colleges (Gerlaugh, Thompson, Boylan, & Davis 2007).

Out-of-school youth rates, a primary criterion for accreditation of high schools, declined from 14.1% to 8.1% from 1980 to 2009 (United States Department of Education, 2011). Even with lower yearly percentages, school divisions continue to lose accreditation status due to stringent state and federal regulations. Subsequently, most states already use school, district, and state report cards to share basic data with the public about school performance, including dropout rates.

However, as policy makers, school leaders, and administrators continue to demand school improvements that increase accountability, new strategies are developed for school reform (Anyon, 2005; Mintrop & Sunderman, 2009; Ravitch, 2010). Thus, pre-community college intervention programs have received renewed attention as a strategy for increasing school engagement (National Center for Educational Statistics, 2009).

Researchers and policy makers have had increased interest in the growing problem of students dropping out of high school (Orfield, Losen, Wald, & Swanson, 2004). As a result, many states have recently revisited their methodologies to calculate out-of-school youth rates and graduation rates. Due to the failure by GED<sup>®</sup> recipients on high school level coursework, Dynarski, Gleason, Rangarajan, and Wood (1998) suggested separation of high school students into high school diploma programs and GED<sup>®</sup> programs to address dropout prevention.

Low income or disadvantaged youth are very prone to dropping out in high school (National Center of Educational Statistics, 2004b, 2010) and few of these students find their way through completion of a community college credential. Similarly, those who are first-generation college students also have a difficult time completing a community college certificate or degree program. Bridgeland, DiIulio and Morison (2006) investigated the severity of these problems and concluded that the lack of academic preparation, lack of school engagement, family obligations including parenthood and the need for paid work experiences, increased absenteeism, lack of stringent rules, and inadequate parental guidance and supervision were all major contributors to dropping out. With only 30 to 50% of high school graduates prepared to succeed in college, American high schools will need further efforts to make progress toward their mission of preparing *all* students for additional schooling to potentially overcome barriers to post-secondary education completion and employment (Balfanz & Legters, 2004).

Although studies exist, there is no complete evidence that student engagement in college contributes to higher cumulative GPA and higher satisfaction rates of academic experiences (Webber, Krylow, & Zhang, 2013). Some studies also suggest that active involvement in college is associated with increased levels of communication, problem solving abilities, abilities to cope with change, and making moral and ethical decisions (Boyer, 1998).

Balfanz (2009) found that reforms over the past 25 years offer some hope. College preparatory course-taking has increased substantially, as has standardized testing. During the past decade, school reformers have made a concerted effort to improve the low-performing high schools that often serve low-income and minority students. The nation's lowest-performing high schools can improve if federal, state, local, and foundation funding is provided to continue to reform the school system. American high schools still have a considerable way to go, however, to be able to prepare all students for further schooling or training (Amrein & Berliner, 2002). Job growth was expected to decrease during 2006–16 than in previous years. Replacing those retiring from jobs was also anticipated to slow down and jobs filled by older workers were expected to be among the fastest growing (Dohm & Shniper, 2007).

Furthering education opportunities for youth is not a problem unique to the United States. Ma and Frempong (2008) studied post-secondary dropouts in Canada and found that males tended to drop out at a higher rate than female students. The study also concluded that the post-secondary dropouts tend to struggle in their first year of college with GPAs below the failing

level in the first year, and youth report a lack of belonging to their institutions prior to dropping out. Finance tends to be an issue in the life of post-secondary education dropouts in Canada. These youth tend to be ones who collect social assistance, and Canadian post-secondary education dropouts tend to receive neither scholarships from institutions nor loans from parents. In addition, Canadian post-secondary education dropouts tend to get married during the post-secondary education years. Finally, post-secondary education dropouts in Canada tend to be those who enroll in trade school or technical school as their post-secondary programs (Ma & Frempong).

Since dropping out of high school becomes a life-altering event in terms of reducing the ability to pursue future opportunities, school systems continue to improve alignment of high school state standards with post-secondary course content (NCES, 2009; US Census, 2000, 2007a, 2007b, 2010). Although extensive research exists focusing on the topic of school dropouts and dropout prevention, the literature has provided limited assistance to educators and policy makers as they have attempted to address the problem. Additionally, the inconsistency noted in the ways that dropouts are defined by national, state, and local educational agencies further compounds the difficulty in comparing research studies.

### **Adult Education in Virginia**

Adult Education in Virginia is one of many programs designed to provide adult basic education and GED<sup>®</sup> credentialing opportunities to individuals 18 years and older who want to improve their basic math, reading, and writing skills to get a job, pass a college entrance exam, or get a GED<sup>®</sup> credential. The Adult Education program also may offer English as a second language courses in various regions throughout Virginia, as well as “fast track” courses that assist students in attainment of a GED<sup>®</sup> credential in an abbreviated amount of time. The Virginia Department of Education (VDOE) supports adult education in Virginia primarily by appropriating federal funding to support the adult education programs at the local level.

Each locality or region has an adult education program manager and instructional specialists. Additional program support is directed to rural areas of the state where additional resources and leadership are needed. Although two of the 23 community colleges in Virginia are the providers of these services, county and city public school systems most often provide instruction for adult learners. Services may also be delivered by community-based organizations,

employers, and regional correctional facilities. Tutoring and other small group instructional programs are delivered primarily by volunteers in community-based literacy programs. Enrollment in adult education programs is based on student pretest scores. Potential students typically attend a program orientation and pretesting session. Table 1 shows the educational functioning levels related to TABE® assessment scores and the matching grade level equivalencies.

Table 1

*Virginia TABE Scale Score and Educational Functioning Level (EFL)*

Subject	Score	Grade Level Equivalency	Description
Language	< 392	0 – 1.9	Below adult basic education (ABE) level
	392 – 490	2 – 3.9	Beginning ABE level
	491 – 523	4 – 5.9	Low intermediate ABE level
	524 – 559	6 – 8.9	High intermediate ABE level
	560 – 585	9 – 10.9	Low adult secondary education level
	> 585	11 – 12.9	High adult secondary education level
Math	< 314	0 – 1.9	Below adult basic education (ABE) level
	314 – 441	2 – 3.9	Beginning ABE level
	442 – 505	4 – 5.9	Low intermediate ABE level
	506 – 565	6 – 8.9	High intermediate ABE level
	566 – 594	9 – 10.9	Low adult secondary education level
	> 594	11 – 12.9	High adult secondary education level
Reading	< 368	0 – 1.9	Below adult basic education (ABE) level
	368 – 460	2 – 3.9	Beginning ABE level
	461 – 517	4 – 5.9	Low intermediate ABE level
	518 – 566	6 – 8.9	High intermediate ABE level
	567 – 595	9 – 10.9	Low adult secondary education level
	> 595	11 – 12.9	High adult secondary education level

Source: Virginia Department of Education, Division of Adult Education and Literacy

Adult education program students may also qualify for other Virginia Community College System (VCCS) programs such as Middle College. Enrollment and services are determined by pre-GED<sup>®</sup> assessment scores such as the Test of Adult Basic Education (TABE<sup>®</sup>). Typically, adult education and Middle College students who score at or above the 9<sup>th</sup> grade level are ready to take the GED<sup>®</sup> (USDOE, 2008, VDOE, 2012).

As described by the *United States Department of Education, Office of Vocational and Adult Education*, completion of high adult secondary level in the National Reporting System (NRS) data systems is demonstrated by passing of the General Educational Development (GED<sup>®</sup>) tests (2012).

The definition of Middle College in Virginia is very different from other states and can be easily confused with Early College programs. One main difference between Middle College in Virginia and other Early College programs nationwide is the ability of the Middle College participant to pursue a GED<sup>®</sup>. Early College programs in other states typically provide pathways to attaining a high school diploma.

Great differences exist in literacy and numeracy abilities among the school-age and adult learners (Kirsch, Braun, Yamamoto, & Sum, 2007). At Holland College and Nova Scotia Community College in Nova Scotia, Penner (2011) studied the differences in performance between learners with a high school diploma and those with a GED<sup>®</sup> credential. The study investigated adults who earn a GED<sup>®</sup> in a post-secondary environment in a Canadian community college compared to the traditional high school graduates who follow a normal pathway to post-secondary learning after high school graduation. Eighteen percent of adults do not have a high school diploma within the Canadian provinces. The study tested whether statistically significant differences existed in performance between high school learners and those who obtained a GED<sup>®</sup>. The study incorporated variables such as gender, age, and admission processes within the community college system but found no significant differences in overall performance comparisons, although younger male students with a GED<sup>®</sup> performed higher than females within specific subject areas. However, males under age 25 with a GED<sup>®</sup> had the highest risk of dropping out within the first year at the college level (Penner).

## **Theoretical Framework for the Study**

Upon review of various social cognitive theories, the researcher determined that this study is closely associated with the theory of self-efficacy, which was initially developed by psychologist Albert Bandura. Professor Bandura studied social learning theory (how people learn through observing others) for approximately sixty years. Recognized as one of the most cited psychologists of all time, Bandura's self-efficacy theory (believing in yourself to take action) states that positive or negative expectations of personal efficacy (the ability to produce a personally desired outcome or result), determines whether subsequent positive or negative behavior will be initiated

Self-efficacy also determines how much positive or negative effort will be expended and sustained given the presence of any negative "roadblocks" and negative experiences along the way (Bandura, 1988). Bandura organized self-efficacy into 4 sources: performance accomplishments (those assessments with outcomes both positive and negative), vicarious experience (those experiences that deliver a feeling or experience from someone else), verbal persuasion (those experiences that involve external coaching), and physiological states (the personal inherent factors of a persons' perceptions).

Persistence becomes a big factor for Middle College completers, given the negative consequence of their classification as out-of-school youth attempting to complete a GED and transition successfully to a postsecondary environment. Self-efficacy theory promotes persistence and decreases negativity if gradual, short-term positive milestones are achieved. Therefore, self-efficacy played a major role in how a Middle College participant approached future personal educational goals, tasks, and challenges. In terms of this study involving out-of-school youth, the participants have limited experiences with educational success in school. By purposely addressing personal inadequacies through external factors including immediate short-term success on educational-related tasks, combining similar students with similar levels of self-efficacy, influencing one's personal perception of success completing courses within a community college environment), subsequent positive self-efficacy is formed.

## **The National Reporting System**

Each state administers its federal funding for adult basic education and literacy education programs in the United States Departments of Education and Labor (DOL) authorized under the

federal *Adult Education and Family Literacy Act (AEFLA)*, a Title II entitlement of the *Workforce Investment Act (WIA) of 1998* and the new *Workforce Innovation and Opportunities Act (WIOA) of 2016*. Through *AEFLA*, Congress set new performance accountability requirements for states and local programs that measure program effectiveness for student academic achievement and employment-related outcomes. In 1998, The U.S. Department of Education's Office of Vocational and Adult Education (OVAE) also established the National Reporting System (NRS) to develop and monitor accountability requirements under *AEFLA*. NRS measures the impact of adult education instruction by compiling data for localities and state agencies to measure effectiveness of programs (United States Department of Education, Division of Adult Education and Literacy, Office of Vocational and Adult Education, 2012).

### **General Education Development (GED®)**

The GED® tests were established immediately after World War II in response to labor force demand for a more educated workforce. Veterans were encouraged to prepare for the tests through local instructional programs. During the first few years, 40% of the tested participants took the test for employment reasons. Today, the test-takers are motivated to pass the test to access employment and post-secondary education (United States Department of Education, Division of Adult Education and Literacy, Office of Vocational and Adult Education, 2012).

Since 1942, there have been four iterations of the GED®, with the latest test redesigned in 2014. Virginia had 24,186 participants in 2010. Of those test takers, 14,454 passed the GED®, comprising 59.8% of those tested (ACE, 2006).

The GED® tests are delivered in five-subject testing batteries: Writing, Reading, Social Studies, Science, and Mathematics. Scores for each testing battery range from 200 to 800. Testing batteries can be scheduled individually or collectively based upon the preparation level of each participant. A minimum score of 450 in each subject area is required to pass in Virginia, with an overall aggregate score of 2,250 for GED® certification. The minimum age for taking GED® tests is 16 years old as set by the American Council on Education. Students who are not released from compulsory attendance regulations in high school are not permitted to take the GED® until reaching the appropriate age of 18 years old. Many educational institutions offer preparatory classes for the GED®, but examinees are not required to take classes to prepare for GED® tests. It is the learner's choice to determine the appropriate amount and type of

preparation required. In order to ensure the validity and academic rigor of the GED<sup>®</sup>, the tests are administered only by a GED<sup>®</sup> registered agency which provides specific test administrative services and locations (American Council on Education, 2010).

### **Early College Programs**

Twenty-eight states and the District of Columbia operate Early College programs. Early College programs combine high school and college-level instruction into a rigorous program. This allows students to reduce the time it takes to complete high school diploma and a community college certificate or degree. Since 2002, more than 75,000 students nationwide have been served in the Early College High School Initiative (Dolphin, Lawton, & McNeil, 2011).

Early College schools are designed so that underserved youth, first-generation college students, English language learners, and non-White students in higher education can simultaneously earn a high school diploma and a community college certificate or degree and work toward transferring to a four year college or university (Dolphin, Lawton, & McNeil, 2011). Middle College and Early College also have some similarities. All Middle College and Early College programs have as their primary mission to prepare students for college. To achieve this in many states, schools give students rigorous course work and even college classes beginning in the ninth grade and integrated core students such as mathematics in the career technical programs (Stone, 2005). To support students, the Middle College National Consortium (MCNC) has developed special classes designed to support students academically and emotionally. Unlike Middle College in Virginia, MCNC also has mathematics and literacy coaches who work with teachers to create rigorous course work. Coaches assist by mentoring students towards completion of credentials (Newby, 2008). MCNC's strategic partner is the National Center for Restructuring Education, Schools and Teaching, Columbia University, Teachers College (Hoffman, 2003).

Although Virginia Middle College research is limited, Dietter (2006) studied students who matriculated into the VCCS Middle College in fall 2005 to measure their increased awareness of higher education opportunities and their intent to pursue higher education during their first semester of enrollment. The results of this study suggested that the Middle College program positively affected out-of-school youth attainment of higher education awareness and their intent to enroll in college. Furthermore, the research indicated that Middle College students

are generally satisfied with the Middle College program and maintain optimistic attitudes throughout the semester toward pursuing additional education after a GED<sup>®</sup> is earned. Diether also recommended further research in the area of college readiness, for which this study is designed.

### **Characteristics of College Readiness**

Formalizing re-entry into the community college system has its own distinct challenges (Ryken, 2006). Community college students, including those in Middle College, typically face challenges of degree completion, including the need to earn an income and fulfill family care duties while simultaneously enrolled in the program. Young and Ley (2003) also discovered that underprepared students (including Middle College students) require even more support. These students are also more likely to need a longer period of time for completing such courses (Wirt, Choy, Rooney, Provasnik, Sen, & Tobin, 2004). Therefore, spending multiple years at community colleges without earning a certificate or degree is not uncommon. For instance, six years after initial enrollment only 45% of the students had successfully earned a community college certificate or degree, or transferred to a four-year institution (Bailey, Jenkins, & Leinbach, 2006).

To assist students in overcoming barriers to college success and to improve academic outcomes for Middle College students, community colleges have implemented a variety of community college support services. In Virginia, these support services may involve courses labeled by the VCCS as “Student Developmental” (abbreviated and VCCS coded as SDV), described as introductory college orientation courses for newly enrolled and matriculated students. All VCCS courses coded as “SDV” within the VCCS cover the following topics: college academic regulations, four-year schools’ requirements for transfer, associate degree requirements, certificate programs’ requirements, and specialized community college support services. These courses are usually aimed at students, including those in Middle College, who have no previous college experience and provide those students with institutional information, career exploration activities, programs designed to improve study habits, and opportunities to develop life skills such as basic financial literacy.

Like similar courses in other states, the course also has the goals of helping direct Middle College students to the various services offered at the college, facilitating their adjustment to the

college environment, and providing tools to be successful at the institution (O’Gara, Karp, & Hughes, 2008). Underprepared populations, such as those in Middle College, typically need to enroll in developmental courses at the community college level, and success of this population occurs through discussions connected to program enrichment, placement, testing, and other effective practices (McCabe, 2003).

Personal changes and achievement gaps in high school are highly related to college readiness (ACT, 2006). Berliner (2006) conducted a study that identified tutoring as the most prevalent strategy that principals use to close the achievement gaps in their school. The study suggested further research to investigate if there are differences in personal characteristics such as gender, years of experience, and ethnicity. Additional research is needed using more systematic, randomized samples as well as longitudinal and experimental designs that can test whether these reported strategies actually reduce the achievement gaps within school (Berliner, 1993, 2006; Braun, Wang, Jenkins, & Weinbaum, 2006; Institute for Higher Education Leadership and Policy, 2009).

Because of the need to facilitate improved transitional success rates of adults with barriers to education and employment, the National Center for Educational Statistic (NCES) in 2008 recommended that more research related to Middle Colleges be conducted, using instruments that identify the effectiveness of this high school recovery, pre-college intervention program for out-of-school youth. Moreover, Middle College program research can inform federal, state, and local policies for disconnected youth. With more than 6.2 million out-of-school youth, ages 16 to 24, in America in 2007 (Northeastern University Center for Labor Market Studies, 2009), many studies have been conducted to analyze intervention programs that increase the readiness for college and the workplace. Although effective programs facilitate a smooth transition from high school to college, much work is needed to provide students with appropriate academic and workplace skills (Achieve, Inc., 2008; Dalton, Glennie & Ingels, 2009; Pennington, 2006).

Roderick, Nagaoka, and Coca (2009) studied low-income and minority students in urban high schools with regard to college access and readiness. Their research uncovered significant race, ethnic, family income, and enrollment disparities in college readiness. Their research also found that high schools should stress "college knowledge," the ability to effectively search for and apply to college, in addition to content knowledge and core academic skills. Also, assessing

college readiness strategies should include examination of coursework required for college admission, achievement test scores, and grade point averages (Roderick, et al.).

As stated earlier, most states already use school, district, and state report cards to share basic data with the public about schools' performance. However, few practices and programs create an opportunity for basic skill instructors and college-level faculty to collaborate to form programs whose purpose is to increase the rate at which adult basic skill students enter and obtain post-secondary credentials (Athanasou & Petoumenos, 1998).

Sound teaching practices are also contributors to college readiness. Bean and Eaton (2002) stated that teachers tend to focus on teaching activities the way that they were taught and in ways that are not motivational for the learner (lecture vs. practical skill development).

Developed by Washington State Board of Community Colleges in 2005, the Integrated Basic Education and Skills Training program (I-BEST) used a unique approach in which basic skills instructors and college-level career-technical faculty jointly designed and taught college-level occupational courses for adult basic skills students and thereby integrated basic skill instruction with college-level career-technical skills. The Center for Career and Research Center (CCRC) 2005 study found that students participating in the I-BEST program achieved better educational outcomes than did other basic skills students, including those who enrolled in at least one non-I-BEST workforce course. According to the study, I-BEST students were more likely than others to continue into credit-bearing coursework, earning credits toward a college credential and occupational certificates (Prince & Jenkins, 2005; Washington State Board for Community and Technical Colleges, 2005; Hughes & Karp, 2004).

Community colleges, higher education institutions, and secondary schools clearly recognize the importance of understanding the intricacies of producing college-ready students and college completers. A common measure of college readiness, as evident in the literature, is the ability for a student to produce college-level work (ACT, 2004) and to succeed, without remediation, in credit-bearing general education programs at a post-secondary institution that offers a baccalaureate degree or transfer to a baccalaureate program (Conley, 2007b). In 2005, the American College Testing (ACT) program created college ready benchmarks which reflected scores on ACT assessments that students would need to earn to have a 75% or greater chance of obtaining a "C" or better. The benchmarks were not direct measures of content knowledge but were rather a gauge of probability of college success (ACT, 2005).

High school standards continue to be valued by colleges and employers (NCATE, 2001). A rigorous curriculum guarantees that both the right number and the right kinds of courses should be taught by well-qualified teachers (ACT, 2009). To assist with tracking students toward college success, the literature suggests early monitoring and intervention systems that could be implemented to ensure middle school students make a successful transition to high school and ultimately secure a seat within the college classroom. A longitudinal data system may also help students stay on target by monitoring their performance from the early years through college.

Many states simply don't require students to be exposed to a college readiness curriculum within the K-12 environment (Achieve Inc., 2010; Dougherty, Mellor, & Smith; Napoli & Wortman, 1996). High school students should therefore master essential cognitive knowledge to succeed in entry-level college courses. If students are able to couple this foundational knowledge with self-management skills, they are more likely to successfully complete their years of college work (Conley, 2008b).

### **Community College Success**

Schnell and Doetkott (2003) found that a higher percentage of students who enrolled in the freshman seminar at a public four-year university continued to enroll and complete college courses than those who had not. Similarly, Boudreau and Kromrey (1994) found a positive relationship between the completion of freshman orientation courses and college persistence, as well as academic performance. In 2007, another study was conducted by the Community College Research Center using student data from Florida's community colleges (Zeidenberg, Jenkins, & Calcagno, 2007). This study tracked a cohort of students over 17 terms and compared students who enrolled in a student support service/course entitled Student Life Skills (SLS) with those who did not. Regression analysis was used to control for educational characteristics such as age, gender, ethnicity, English proficiency, and test scores. The study found that students who enrolled in the life skills (SLS) courses were more likely to be successful versus their non-enrolled peers in terms of credential completion, persistence in the college, and transfer into the Florida state university system (Zeidenberg et al., 2007). Early intervention based upon specific characteristics of dropouts in the community college is a recurring theme (Boylan, 2009, Price, 1993).

School performance data do not typically measure participants' success in community colleges or four-year colleges. Political pressures to address college readiness and success make designing a successful pre-college intervention program extremely complex. These pressures can lead to lack of sustainability of the pre-college intervention.

Using data from the Virginia Community College System Student Information System (VCCSIS), the present study builds and expands upon the Florida study through the use of more detailed information on community college support services. The primary purpose of this study was to investigate factors that impact student success in the Virginia Middle College program. . For the purpose of this study, student success is measured by attainment of a community college associate or transfer degree or community college career studies certificate. Since most effects of student success course enrollment are unlikely to persist over the course of many years, the researcher focused on outcomes that are measureable within a shorter period of time. The researcher was particularly interested in whether enrollment in a community college support services had a strong relationship with these outcomes.

Bailey, Jeong, and Cho (2008) analyzed the patterns of student progression through developmental education. Results indicated that 30% of students referred to developmental education do not enroll in any remedial courses, and only about 60% of referred students actually enroll in the remedial course to which they were referred. The results showed that more students simply do not persist in development courses if they need to take a sequence of developmental courses prior to college course participation. Older students, African American students, part-time students, and students in career and technical programs are less likely to progress through developmental courses. Students who are referred to developmental education are the most vulnerable group of students in terms of persistence toward college completion (Zeidenberg et al., 2007).

In 2002, the National Center for Education Statistics (NCES) launched three national longitudinal studies to answer questions about persistence toward a degree or credential, and what happens to students after they enroll, and to track students' movements from entry to completion within the post-secondary education system. These three pilot study surveys, the National Education Longitudinal Study, the Beginning Post-secondary Student Longitudinal Study, and the Baccalaureate and Beyond Study, provided findings about educational characteristics, college access, and academic persistence.

The studies found that typically 40% of college students fit the traditional mold of enrolling immediately after high school and are also prepared to take care of college financial obligations. Three-quarters (3/4) of all four-year college students are employed while in college, and approximately 25% are employed full-time. The studies also found that greater numbers of at-risk students apply to college if their fellow classmates also intend to enroll, but the price of attending college is still a significant obstacle for students with low financial income levels. Most students who leave college enroll again within six years, but many enroll in other institutions. As a result, persistence data provided by individual institutions often understate overall persistence (Choy, 2002).

Several other research studies have identified factors of success of intervention methods for precollege entry, especially for disadvantaged students and populations who were unsuccessful in traditional high school settings (Dale, 1995; Ishitani, 2006; Robbins, 2006). Research has also shown that students who have higher high school GPA, higher family income levels, enrolled immediately after high school and whose parents attended college. Students who attend full time are also more likely to graduate (Adelman, 2005; Bailey, et al., 2004, Bailey, et al., 2005, Bailey, Jenkins, & Leinbach, 2006; Cabrera, Burkum, & La Nasa, 2005).

Bailey and Alfonso (2005) also examined the experiences and outcomes of low-skill adults within community and technical colleges in Washington D.C. Two student groups, consisting of first-generation college students who were 25 years of age or older with a high school education or less and who started in 1996-97 or 1997-98, were analyzed. The study showed that earning a career studies certificate (equivalent to two semesters of full-time study) provided individuals with a significant earnings advantage compared with individuals with just some college but no degree. The study also revealed that females who had earned a community college credential had higher earnings than males.

Mathur, Reichle, Strawn, and Wisely (2004) tracked the educational outcomes, employment rates, and earnings of participants in California's welfare program (CalWorks®) who were enrolled in a California community college and left the community college system in 1999-2000. Students who completed a career technical certificate or an associate degree tended to have higher income levels than did those who completed non-technical training programs. CalWorks student interviews indicated that the targeted support and employment services

offered by the California community colleges (such as on-campus work-study and academic advising) were often the key factors in their college success.

Lotkowski (2004) indicated that the non-academic-related skills such as self-confidence, institutional commitment, social support, financial support, and social factors all had positive relationships to college retention. The academic factors of high school grade point average (HSGPA) and ACT Assessment scores, and socioeconomic status (SES) had positive relationships to college retention (Lotkowski, 2004).

A number of studies have described efforts to help adults make the transition from basic skill levels to college skill levels in technical job sectors (Chisman, 2004; Dolphin, Lawton, & McNeil, 2011; Jenkins, 2008; Morest, 2004; Walker & Strawn, 2004). Most of these studies seem to report little evidence of positive program outcomes. However, a few studies indicate that earning a general equivalency diploma (GED<sup>®</sup>) may increase the possibility of completing a college education program (Beder, 1999; Bos, Scrivener, Snipes, & Hamilton, 2002; Cave & Bos, 1996; Marder & D'Amico, 1992).

Adelman (2005) studied the post-secondary transcripts of high school graduates in 1992 to develop “portraits” of populations who attend community colleges. Students aged 23 and younger in various degree programs were likely to persist if they were in traditional academic paths leading to a transfer and bachelor’s degree or were in occupational credential paths leading to vocational credentials or associate’s degrees awarded by the community college. The remaining groups of students were much less successful in earning credits and completing credentials if they had weak high school academic preparation and struggled to acquire community college credits (National Center on Educational Statistics, 2004, 2004b, 2010).

Hawley and Harris (2006) developed the Cooperative Institutional Research Program (CIRP) Freshmen Survey which was administered to first-time students during orientation. Findings suggested that educational characteristics impacting persistence can be classified into three categories: barriers, motivations and aspirations, and expectations. Among the strongest barrier to completion was the number of developmental classes acquired. Students entering college with limited English proficiency are at particular risk of academic failure.

Grimes and Antworth (1996) administered a survey to 208 community college students over a three year period. Student data was analyzed to determine reasons for withdrawing from college. Minority students with low income factors were more often associated with

withdrawing. Academically prepared students achieved higher Course completion rates and grade point averages (GPAs) and GPAs were lower for men and students reporting financial income issues.

According to ACT (2004), the academic factors of increased levels of ACT assessment scores, higher high school grade point averages (HSGPA), and higher socioeconomic status (SES) had a positive relationship with college retention. Recommendations included the implementation of formal retention/remediation programs that develop the “full” student perspective. Underrepresented and low income students are challenged to survive their first year of college and many must be offered remediation programs (Cline, Bissell, Hafner, & Katz, 2007; Windham, 1994).

Stater (2009) conducted a meta-analytic synthesis of findings from 60 research studies and determined that colleges with a focus on assisting at-risk college students through intervention programs were more likely to improve persistence. The at-risk students who enrolled in such programs stayed in college somewhat longer than student control group, and they obtained higher GPA levels in college courses.

Cominole, Riccobono, Siegel, and Caves (2010) focused on community college students and the relationship between a measure of degree commitment and student persistence. The results indicated that the students who were more determined to complete a program of study were very likely to be retained in their second year of college. Some 83% of the “more committed” students did complete their program of study, compared with 70% of the “less committed” student group. Students who enrolled in formal degree programs did not necessarily want to complete a credential. Rather, greater proportions cited personal interest or obtaining job skills as reasons for enrolling. The results suggested that enrollment in college coursework was not a significant factor unless the students acknowledged their intent to transfer to a four-year college or university.

Wang (2010), utilizing the National Education Longitudinal Study of 1988 and Post-secondary Education Transcript Study, tested logistic regression models to predict whether 1992 Virginia high school graduates who attended community colleges for their first two years were more likely to transfer to and complete a four-year university program. The results of the study indicated that the probability of attaining a bachelor's degree among these students is significantly associated with female gender, high GPA in high school, higher GPA in community

college, motivation factors, and higher mathematics ability. Heightened community college GPA was found to be a significant predictor of persistence.

Cho and Karp (2012) used data from the Virginia Community College System to examine whether participation in college success course had positive effects on college credit attainment in the first year and prompted students to enroll in their second year of college. The study also found that students who enrolled and completed developmental education courses were more likely to earn credit within the first year.

### **Virginia Community College Placement Testing**

Having students ready for college-level programs and courses is not necessarily addressed in state standards nor is it reflected in the high school curriculum (ACT, 2006). Within the community college system in Virginia, a placement test in reading/writing and one in math are required before beginning classes. Placement testing is closely associated with predictions of college success (Belfied & Crosta, 2012).

Prior to 2012, the ACT Compass<sup>®</sup> placement test was used assess students' ability in reading, writing and mathematics. In 2012, the Virginia Placement Test (VPT) was implemented to assess mathematics ability levels. Both the Compass and VPT are comprehensive, computer-adaptive, and diagnostic tests that are mapped to appropriate course placement levels within the VCCS. Tests are required of all new students who plan to seek a certificate or degree, receive financial aid, or take dual credit courses while in high school. The assessments are also required to enter the first semester of courses that have mathematics or English as a prerequisite. VCCS testing regulations require transfer students from other colleges or universities to take the Compass unless they have documented credit in either college-level mathematics or English. Students who have previously attended another college or university and completed a bachelor's degree are exempt from placement testing. The VCCS accepts courses completed in math and/or English with a grade of C or above. Test scores are valid for two years. There are two levels of developmental reading and three levels of developmental math in Virginia. Table 2 lists these levels in more detail (ACT, 2006a).

Table 2

*Virginia Community College ACT Compass Placement Scores*

Subject	Score	Course Placement
Writing	0 – 10	Refer to Adult Education
	11 – 75	Enroll in Developmental English Courses
	76 – 99	Enroll in College Level English
Reading	0 – 10	Refer to Adult Education
	11 – 80	Enroll in Developmental English Courses
	81 – 99	Enroll in College Level English
Mathematics	0 – 32	Refer to Adult Education
	33 – 47	Enroll in Developmental Mathematics Courses
	48 – 99	Enroll in College Level Mathematics

*Source:* Virginia Community College System (2011)

The validity of ACT Compass® is described within four domains: (a) the percentage of students who scored below the cutoff who would have failed the standard course had they enrolled in it, (b) the percentage of students who scored below the cutoff who would have succeeded if they had enrolled in the, (c) the percentage of students who scored at or above the cutoff who actually succeeded in the standard course (true positive), and (d) the percentage of students who scored at or above the cutoff who actually failed in the standard course (ACT, 1997). In this study, the VCCS placement test, known as ACT Compass®, was used to compare the math and English abilities among the two groups.

The ACT Compass® placement test was used to provide measures of key skills useful for placing students into standard or developmental community college courses in the areas of reading, writing, and mathematics. The placement test in Virginia is a nationally-normed computerized test of college math and reading skills developed by ACT®. The reading test measures reading comprehension in terms of the participant's ability to comprehend and reason. The writing assessment determines whether a student possesses the writing skills needed to succeed in a typical entry-level college composition course. The math assessment is a self-adaptive test, which tests students within four different levels of math. The test is designed to assist institutions in placing students into appropriate college-credit courses or developmental

level courses. In this research study, composite scores were used to assess academic performance. Composite scores on the reading assessment of 42-55 and writing assessment of 43-55 on the ACT English assessment will result in placement of students into ENG 111, College English. An ACT math score of 41-55 will result in placement of students into MTH 151 or MTH 163, College Mathematics. In 2010, ACT commissioned Frank Schmidt of the University of Iowa and James C. Sharf of Sharf & Associates to evaluate WorkKeys. They concluded that WorkKeys tests meet the requirements for criterion-related validity, content validity, and construct validity, through application of validity generalization research findings and related research (ACT, 2013).

### **ACT WorkKeys® Assessments**

In order to assess workplace readiness and job skills of Middle College participants, the ACT WorkKeys® assessment is administered to all Middle College participants. This series of tests measures foundational and soft skills (ACT, 2013). Successful completion in Applied Mathematics, Locating Information, and Reading for Information can lead to earning a Virginia Career Readiness Certificate. The Middle College program administers these assessments to Middle College participants in order for them to earn a Virginia Career Readiness Certificate.

Several preparation programs are available to prepare students for the ACT WorkKeys® assessment. Typically, Middle College programs utilize the ACT WorkKeys® system or utilize the online WIN program. Both of these preparation programs are highly correlated with success on the WorkKeys assessment. By combining cognitive skills with measures of work-related indicators brings even greater accuracy to predicting an individual's workplace success. ACT WorkKeys® assessments report *Level* and *Scale Scores*. Both types of these scores indicate an individual's ability to perform more complex skills as the scores increase. Employers and educators may use level scores which are based on WorkKeys® job profiles—a snapshot of the skills needed for a particular job. WorkKeys® Scale scores are used by educators to show growth in skills over time. Scale scores ranges vary upon the specific subtest results. Scale scores of 75-77 on the applied mathematics subtest equate to level 4 which is considered the bronze level. Student scoring at level 4 or above in the applied mathematics, locating information, and applied technology subtests will earn a bronze level career studies certificate. Level 5 on these subtests equate to the silver level career studies certificate. Level 6 on these

subtests equate to the gold level career studies certificate. Each subtest equates to specific competencies at each respective level. As found on the ACT website, Level 3 scores on the applied mathematics subtest include mastery of the following competencies:

- *“Solve problems that require a single type of mathematics operation (addition, subtraction, multiplication, and division) using whole numbers:*
- *Add or subtract negative numbers*
- *Change numbers from one form to another using whole numbers, fractions, decimals, or percentages*
- *Convert simple money and time units (e.g., hours to minutes)*

Subsequently, level 4 results indicate mastery of the following competencies on the applied mathematics subtest:

- *Solve problems that require one or two operations*
- *Multiply negative numbers*
- *Calculate averages, simple ratios, simple proportions, or rates using whole numbers and decimals*
- *Add commonly known fractions, decimals, or percentages (e.g., 1/2, .75, 25%)*
- *Add up to three fractions that share a common denominator*
- *Multiply a mixed number by a whole number or decimal*
- *Put the information in the right order before performing calculations” (ACT, 2009)*

### **Community College Retention and Completion**

The literature reveals that high school grade point average (GPA), ACT assessment scores, and socio-economic status have positive relationships with college retention (ACT, 2004; Carrasquillo & Fink, 1994). Moore (1995) and Windham (1994) found that full-time attendance at the college is the greatest predictor of persistence and completion of a certificate or degree, whereas, the most prevalent characteristic among studies of non-persistors was part-time attendance (Feldman, 1993; Kienzl, Alfonso, & Melguizo, 2007; Price, 1993; Washington State Board for Community and Technical Colleges, 2006). Multiple studies have been conducted to determine if the increase in graduation requirements will increase the postsecondary attendance rate for high school graduates (Bartik & Hollenbeck, 2006). In 1991-1992, a study at San Juan

College in Mexico found part-time students were 42% less persistent than full-time students (Moore, 1995). A higher dropout rate also existed among part-time students (Feldman, 1993; Windham, 1994; Price, 1993; Lanni, 1992). These studies also reported stronger persistence for younger students (Windham, 1994; Price, 1993). One community college study found the risk of dropping out was associated with young students between 20-24 years old (Feldman, 1993). On the other hand, Mohammadi (1994), in a study at Patrick Henry Community College in Virginia, found that attrition rates for those students in the age ranges of 23-35 and 45-50 after one year to be higher. Other attributes that contributed to students leaving college before completion of a certificate or degree included full-time employment, low grade-point average, ethnicity other than Asian, financial concerns, family obligations, and female gender (Bonham & Luckie, 1993; Lewallen, 1993). Glass and Garrett (1995), in a study of four North Carolina community colleges, found that student orientation sessions promoted and improved student academic performance regardless of age, major, entrance exam scores, gender, race, or employment status (Glass & Garrett). Glass and Garrett also studied student success outcomes including academic standing, grade point average, course completion rates, and persistence. The study found that students' participation in the orientation, meetings with counselors, and English/math assessment placement tests completion were positively related to improved student success.

Also, Bonham, Adrienne, and Luckie (1993) studied college student retention and found that time and money issues were the primary reasons for not returning to college in the following semester. These factors are very similar to those that inhibit earning a bachelor's degree (Kuh, 2006).

Coll and VonSeggern (1991) analyzed community college retention data in terms of students' stated objectives upon entry. The study found that student goal attainment is positively influenced by precollege orientation and the freshman success course(s). Effective precollege orientation programs provide students with descriptions of college program offerings, the college's expectations for students, encouragement to establish working relationships with faculty, and information about services that help students adjust to college. The freshman success courses typically include topics such as how to manage time, studying techniques, writing college level assignments, and stress management. Empirical studies provide evidence that the freshman success course for first-generation college youth effectively promotes retention (Coll & VonSeggern, 1991; Siedman, 2005; Ryken, 2004; Tinto, 2007).

Low income, minority, and disadvantaged students are often discouraged from taking high school courses with increased academic rigor (ACT, 2005). To resolve this problem, states have worked to address the issue of rigor by increasing the number of years a student will be exposed to core curriculum courses (ACT, 2007). The courses recommended are taught by instructors with early monitoring of success dating back to middle school. Feldman (1993) investigated retention of first time community college students and found that students with lower high school GPA had higher risks of dropping out of community college after one year. The study also found that African Americans between the ages of 20-24 years of age who participated in courses part-time had higher risks of dropping out of community college after one year. Dougherty, Mellor, and Smith (2006) also suggested that local school divisions track student success beginning in elementary school.

### **Summary**

An outline of the characteristics of out-of-school youth and historical information on adult education programs in Virginia were presented along with an overview of the similarities and differences of Middle College and Early College programs. The theoretical framework for this study was presented. Information on the National reporting system, General Education Development (GED<sup>®</sup>), characteristics of college readiness, community college success, Virginia Community College placement testing, and ACT WorkKeys<sup>®</sup> assessments were also provided.

### **CHAPTER III**

#### **RESEARCH METHODOLOGIES AND DESIGN**

The purpose of this study was to investigate selected factors leading to Virginia Middle College program completion and subsequent community college success. For the purpose of this study, college success is measured by attainment of a community college applied sciences, community college transfer degree, community college career studies certificate, and a workforce certification. Approval of the study on behalf of the Virginia Community College System (VCCS) appears in Appendix C.

This study draws upon existing VCCS data coupled with a survey of 2006-2013 Virginia Middle College completers. The researcher gathered data from the Virginia Community College System Student Information System (VCCSIS) on one continuous independent personal variable (age) and two categorical independent personal characteristics (gender, race/ethnicity), three independent academic variables (community college attended, ACT WorkKeys<sup>®</sup> assessment scores, and community college certificate/degree completion), and one level of the dependent variable, Middle College GED<sup>®</sup> on-time completion (within one year of entry into the program). Existing data obtained from the VCCS were extracted, coded, and uploaded into JMP PRO (Version 11) software.

The data assembled for the study were mostly analyzed using contingency tables (also referred to as cross-tabulations or cross-tabs) for research questions 1.1 – 1.2, with the exception of the continuous independent variable, age. Contingency tables use a matrix format that displays the frequency distribution of the variables. It is often used to record and analyze the relationship between two or more categorical variables (JMP, 2013). Logistic regression was used to analyze the relationship of age and GED<sup>®</sup> completion/non-completion due to the nominal (binary) classification of Y variable (GED<sup>®</sup> completion/non-completion) and X variable (age) as a continuous variable.

The following three research questions guided this research study:

Research Question 1.1: What is the relationship between each of the selected personal characteristics (age, gender, and ethnicity) and GED<sup>®</sup> completion status of 2006-2013 Virginia Middle College completers?

Research Question 1.2: What is the relationship between selected educational characteristics (community college attended, ACT WorkKeys<sup>®</sup>

test score levels, overall community college GPA) and the community college success of the 2006-2013 Virginia Middle College completers?

Research Question 2.1: What are the Virginia Middle College completers' perceptions of Middle College support services?

### **Virginia Community College Student Information System**

In part, much of data assembled for this study were drawn from the VCCSIS. The VCCSIS data collected from all Virginia community college students includes student personal information, institutions attended, developmental placement scores, transcript data for courses taken and grades received, and community college success indicators including certificates and associate degrees earned. For the purpose of this study, community college success is measured by attainment of a community college associate or transfer degree or community college career studies certificate. Of the 1,246 students who attempted the GED<sup>®</sup> in 2006-2013, 1068 students within this study cohort, approximately 85%, attained the GED<sup>®</sup> credential while in the Middle College program (within the same academic year as enrolled in Middle College).

Of the total cohort, 603 students attained the Career Readiness Certificate (CRC) during this time in the Middle College program. Of the study cohort of previous out-of-school youth/middle college completers, 158 completed a community college credential such as an Associate's Degree in Arts and Sciences for transfer to a four-year college/university, or an Associate's Degree in Applied Science, or a one year Career Studies Certificate.

### **Participant Identification Procedures**

The population for this study included all students who were enrolled in the Middle College program and who attempted and passed the GED<sup>®</sup> (within the same year) within the eight participating community colleges in Virginia in an academic year 2006-2013 and completed a community college certificate or degree. The fall 2006-2013 cohorts were chosen because the cohorts could be tracked between one to seven years beyond Middle College completion to see how students performed in relation to community college success. The fall 2006 cohort, for instance, consisted of students who entered the Middle College program in fall 2006 and completed the GED<sup>®</sup> in the Middle College within the academic year (2006-2007).

Thus, students who completed their GED<sup>®</sup> in 2006 were then tracked for seven years through fall 2013 (academic year 2014) to record status of completion of their community college certificate or degree. Students who completed their GED<sup>®</sup> in 2008, for instance, had 5 years to complete their certificate or degree (2013-2014 academic year). Therefore, the study consisted of 158 students within one group: those students aged 18 to 24 who previously dropped out of high school and completed the Virginia Middle College program within an individual academic year and completed a community college certificate or degree from 2006-2013.

### **Instrumentation**

In addition to utilizing the VCCS dataset, the researcher developed an instrument to investigate the Middle College and subsequent community college completers' perceptions of the effectiveness of the community college support services offered within the Middle College program. The instrument was first discussed with two faculty research advisors at a four-year university. Various changes including structure of questions were incorporated into the design of the instrument. The survey instrument, which appears in Appendix D, consisted of an online survey and included 25 opportunities for responses. The online survey was developed through discussions with Middle College program managers and field tested by five students currently participating in the Middle College program at one community college within the VCCS. The selection of the students involved in the field test came from recommendations of one Middle College program manager within the VCCS. Since the instrument needed support in terms of readability, students with high literacy scores, as measured by educational functioning level (EFL) and TABE<sup>®</sup> assessment scores, became the critical criteria for selection in field testing the instrument. For acceptance into the program, Middle College students typically score high on literacy skill assessments since they must complete the program within one year. As previously discussed, Middle College completers are those who attain a GED<sup>®</sup> within one year of enrollment in the Middle College program.

In addition to field testing the survey instrument using Middle College students located at the newest community college (Lord Fairfax Community College) who have recently completed the program but not included in this study, several meetings took place with statewide Middle College program managers during the spring and summer months in 2012-2013 in conjunction with statewide meetings with community college staff. The researcher was invited by VCCS

staff to share the framework of the study, including the research questions and survey instrument. The program managers commented on the survey instrument and were given the opportunity to indicate their perceptions of validity and suggest modifications in the content. A total of 85 participants met the only requirement for participation, which involved completion of a Middle College program within one year of enrollment and attainment of a community college associate or transfer degree or a community college career studies certificate. This group also achieved successful completion of the workplace credential.

### **Data Collection**

The VCCS and the researcher predetermined that utilization of the program managers was vital to the success of data collection from respondents. For the purpose of protecting the identity of the individuals within the data collection process, the VCCS was involved in distributing participants' email addresses and contact information directly to the respective program manager.

The final survey instrument was then relayed to the VCCS for distribution to all Middle College Program Managers. The researcher and advisors felt that the connection established between participants and program managers increase responses to the survey instrument. The researcher also relayed the non-identifiable student IDs to the VCCS so that they could be unencrypted and sent to the program managers to disclose the participant listing for follow up by the respective program manager. The letter to participants from the respective program managers appears in Appendix E. Follow up emails were then sent to study participants and appear in Appendix F.

Instructions were included in the introduction on the first page of the survey. Respondent information consisted of college attended, certificate or degree earned, and current status of college completion and employment. Three questions (questions 4-6) used a Likert-type response scale, which allowed measurement on an interval scale. Responses ranged from 1 (*very dissatisfied*) to 4 (*very satisfied*). If the respondent had not been exposed to a particular support service, they could check the "did not participate" response. Each of these items listed several community college support services provided in the Middle College program, and the respondents were asked to indicate their satisfaction with each service with respect to helping them prepare for the GED<sup>®</sup> and/or to be successful in the community college. The list of

community college support services was obtained from the Middle College program websites and by speaking directly with program managers of the eight Middle College programs and was validated by similar lists of community college support services found in the literature (VCCS, 2010). The next question in the survey was aimed at collecting information regarding the level of motivation created by having the Middle College program on a community college campus. The remaining questions were open-ended and designed to provide additional responses related to how the student perceived the community college support services and the overall Middle College program.

To gain a high response rate, Salant and Dillman (1994) suggested that the students be contacted in four stages. In March 2016, all persons who met the criteria to be potential participants of the survey were sent a personalized, advance notice letter (Appendix E) from their program manager informing them of the upcoming data collection process. The letter had been written by the researcher and sent to the program managers for distribution. The purpose of the initial letter was to inform the respondents that they had been selected to participate in the data collection process of the Middle College participant survey. Program managers were instrumental in relaying this information to survey participants because of their personal relationships with the Middle College completers and to avoid disclosing contact information to the researcher. The researcher distributed the Survey Monkey<sup>®</sup> link to the eight Middle College managers through email and included directions for completion and a timeline for when the data would be collected. The researcher informed the program managers of the number of completers who had not yet responded to follow up emails. In three days, the participants were sent a personalized e-mail from the program manager containing a personal message drafted by the researcher and a direct link to the survey. Second, third, and final emails were sent over a period of two weeks from the researcher to the program managers to encourage non-respondents to complete the survey. Appendix F displays the follow up email messages to non-respondents participants via program managers.

Each email correspondence from the program managers to the potential participants contained a link to the Survey Monkey<sup>®</sup> site for the survey. The survey was made available through a Secure Sockets Layer (SSL), an encryption method used to provide online communication security protection over the Internet. SSL protocol secured the data and project participant privacy.

Dillman (2000) also suggested a final contact be made a week or so after the fourth contact. A final e-mail was sent out just prior to the closing of the survey, allowing the participants one final opportunity to complete the survey. Again, this e-mail contained a personal message from the program manager with a direct link to the survey.

Survey Monkey<sup>®</sup> is a commercially available online data collection product provided to personnel within the VCCS. The product allows researchers to create surveys, publicize the survey, and collect data. Once the data from the survey were collected, the researcher was able to save the data as a Microsoft Excel file, which was then used to export into JMP version 10 file for analysis. The benefits of the Internet survey for the respondents was that they could control the questions' pace and sequence and the respondents received a clear picture of the overall length and context of the survey. Another benefit for the respondents of the Internet survey was that the respondents had the opportunity to complete the survey at their leisure by using a computer at home, through their smart phone or at a public site with a wireless system such as a library. Since the VCCS only uses college email addresses within its database, the researcher requested that the program managers forwarded the survey to the most current email address they had for each potential respondent.

The benefits of the Internet survey for the researcher were several. First, the delivery and response times were greatly decreased from a traditional mailed survey. However, total time to conduct this survey was not significantly reduced. The time spent preparing the survey, e-mailing the survey, and conducting the follow-up was comparable to traditionally mailed surveys (Schonlau, Fricker, & Elliott, 2002). Secondly, the cost of conducting the research was greatly reduced by eliminating costs of phone interviewing or postage since the Internet and email were used to administer the survey.

There are also negative consequences of administering an Internet survey. Internet surveys are typically limited to the computer savvy respondent, which may have the potential of reducing the response rate. Because Middle College students typically receive the Career Readiness certification, Internet surveys were considered to be accessible. The surveys also require a certain level of respondent literacy, which was determined to be appropriate by the field test of the survey. In addition, an Internet survey can sometimes cause difficulty in getting respondent cooperation. Having the surveys sent by the program managers was intended to encourage participation.

The VCCSIS student database system was used to gather data about selected characteristics of the respondents. These characteristics were based on the literature that identified these characteristics as primarily related to community college success or items that would help provide a description of the students such as age, gender, and race. By discovering the relationships of educational characteristics to community college success, the researcher could learn more about what actually accounts for success and how to improve respective Middle College programs by providing appropriate student support services. For the purpose of this study, community college success is measured by attainment of a community college associate or transfer degree or community college career studies certificate.

These student characteristic variables are listed and defined as the following:

**Community college attended** – refers to the college from which the respondent attended Middle College. This variable was measured by asking the respondents to select one of eight of the Virginia Community Colleges that host a Middle College program

**Certificate or degree earned** – refers to the type of community college credential received for each respondent. This variable was measured by asking the respondents to select their certificate or degree earned.

**College status** – refers to the status of college completion or continued educational efforts toward college completion.

### **Method of Analysis**

For each of the proposed research questions, there was a proposed method of analysis. The following paragraphs state each research question and provide a description of the method of measurement and method of analysis. Refer to Appendix B for detailed analysis and variable descriptions.

RQ 1.1: What is the relationship between each of the selected personal characteristics (age, gender, and ethnicity) and GED<sup>®</sup> completion status of 2006-2013 Virginia Middle College completers?

This descriptive analysis for research question 1.1 included means, standard deviations, and a range of scores. Logistical regression was used in the analysis of the first research question (RQ1.1) since the study involved a nominal/binary classification of the independent variable, “age” and two levels of the categorical dependent variable “On-time GED<sup>®</sup> completion status.”

Logistical regression can be used for predicting the outcome of a categorical dependent variable (i.e., On-time GED® completion status) for age vs. GED completion. The researcher also used contingency table analysis for gender vs. GED completion and also ethnicity vs GED completion (McMillan, 2006). As previously discussed, all variables analyzed within this first research question were collected from the VCCSIS dataset.

Research Question 1.2: What is the relationship between selected educational characteristics (community college attended, ACT WorkKeys® test score levels, overall community college GPA) and the community college success of the 2006-2013 Virginia Middle College completers?

The descriptive analysis for research question 1.2 included means and standard deviations for college GPA and community college success. Each student characteristic was reported by variable category related to overall community college student success. To analyze the second research question (Research Question 1.2), a contingency table was developed by summing the scores of the categorical independent variables (i.e., community college attended, ACT WorkKeys® test score levels, overall community college GPA) and five levels of the categorical dependent variable, community college success. As previously discussed, contingency tables use a matrix format that displays the frequency distribution of the variables. It is primarily used to record and analyze the relationship between two or more categorical variables (McMillan, 2006). As indicated before, all variables analyzed within this second research question were collected from the VCCSIS dataset.

RQ2.1 -- What are the Virginia Middle College completers' perceptions of Middle College support services?

The descriptive analysis for research question 2.1 included frequency distributions. To analyze the fourth research question (RQ2.1), the distribution of responses for each of respondents and general satisfaction of the participants surveyed was reported and presented in table format. The JMP statistical analysis program, version 10, was used by the researcher to perform the required calculations. Questions 1-3 on the survey allowed the researcher to gather additional personal/educational characteristics. Questions 4-7 were analyzed using a distribution of each response. Each respondent had five options to choose as a response to the items on the

survey. The five options were “Did not participate in the specific support service listed”, “Very Dissatisfied “, “Somewhat Dissatisfied”, “Somewhat Satisfied”, and “Very Satisfied”.

Questions 8-13 contained open-ended questions from respondents.

### **Validity and Reliability**

Upon entry into the program, Middle College students typically score high in terms of educational functional level; therefore, the instrument review by the program managers and the field testing determined that the readability level of the survey instrument was appropriate. Each question within the questionnaire was carefully constructed after thorough understanding of the literature.

The purpose of the survey instrument was to collect data in order to measure the Middle College participants’ opinions and perceptions of the student support services. Evidence for the validity of the survey instrument used in this study was derived mainly from its construct validity. Construct validity is the extent to which an instrument can be shown to measure the construct being studied (Anastasi & Urbina, 1997) and answers the question, “does the instrument measure what it is intended to measure?” The content of the survey was also reviewed by a panel of experts consisting of eight Middle College managers and the VCCS Director of the Middle College program. Further, to establish validity prior to data collection, the survey was pilot tested with five current Middle College participants within one Middle College program. Each participant was asked to read and orally explain each question on the survey instrument to the researcher. A panel comprised of the Middle College program managers was created to review responses of participants and adjustments were made to the survey instrument.

### **Summary**

The research methodologies and design were presented in this chapter along with identification of the study’s participants, research instrumentation, the study’s data collection procedures and method of analysis of research data. A description of the Virginia Community College’s dataset that contained the educational and personal characteristics used in this study was also discussed. Validity and reliability of the survey instrument was also presented.

## **CHAPTER IV**

### **FINDINGS**

The purpose of this chapter is to present the findings of the data analyses regarding the completion factors, community college success factors, and participants' perceptions of student support services in the Virginia's Middle College Program. The sections contained in this chapter are: (a) description of the sample, (b) analyses and findings organized by research questions, (c) personal characteristics, and (d) educational characteristics.

#### **Description of Sample**

In this study, 1,246 students in the VCCS Middle College program who attempted the GED<sup>®</sup> in 2006-2013, 1,068 students within this study cohort, approximately 85%, attained the GED<sup>®</sup> credential while in the Middle College program<sup>3</sup> (within the same academic year as enrolled in Middle College). Of the total cohort, 603 students attained the Career Readiness Certificate (CRC) during this time in the Middle College program. Of the study cohort who previously dropped out of high school but completed a GED<sup>®</sup>, 96 completed a community college credential such as an Associate's Degree in Arts and Sciences for transfer to a four-year college/university. Fifty-one of the total 96 students aged 18 to 24 who previously dropped out of high school and completed the Virginia Middle College program within an individual academic year and completed a community college certificate or degree from 2006-2013 responded to the survey. The response rate for this portion of the study was 53% (N=51). Table 3 presents the description of the sample of the study by displaying the personal characteristics with the number (n) of respondents in each category.

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<sup>3</sup> The VCCS collects data on GED attainment and high school diploma completion for Middle College completers. It is estimated that less than two percent of this group may actually earn a high school diploma. The VCCS data coding for both credentials (GED and high school diploma) are the same.

Table 3

*Descriptive Statistics for Middle College Participants FY 2006-13*

Group	N	GED Completers	GED Non-completers	Post-secondary Completers	Post-secondary Non-completers
Total		1068	178	96	1150
Gender					
Male		522	92	39	575
Female		546	178	57	575
Age					
18-19 years		493	16	38	471
20-21 years		283	53	20	316
22-23 years		193	79	23	249
24 years		99	15	15	129
Race/Ethnicity					
American Indian		9	1	1	9
Asian/Pacific Islander		0	9	0	9
African American		443	104	36	511
Hispanic		20	3	1	22
White, non-Hispanic		587	70	58	599

*Source:* Virginia Community College System Student Information System (2012)

The ages reported in the VCCS dataset indicated that most of the study participants who completed the GED on time in the Middle College program (N=493, 46%) were in the age range of 18-19 years. 48.8% who completed the GED on time in the Middle College program (N = 522) of the participants were males; 54.9% (N = 546) were white and 41.4% (N = 443) were African American.

The demographic data collected in this study indicated that the Middle College completers who participated in the study were predominately white and African American within the ages of 18-19 years of age. While these findings are important, there are other interesting aspects of the study that were not part of the original proposal, but are worth discussion. The study implies that a participant in Virginia's Middle College program may benefit in terms of having success in obtaining a GED and transitioning to a community college. In terms of completing a community college certificate or degree, this study suggests that a Middle College program participant may benefit from student support services and participants felt strongly about achieving success due to their on-campus participation. Because the Middle College participants are so closely connected with staff in the program, the study also suggests that coaching and mentoring further promote success and completion of Middle College students.

## Analyses and Findings Organized by Research Questions

This section contains restatements of each of the research questions that guided this study. Each question is followed by a description of the analysis used and a review of the findings for each question.

### Personal Characteristics: Age, Gender and Ethnicity

*Research Question 1.1: What is the relationship between each of the selected personal characteristics (age, gender, and ethnicity) and GED® completion status of 2006-2013 Virginia Middle College completers?*

The analysis of each variable is described below:

**Age.** To determine the relationship of age and on-time GED® completion status, a logistic regression was performed to model on-time completion of the GED on Middle College participant ages using the predictor variables of (a) on-time GED® completion (coded as 0 = no, 1 = yes) and (b) Age (recoded as “18-24”). Figure 1 shows the results of the logistic analysis

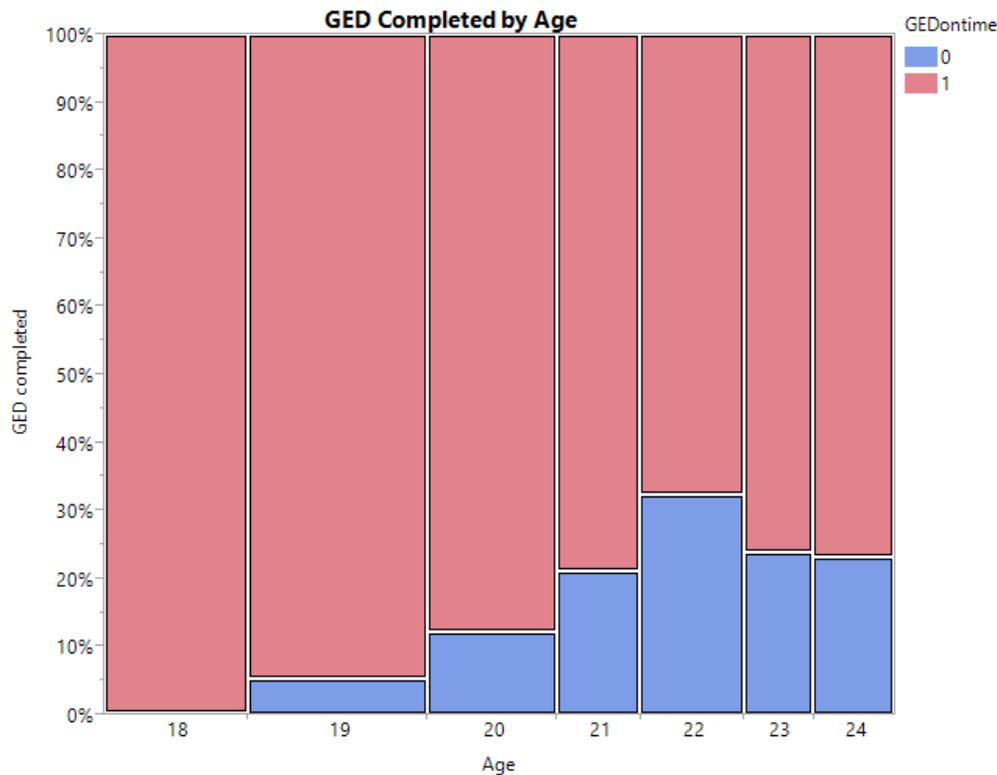


Figure 1. GED completion by age.

which indicates that the logistical regression model using age provides a statistically significant improvement over the constant-only model,  $\chi^2$  (df = 1,  $N = 1246$ ) = 92.1,  $p < .0001$ . The mean for age is 20.4 years and the standard deviation was 1.95. This indicates age played an important role in GED completion. The results also indicate that the younger aged participants are more likely to complete a GED<sup>®</sup> on time. As the participants increased in age, the odds of GED<sup>®</sup> on time completion diminished by a multiplier factor of .67.

*Gender.* Table 4 displays the on-time GED<sup>®</sup> completions by gender.

Table 4

*On-Time GED<sup>®</sup> Completion by Gender*

	GED <sup>®</sup> completers	GED <sup>®</sup> Non-completers	Total
Female	546 (51%)	86 (48%)	632 (51%)
Male	522 (49%)	92 (52%)	614 (49%)

No significant difference in (a) GED<sup>®</sup> on-time completion (coded as 0 = no, 1 = yes) and (b) gender (coded as “M” for Male and “F” for female) were found in this study of the Middle College completers in Virginia (p-value = 0.49).

**Ethnicity.** The number of GED<sup>®</sup> completers vs. non-completers by each ethnicity group is reported. The following Mosaic plot provides graphical representation of the proportion of GED<sup>®</sup> completers by ethnicity group. GED<sup>®</sup> on-time completion (coded as 0 = no, 1 = yes) and (b) Ethnicity.

Table 5 displays the totals of GED<sup>®</sup> completers and non-completers by ethnic group.

Table 5

*On-Time GED<sup>®</sup> Completion by Ethnic Group*

	GED <sup>®</sup> Non-Completer	GED <sup>®</sup> Completer	Total
American Indian	1 (1%)	9 (1%)	10 (1%)
Asian	0 (0%)	7 (1%)	7 (1%)
African American	104 (58%)	443 (41%)	547 (43%)
Hispanic	3 (2%)	20 (1%)	23 (2%)
Pacific Islander	0 (0%)	2 (1%)	2 (1%)
White	70 (39%)	588 (55%)	658 (52%)

(coded as AMIND = American Indian, ASIAN = Asian, BLACK = African American, HISP = Hispanic, PASIF = Pacific Islander, and WHITE = White) of the Middle College completers in Virginia. Figure 2 below displays the mosaic plot of GED<sup>®</sup> completion by Ethnic Group.

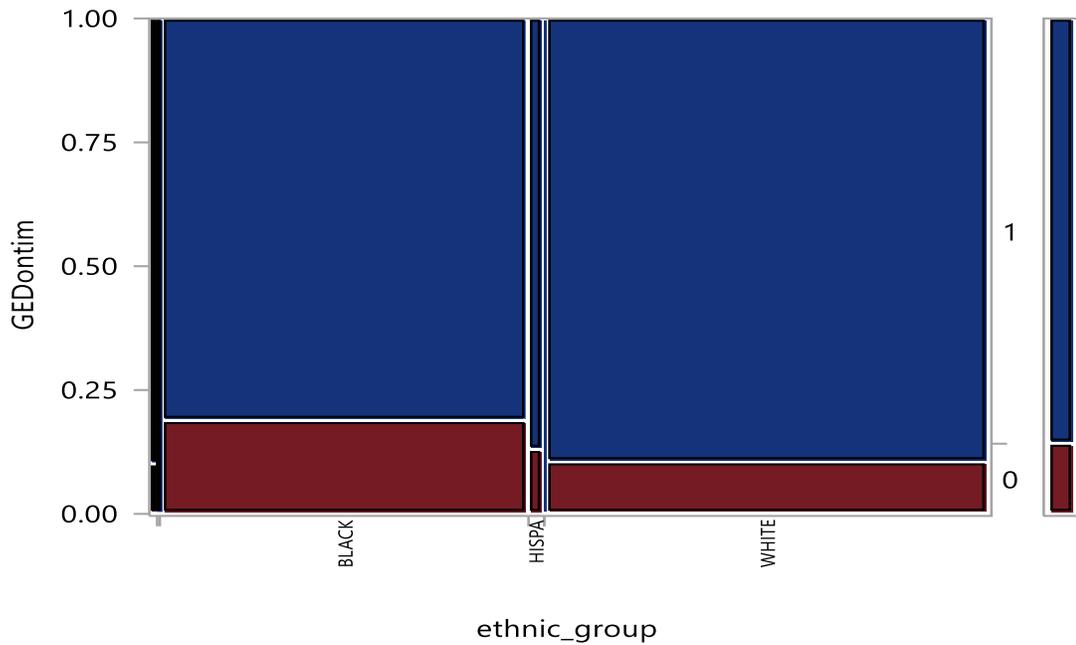


Figure 2. GED<sup>®</sup> completion by ethnic group.

Proportionately, the White cohort, closely followed by the African American cohort, had increased proportions of on-time GED<sup>®</sup> completions as compared to other ethnic groups. Due to the small sample size of ethnicity groups, the Fisher exact test was performed to show overall

impact on on-time GED<sup>®</sup> completion. The test shows different ethnicity groups have statistically significant different proportions of GED<sup>®</sup> completers (p-value < 0.01).

**Educational Characteristics: Community College Attended, ACT Scores, and GPA**

*Research Question 1.2: What is the relationship between selected educational characteristics (community college attended, ACT WorkKeys<sup>®</sup> test score levels, overall community college GPA) and the community college success of the 2006-2013 Virginia Middle College completers?*

The analysis of each variable is described below:

**Community college attended.** Figure 3 provides a graphical understanding of the proportion of attained community college associate degrees, community college transfer degrees, and community college career studies certificates by community college attended.

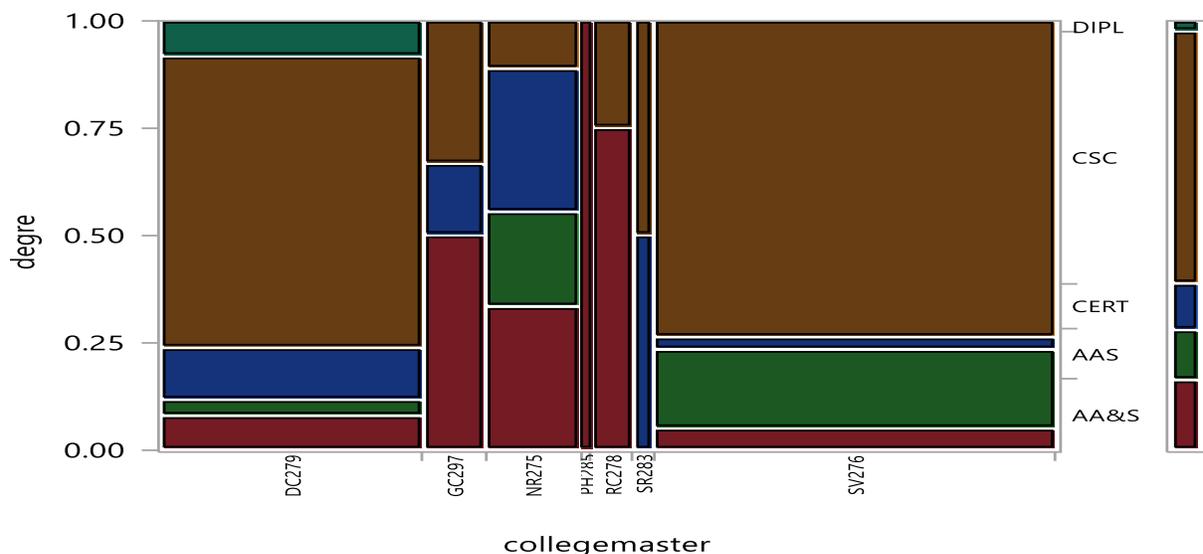


Figure 3. Contingency analysis of degree earned by college attended.

Degrees earned by the Middle College completers in Virginia were coded as (a) AA&S = Associates of Arts and Sciences, AAS = Associates of Applied Sciences, CERT = Community College Certificate, CSC = Community College Certificate, and DIPL = Community College Diploma, and (b) Community College attended (coded as collegemaster). Danville Community College and Southside Virginia Community College reported the two highest percentages of degrees and certificates earned by the 2006-2013 Middle College completers. A greater number

of Middle College completers earned a community college career studies certificate than any other credential earned. The test concluded that different community colleges had statistically significant different proportions of earned degrees and certificates (p-value < 0.01). Table 6 reports the total numbers and percentages of degrees and certificates earned by community college and Figure 4 shows the mosaic plot of degree and certificate earned by community college.

Table 6  
*Number of Credentials Earned by Community College*

	Total Attempted	AA&S	AAS	CERT	CSC	DIPL	Total Earned
Southside	423	2	8	1	30	0	41
Danville	298	2	1	3	19	2	27
Germanna	225	3	0	1	3	0	7
New River	431	3	3	3	2	0	11
Patrick Henry	57	1	0	0	0	0	1
Rappahannock	106	3	0	0	4	0	7
Reynolds	377	0	0	1	1	0	2

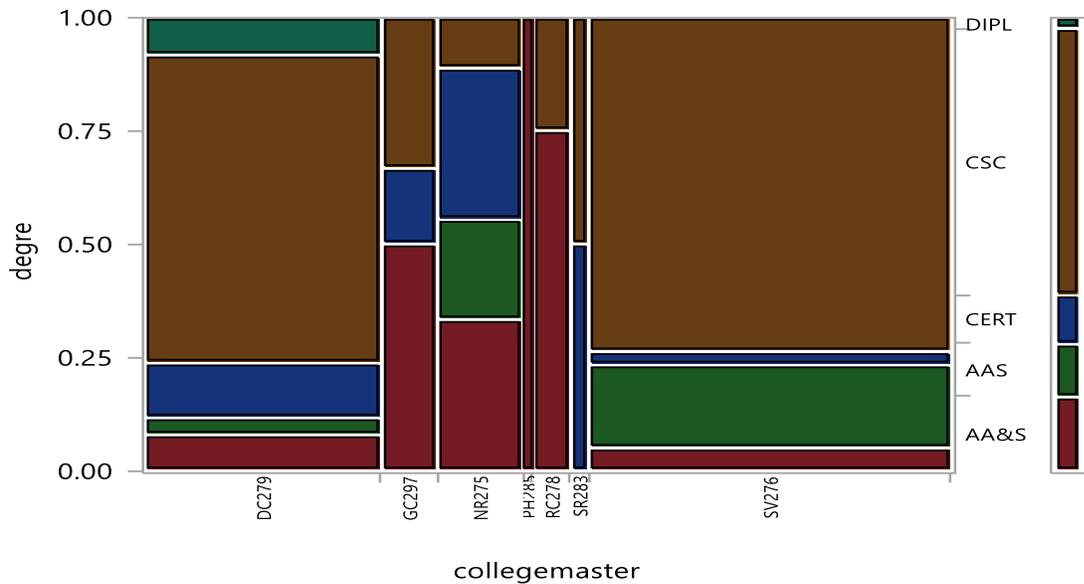
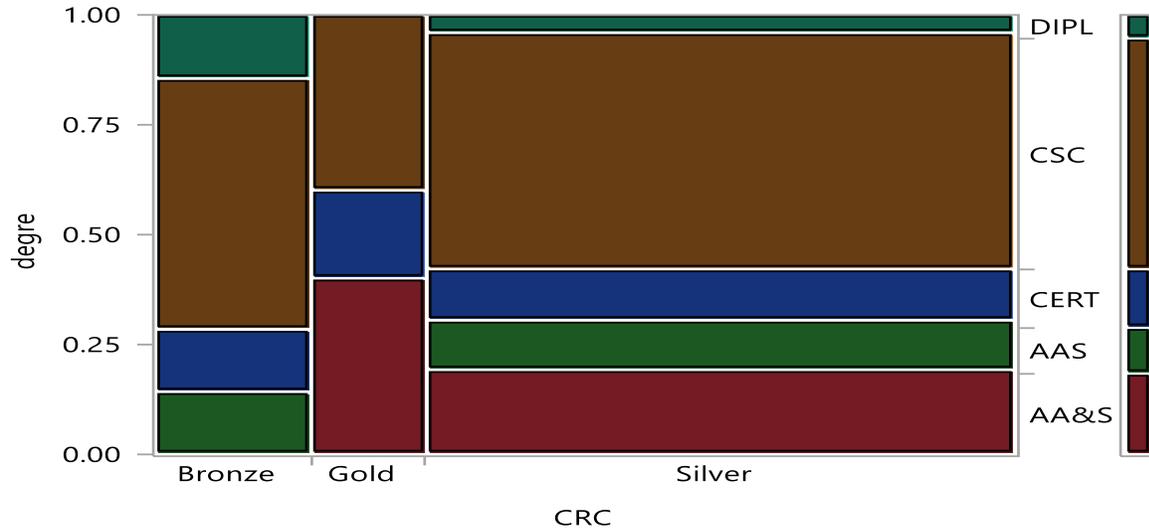


Figure 4. Mosaic plot of degree and certificate earned by community college.

**ACT WorkKeys® test score levels.** Figure 5 provides a graphical representation of the proportion of attained community college associate degrees, community college transfer degrees, and community college career studies certificates by ACT test score levels.



*Figure 5.* Mosaic plot of degree completed by ACT career readiness certificate.

Degrees earned by the Middle College completers in Virginia were coded as AA&S = Associates of Arts and Sciences, AAS = Associates of Applied Sciences, CERT = Community College Certificate, CSC = Community College Certificate, and DIPL = Community College Diploma) and ACT WorkKeys® test results were coded as Bronze, Silver and Gold). Proportionally, students earning a silver level ACT test score were more likely to earn a community college career studies certificate. Table 7 shows the levels of ACT WorkKeys certificate achieved by GED and community college completion.

Table 7

*WorkKeys® Career Readiness Certifications for 2006-13 Middle College Participants*

	GED Completers	GED Non-Completers	Community College Completers	Community College Non-Completers
Gold	38 (8%)	3 (3%)	6 (14%)	35 (6%)
Silver	296 (58%)	34 (35%)	30 (68%)	300 (54%)
Bronze	173 (34%)	59 (62%)	8 (18%)	224 (40%)

*Source:* Virginia Community College Student Information System (2012)

A greater number of Middle College completers earned a community college career studies certificate than any other credential earned. No significant difference in (a) degree earned and (b) ACT WorkKeys test results were found in this study of the Middle College completers in Virginia. The silver-level career readiness certificates comprised 68% of the total Middle College completers. Those earning a silver-level career readiness certificate and a community college career studies certified comprised 37% of the Middle college completers.

The test concluded that different levels of career readiness test scores have no statistically significant different proportions of types of earned degree (p-value > 0.01). The results for the Middle College participants in fiscal years of 2006-08 are reported in Table 8.

Table 8

*Level of Degree by Career Readiness Certification Level*

	AA&S	AAS	CERT	CSC	DIPL	Total
Bronze	0 (0%)	1 (25%)	1(20%)	4 (20%)	1(50%)	7(19%)
Silver	5 (71%)	3 (75%)	3 (60%)	14 (70%)	1(50%)	26 (68%)
Gold	2 (29%)	0 (0%)	1(20%)	2(10%)	0 (0%)	5(13%)

A scatterplot was used to show a graphical representation of the relationship of Grade Point Average (GPA) on degree earned. Figure 6 depicts the college Grade Point Average by degree earned. Students who earned an AA&S degree on average earned higher GPAs than those earning other degrees or certificates.

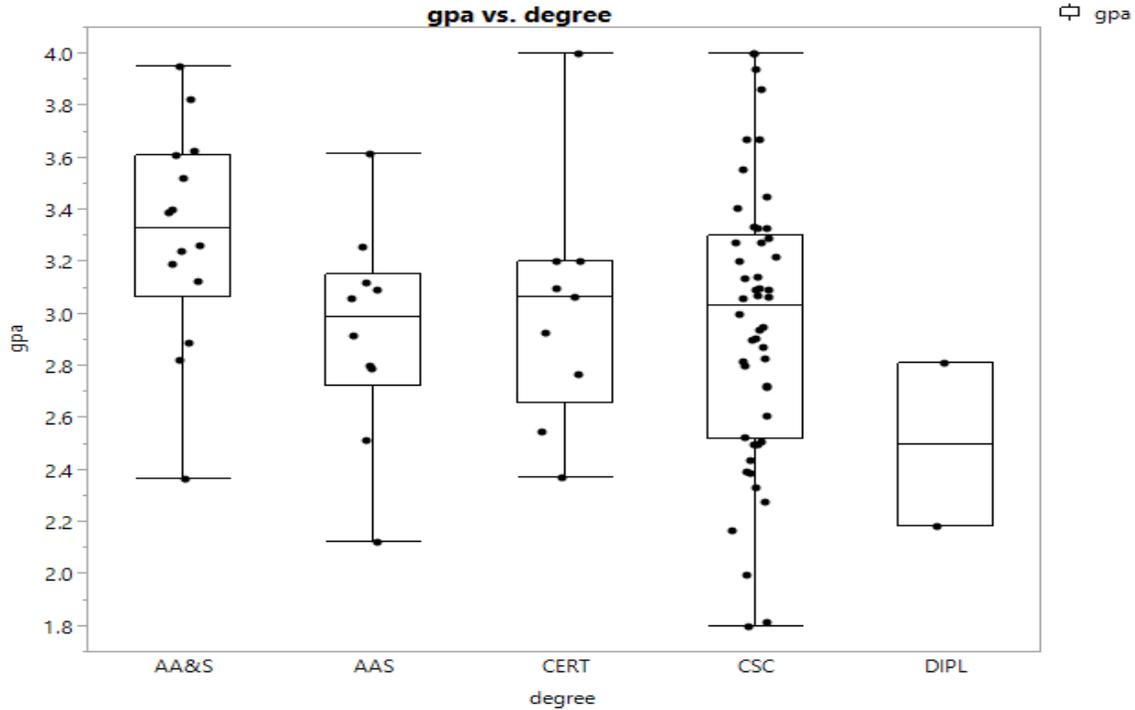


Figure 6. Scatterplot of GPA vs. Degree.

The GPA means, GPA medians, and standard deviations are reported in Table 9.

Table 9

*College Grade Point Average by Degree Earned*

Degree	<i>N</i>	GPA Median	GPA Mean	Std. Dev
AA&S	14	3.32	3.30	.418
AAS	10	2.98	2.92	.409
CERT	11	3.06	3.04	.520
CSC	59	2.95	2.92	.562
DIPL	2	2.49	2.49	.444

### Middle College Participant Survey Results

*Research Question 2: What are the Virginia Middle College completers' perceptions of Middle College support services?*

To measure the Virginia Middle College completers' perceptions of Middle College support services, a survey was administered.

**Survey Question 1: Location of Respondents by Middle College.** Table 10 below depicts the community college location of the Middle College completers.

Table 10

*Location of respondents of Middle College Completers*

Community College	Response Percent	N
Danville Community College	33.3%	17
Southside Virginia Community College	29.4%	15
New River Community College	15.7%	8
Patrick Henry Community College	2.0%	1
Rappahannock Community College	2.0%	1
Thomas Nelson Community College	2.0%	1

Fifty two (52) of the 96 (54%) Middle College completers responded to the survey. Each question is presented below. Responses to question 1 on the survey instrument identified the program location of the middle college survey respondent. Two of the three largest Middle College programs (Danville and Southside Community Colleges) responded at a higher rate than the remaining community colleges. Seventeen of the 52 respondents (33%) were located at Danville Community College, 15 of the 52 (29%) respondents were located at Southside Community College, and 8 of the 52 (15%) respondents were located at New River Community College.

**Question 2: Current Status of Middle College Completers.** Forty-one percent (41%) of the 52 respondents reported that they were planning to enroll in a four-year college or university. Thirty five percent (35%) of the respondents reported that they were working full-time. Table 11 shows the education and employment status of the Middle College completers.

Table 11

*Current Status of Middle College Completers*

	Response Percent	N
Plan to enroll in a four-year college or university	41.7%	20
Employed full time	35.4%	17
Plan to participate in short-term occupational training (for example, non-credit industry credentialing program).	12.5%	6
Enrolled at four-year college or university	4.2%	2
Attending four-year college or university - no longer enrolled	4.2%	2
Participating in an apprenticeship, job shadowing, and/or an internship experience.	2.1%	1
Participating in short-term occupational training (for example, non-credit industry credentialing program).	2.1%	1

**Question 3: Types of Certificate or Degree Earned by Middle College Completers.**

Participants identified the type of certificate or degree earned at the community college. Thirty six (36) of the 48 (75%) respondents reported that they had earned a community college certificate, which is an occupational credential such as accounting or welding. Twenty-five percent (25%) reported that they had earned an ACT Career Readiness Certificate. Table 12 lists the types of certificates or degree earned by the Middle College completers.

Table 12

*Type of Certificate or Degree Earned by Middle College Completers*

	Response %	N
Community College Certificate	75.0	36
ACT WorkKeys Career Readiness Certificate	25.0	12
Associate of Applied Sciences (AAS) Degree	16.7	8

**Questions 4-6: Satisfaction of Student Support Services.** Responses to questions 4-6 on the Middle College completer survey identified the extent to which the respondents were satisfied with the following GED and/or community college support services. Overall, the respondents reported high satisfaction with support services. Thirty-two (32) of the 46 responses reported high satisfaction with the student orientation, thirty (30) of the 45 responses reported

high satisfaction with the meetings with middle college staff. Survey responses were varied in total numbers due to individual responding to individual items.

Twenty-seven (27) reported high satisfaction with academic advising/counseling. Thirty-one of the 48 responses reported high satisfaction with the tutoring support services. Table 13 lists the status of satisfaction of the student support services.

Table 13

*Status of Satisfaction with Student Support Services*

	<i>N</i>	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied	Did Not Participate
		%	%	%	%	%
Student orientation	46	69	23	6	0	0
Virginia Wizard career planning tool	44	38	40	4	2	13
Financial aid planning	42	42	26	7	4	19
Academic advising/counseling	46	27	13	3	1	2
Meetings with Middle College staff to review progress	45	30	13	2	0	0
Transfer credit assistance	44	23	11	2	0	9
Student Developmental course (For example, SDV 100)	44	22	13	4	3	3
Study skills course	43	15	16	2	0	10
Job placement assistance	45	20	18	1	2	4
Tutoring with other Middle College students	44	30	13	1	0	0
Tutoring with Middle College personnel	44	31	12	1	0	0
Study groups with other Middle College students	47	27	13	1	0	6
Computer lab time	43	13	14	2	1	13
Online or computerized software instruction	42	13	12	2	0	15
Basic skills instruction	43	23	16	1	0	3
College placement testing assistance	42	18	9	2	1	12

Table 14 shows the level of motivation to participate in the Middle College program on a college campus.

Table 14

*Level of Motivation to Participate in the Middle College Program on a College Campus*

Motivation Level	Response Percentage %	N
Highly increased motivation	60	29
Slightly increased motivation	33	16
No impact on my motivation	6	3
Slightly decreased motivation	0	0
Highly decreased motivation	0	0

**Question 7: Level of Motivation to Participate on College Campus.** Responses to question 7 of the Middle College completer survey identified the extent to which coming to a community college campus increased or decreased motivation to participate in the Middle College program. Twenty-nine (60%) of the 48 respondents reported highly increased motivation.

**Questions 8 – 12: Participants’ Responses to Open-Ended Survey Questions.**

Survey Questions 8 through 12 asked participants to respond to open-ended questions in order to gain a greater insight regarding their perceptions concerning the Middle College support services. Below are the responses that indicated that the services were beneficial in helping the completer to prepare for further education. The major themes that emerged from the responses included (a) the importance of coaching/mentoring/advising, (b) the importance of proper instruction/setting/tutoring, and (c) the importance of technology. The responses below have been grouped under these three main themes.

The importance of coaching/mentoring/advising:

“Coaches were very helpful.”

“I would not have survived this without support from the program.”

“The coaches were great people.”

“Guiding me through the steps was very helpful.”

“Nice teachers.”

“The advisors were great.”

“I felt more comfortable knowing that others were there to support me close to home”

“Networking was huge. I feel like I created a life-long resource. 8-9 years later I will still call if I have questions.”

The importance of proper instruction/setting/tutoring:

“It was convenient because I live close to campus.”

“Services were available outside of my work schedule which was nice.”

“I would not have thought about attending college if it was not for MC.”

“Although I am now job hunting, I really liked the schedule which was perfect for my work schedule.”

“In my opinion being in the college setting allowed me to remain focused and motivated.”

“A new way of learning and understanding since I was out of school for so long...”

The importance of technology:

“They all were beneficial; I am always allowed to come utilize all resources, for instance the computer lab. I am still supported from career advice to being provided opportunities that fit my situation.”

Middle College completers were also asked if the experience in Middle College positively or negatively influenced their decisions to pursue a two-year or four-year college certificate or degree. Twelve of the 17 responses indicated that Middle College positively influenced their decision to continue their postsecondary credential. When asked if they would consider recommending Middle College to a friend, 16 of 34 respondents reported that they would do so. Additional comments on the survey regarding the completers’ perceptions of the Middle College program are listed below. The common theme that emerged was that the program timeline to completion needed to be expanded and that the program was a very positive experience for participants. The responses included comments such as:

“Need more time to complete the program.”

“The Middle College Program is a great program.”

“I have always had positive things to say about my experience at the middle college. I am forever grateful they exist!”

## **Summary**

The findings of the data analyses regarding the completion factors, community college success factors, and participants' perceptions of student support services in the Virginia's Middle College Program were presented in this chapter. The description of the study sample, analyses and findings, personal characteristics, and educational characteristics were also presented.

## **CHAPTER V**

### **CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS**

Chapter 5 includes an overview of the study, conclusions based on the findings, discussion, recommendations for practice, recommendations for further research, and final comments of the researcher.

#### **Overview of Study**

The overview of the study includes the statement of the problem, a brief description of the purpose of the study, the research questions, a brief description of the research methodology used, and a list of key findings.

#### **Statement of the Problem**

The problem addressed in this study was the lack of opportunities and programs for high school dropouts to re-engage in a pathway to completion of credentials through post-secondary and workforce programs; which will ultimately lead to higher level employment opportunities and wages.

#### **Purpose of the Study**

The purpose of this exploratory study was to investigate selected factors leading to Virginia Middle College program completion, continued completion of a community college education, and a completion of a workforce certification within a college environment. The study also gathered perceptions of the student services by the Middle College completers who achieved community college success.

#### **Research Questions**

The overarching research question for this study was: *What factors influence successful completion of the Virginia Middle College program and community college success?* The following three research questions guided this research study:

Research Question 1.1: What is the relationship between each of the selected personal characteristics (age, gender, and ethnicity) and GED<sup>®</sup> completion status of 2006-2013 Virginia Middle College completers?

Research Question 1.2: What is the relationship between selected educational characteristics (community college attended, ACT WorkKeys® test score levels, overall community college GPA) and the community college success of the 2006-2013 Virginia Middle College completers?

Research Question 2.1: What are the Virginia Middle College completers' perceptions of Middle College support services?

### **Methodology**

The researcher gathered data from the Virginia Community College Student Information System (VCCSIS) on three independent variables, (a) age, (b) gender, (c) race/ethnicity, and one dependent variable, Middle College on-time GED® completion. The researcher also gathered data from the VCCSIS on three independent variables, (a) community college attended, (b) ACT WorkKeys® assessment scores, (c) overall community college GPA, and one dependent variable, community college success. Existing data obtained from the VCCS were extracted, coded, and uploaded into JMP PRO (Version 11) software.

The data assembled for the study were mostly analyzed using contingency tables (also referred to as cross-tabulations or cross-tabs) for research questions 1.1 and 1.2, with the exception of the continuous independent variable, a Age. Contingency tables use a matrix format that displays the frequency distribution of the variables. It is often used to record and analyze the relationship between two or more categorical variables (JMP, 2013). Logistic regression was used to analyze the relationship of age and GED® completion or non-completion due to the nominal (binary) classification of Y variable (GED® completion/non-completion) and X variable (age) as a continuous variable.

### **Key Findings**

The logistical regression analysis indicated that age played an important role in GED® completion. The younger aged participants were more likely to complete a GED® on time. As participants increased in age, the odds of GED® on time completion diminished by a multiplier factor of .67. No significant difference was found between gender and GED® on-time completion.

In terms of race/ethnicity, the White and African American cohorts had increased proportions of on-time GED<sup>®</sup> completions as compared to other ethnic groups. Different ethnic groups had statistically significant different proportions of GED<sup>®</sup> completers. Danville Community College and Southside Virginia Community College reported the two highest percentages of degrees and certificates earned by the 2006-2013 Middle College completers. The test concluded that different community colleges have statistically significant different proportions of earned degrees and certificates. A greater number of Middle College completers earned a community college career studies certificate than any other credential earned.

Additional findings in the respondent survey identified the type of certificate or degree earned at the community college. In terms of the responses of the Middle College participant survey, 36 of the 48 (75%) respondents reported that they had earned a community college certificate, which is an occupational credential such as accounting or welding. Twenty-five percent (25%) reported that they had earned an ACT Career Readiness Certificate. In rating the various student services, different numbers of respondents to the survey indicated that they had had experience with each type of service. Thirty-two of the 46 respondents (69%) respondents to the survey reported high satisfaction with the student orientation. Thirty of the 45 respondents (66%) reported high satisfaction with the meetings with middle college staff. Twenty-seven of 46 respondents (56%) reported high satisfaction with academic advising/counseling. Thirty-one of 48 respondents (64%) reported high satisfaction with the tutoring support services.

### **Conclusions**

This study analyzed selected factors related to community college success of Virginia Middle College completers who earned the GED<sup>®</sup> via the Middle College program from 2006-2013. Based on the findings of the study, as presented in Chapter 4, the following conclusions were made:

1. A greater number of degrees and certificates would be earned if Middle College program participants continued to be exposed to student support services through the postsecondary process. Evidently these services are intensive during the GED completion phase of Middle College. Continuing these services would improve retention and completion through postsecondary certificate and degree attainment.

2. Participation in the Middle College program, located on a college campus, in partnership with Adult Education, would increase persistence and motivation of high school dropouts. Adult Education programs would also benefit greatly by using this strategy for success. Intervention strategies such as student support services would then be infused into Adult Education to improve GED attainment and allow for transition to postsecondary pathways.

### **Discussion**

The findings of this study on community college success of Middle College program completers in Virginia were very encouraging. The results implied that the program can assist high school dropouts in receiving additional educational and career opportunities. High school dropouts have very few opportunities to successfully transition to postsecondary education and gainful life sustaining employment. Some dropouts may decide to enroll in an adult education program or pursue other opportunities. Many of these students never complete a pathway in order to transition further to postsecondary education or advance along a chosen career path. This study suggested that if a person were to enroll in the program housed on a community college campus (like the Middle College program), they may have a greater chance to transition successfully through to community college completion of some type and enter a meaningful career pathway. This study also suggested that Middle College completers benefit greatly from interactions with mentors and coaches within the program. If other programs (such as community college academic or workforce development programs) use similar coaching and mentoring strategies, students may become more likely to persist. This study does leave some unanswered questions that could be addressed through further research. For example, factors such as community college attended, developmental course enrollment status, course load, first generation college student status, family income level, family size, and financial aid status were not explored in this study. These factors may also influence success within the Middle College program.

Although the literature reveals that high school grade point average (GPA) and socio-economic status contribute to college retention, these data elements were not available from the VCCS secondary dataset. Nevertheless, stronger persistence patterns seem to exist for younger students. Also, according to the literature, full-time employment status, low college grade point

averages, ethnicity (other than Asian), financial concerns, time commitments, family obligations, and female gender contribute to decrease completion rates of college degrees and certificates. Course completion rates, participation in orientation sessions, interaction with counselors, and successful scores on English and math placement tests positively improved college success.

Evidently, the typical high school graduation age of 18 years increase their ability to successfully complete the program. Their chances of completion dissipate as the participants' age increases. Early identification of participants (potential dropouts) from local high schools may need to be further enhanced. Guidance counselors and high school administrators could assist with this process.

Since completion of a career studies certificate typically requires one year, this may be a much more realistic milestone for Middle College participants. Also, as the ACT career readiness tests are administered, students achieving the silver level seemed to be more likely to achieve a community college career studies certificate.

On-campus attendance seems to increase motivation and completion rates. The feeling of "being in college" seems to motivate and impact student's completion and success rate. Considering that the Middle College participants are previous high school dropouts, they may have very few choices to enter a career pathway. The data indicated that a two-year completion rate of Middle College and successful transition to community college may be a better parameter for the program.

Among other potential factors, the statistically significant differences among the community colleges with increased proportions of earned certificates and degrees may be associated with the level of mentoring, coaching, and advising provided, the level of tutoring resources, and/or the level of technology incorporated into the respective program. Further exploration of these assets is advised.

### **Recommendations for Practice and Further Research**

The following section includes recommendations for practice and recommendations for further research:

### **Recommendations for Practice**

1. To improve the Middle College program, increased efforts should be given to providing intensive and focused coaching, mentoring, and advising and proper instruction.
2. Better strategies and greater efforts should be made to nurture older students to assist them in completing the Middle College program.
3. Expand the Middle College program timeline to further increase the participant success rate.
4. Because of the success of the Middle College program, additional strategies should be developed and implemented to attract more high school dropouts. Closely working with guidance counselors and high school administrators may increase success rates.
5. Develop and implement strategies for increasing the transition rate of Middle College completers beyond the career studies certificate programs into community college diploma and degree programs. Expansion and availability of community college career studies certificates offered should also be considered.
6. Implement greater collaborative efforts among the community colleges that offer the Middle College program to work together to determine ways to improve the program.
7. Expand the Middle College program to be offered in all Virginia Community Colleges in order to reach a greater number of potential participants throughout the Commonwealth who need the critical services provided by the program.
8. Focus additional resources to improve levels of postsecondary completion. Strengthen linkages between Middle College staff and other community college staff to improve community college success.

### **Recommendations for Further Research:**

Based on the findings and conclusions of the study, the following recommendations for further research were made:

1. Additional qualitative and quantitative research is necessary to further understand the intricacies of this program. For example, certificates and degrees are important in order to pursue meaningful pathways to employment; questions remain to be

- answered in terms of whether degrees earned upon completion of the Middle College programs opened pathways to employment.
2. Further research to identify and analyze curriculum and instructional elements used in the Middle College program would be helpful to understand the program's success.
  3. Further research identifying and analyzing ways to improve curriculum development and instructional methodologies used to deliver the curriculum would be helpful to improve the program.
  4. Although this study did not involve program costs and financial sustainability, further research would be helpful to identify the relative costs and benefits of Middle College.
  5. In addition to analyzing the impact of student support services on Middle College participants, additional research in this area is important to understand how student support services impact achievement.
  6. The impact of placement test scores on student learning outcomes for Middle College programs should also be analyzed.

### **Final Comments**

The results of the study identified many conclusions and recommendations regarding the Virginia Middle College completers who achieved community college success in 2006-2013. Although it would be difficult to pinpoint all factors contributing to success, results of this study indicated that age played an important role in GED completion within the Middle College program and that the younger aged participants are more likely to complete GED on time (within one year of enrollment in Middle College). By further focusing on the need for community college career studies certificates for the Middle College participants and by expanding the connectivity with staff and students in the program, further success and completion of postsecondary pathways is feasible. Since Danville and Southside Community Colleges had larger percentages of completers, their Middle College programs could become models to replicate at other locations. Further research is needed to explore the intricacies of these two successful programs. Expansion of the program to all 23 community college campuses in Virginia is also recommended to truly capture positive student motivation levels to catapult them to complete their GED and transition to and complete a postsecondary certificate or degree.

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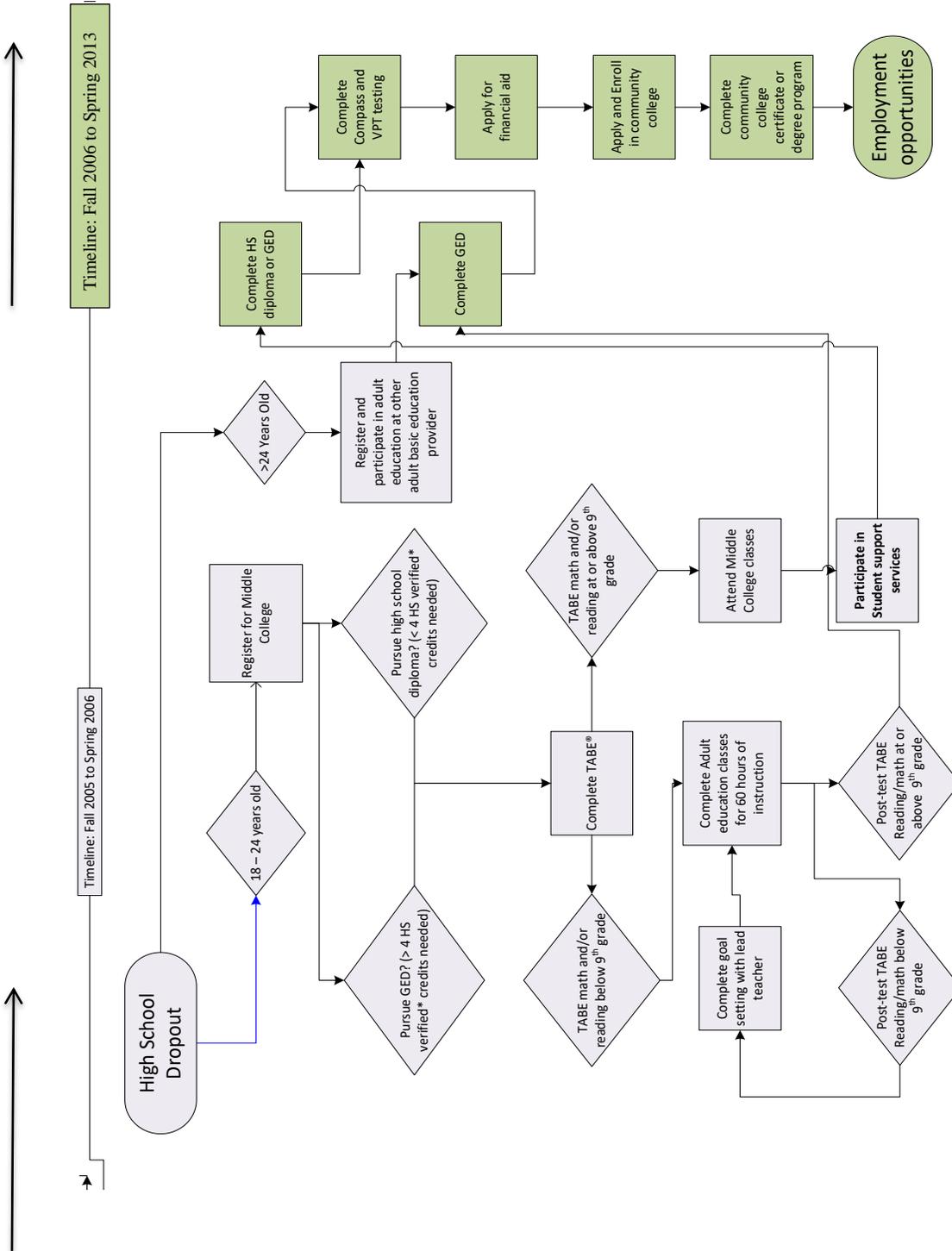
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# APPENDIX A MIDDLE COLLEGE FLOWCHART



**APPENDIX B**

**MIDDLE COLLEGE RESEARCH DATA AND ANALYSIS**

<b>RQ1.1: What is the relationship between each of the selected personal characteristics (age, gender, and ethnicity) and GED® completion status of 2006 - 20013 Virginia Middle College completers?</b>	
Description of Data Elements	Analytical Procedure(s)
<p>9/18/2015 “STUDENT” section of the VCCSSIS</p> <p>Age = “BIRTHDATE” (Continuous Ind. Variable, recoded “18-24” as of first GED attempt.</p> <p>Gender = “SEX”: (Categorical Ind. Variable)</p> <p>“M” = male</p> <p>“F” = female</p> <p>Race = “ETHNIC_GROUP” (Categorical Ind. Variable)</p> <p>“NSPEC” = Unknown, non-specified</p> <p>“BLACK” = African American or Black</p> <p>“AMIND” = Am. Indian/Nat. American</p> <p>“PACIF” = Asian/Pacific Islander</p> <p>“HISPA” = Hispanic</p> <p>“WHITE” = White/Caucasian American</p> <p>GED On Time Completion = “GEDontime”</p> <p>(Levels of categorical Dep. Variable)</p> <p>“0” = No GED attained</p> <p>“1” = GED attained</p>	<p>Age = logistic regression due to the nominal (binary) classification of Y variable and X as a continuous variable.</p> <hr/> <p>Descriptive analysis - Contingency Table</p>

<b>RQ1.2:</b> What is the relationship between selected educational characteristics (community college attended, ACT WorkKeys® test score levels, overall community college GPA) and the community college success of the 2006-2013 Virginia Middle College completers?	
Description of Data Elements	Analytical Procedure(s)
9/18/2015 “STUDENT” section of the VCCSSIS College attended = “COLLEGE” College code: (Categorical Ind. Variable) “NR” = New River Community College, etc. 9/18/2015 “STUDENT” section of the VCCSSIS ACT WorkKeys (Levels of Categorical Ind. Variable): 0 = no CRC level attained 1 = Bronze CRC level attained 2 = Silver CRC level attained 3 = Gold CRC level attained Community College GPA = “GPA” Community College Success = “DEGREE” (Levels of Categorical Dep. Variable): “AA&S” = Associates Degree in Arts and Sciences (transfer) “AAS” = Associates Degree in Applied Science “CSC” = Career Studies Certificate “DIPL” = diploma = same as Career Studies Certificate “CERT” = One Year Certificate	Descriptive analysis - Contingency tables analysis essentially test the distribution of satisfaction scores across different groups (support serviced received group vs not-received group) and see if they are the same or not.

<b>RQ2.1:</b> What are the Virginia Middle College completers’ perceptions of Middle College support services?	
Description of Data Elements	Analytical Procedure(s)
Survey Dataset Questions 4-6	Descriptive analysis - Contingency table analysis displays frequency distribution of the variables.

**APPENDIX C**  
**VCCS STUDY APPROVAL**

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**From:** Catherine Finnegan

**Sent:** Tue 7/24/2012 3:09 PM

**To:** Wendy Kang; Catherine Finnegan

**Cc:** jperry@rappahannock.edu; Marina Bagreev

**Subject:** RE: VCCS Study Release form

Wendy and Perry,

Thank you for sharing your study with us. I'm pleased to inform you that our VCCS study reviewers felt that this was a very worthwhile study and that we should provide data for your project. One mentioned that it should be a model for all of the other requests we receive.

Please provide me with a detailed description of the data you need and we will be happy to provide it to you through a secure FTP site.

Congratulations and we look forward to working with you.

Cat Finnegan

cfinnegan@vccs.edu

804-819-1665

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**APPENDIX D**  
**MIDDLE COLLEGE COMPLETER SURVEY**

Thank you for your assistance and consent to participate in this study!

**Background:** In 2003, the Virginia Community College System (VCCS) implemented a program entitled "Middle College". This program allows out-of-school youth aged 18 to 24 to increase their income and employability skills by pursuing a GED®, community college education, and a workforce certification within a college environment.

**Purpose:** The purpose of this study survey is to investigate selected factors leading to Virginia Middle College program completion and continued completion of a community college education, and a workforce certification within a college environment.

**Anticipated Findings:** The anticipated findings include the identification of potential factors (including student personal information and student support services information) specific to completion of Middle College. **The results may be published and used for dissertation purposes. The results will benefit the VCCS Middle College program.** As a completer of the Middle College program at your community college, you have been invited to participate in this online survey to gather student opinions of the Middle College student support services. This survey and study will be conducted by the VCCS and researcher, Jason Perry. If you have questions or concerns, please contact the researcher by phone at 804-758-6751 or email [jperry@rappahannock.edu](mailto:jperry@rappahannock.edu). **Participation is voluntary and anonymous.** Risks to participation include breach of confidentiality when submitting information online. -Consent is indicated with submission of the survey. **This survey should take less than 20 minutes to complete.** Your identity will remain completely confidential. This means that program managers will only receive compiled responses with no personal identifiers. Thank you for your assistance and consent to participate in this study! Your responses to this survey will benefit future participants in your local Middle College program.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, you may contact the VT IRB Chair, Dr. David M. Moore at [moored@vt.edu](mailto:moored@vt.edu) or (540) 231-4991.

**1. Please indicate the location of your Middle College program:**

- Danville Community College
- Germanna Community College
- J. Sergeant Reynolds Community College
- New River Community College
- Patrick Henry Community College
- Rappahannock Community College
- Southside Virginia Community College

- Thomas Nelson Community College

**2. What is your current status? Select all that apply.**

- I am employed part time.
- I am employed full time.
- I am serving in the military.
- I am enrolled at a four-year college or university.
- I attended a four-year college or university, but I am no longer enrolled.
- I plan to enroll in a four-year college or university.
- I have completed a degree at a four-year college or university.
- I am participating in an apprenticeship, job shadowing, and/or an internship experience.
- I plan to participate in an apprenticeship, job shadowing, and/or an internship experience.
- I am participating in short-term occupational training (for example, noncredit industry credentialing program).
- I plan to participate in short-term occupational training (for example, noncredit industry credentialing program).

Other comments regarding your current education or employment status

**3. Since completing your GED in the Middle College program, please indicate the type of certificate or degree you have completed at the community college. Select all that apply.**

- Applied Arts and Sciences (AA&S) Transfer Degree
- Associate of Applied Sciences (AAS) Degree
- Community College Certificate (an occupational credential such as accounting or welding)
- Other: (Please specify)

**4. To what extent were you satisfied with the following GED and/or community college support services?**

	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied	Did Not Participate
A. Student orientation	<input type="radio"/>				
B. Virginia Wizard career planning tool	<input type="radio"/>				
C. Financial aid planning	<input type="radio"/>				
D. Academic advising/counseling	<input type="radio"/>				
E. Meetings with Middle College staff to review progress	<input type="radio"/>				
F. Transfer credit assistance	<input type="radio"/>				

**5. To what extent were you satisfied with the following GED and/or community college support services?**

	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied	Did Not Participate
A. Student Developmental course (For example, SDV100)	<input type="radio"/>				
B. Study skills course	<input type="radio"/>				
C. Job placement assistance	<input type="radio"/>				
D. Tutoring with other Middle College students	<input type="radio"/>				
E. Tutoring with Middle College personnel	<input type="radio"/>				
F. Study groups with other Middle College students	<input type="radio"/>				

**6. To what extent were you satisfied with the following GED and/or community college support services?**

	Very Satisfied	Somewhat Satisfied	Somewhat Dissatisfied	Very Dissatisfied	Did Not Participate
A. Computer lab time	<input type="radio"/>				
B. Online or computerized software instruction	<input type="radio"/>				
C. Basic skills instruction	<input type="radio"/>				
D. College placement testing assistance	<input type="radio"/>				

**7. To what extent did coming to the community college campus increase or decrease your motivation to participate in the Middle College program?**

- It highly increased my motivation.
- It slightly increased my motivation.
- It had no impact on my motivation.
- It slightly decreased my motivation.
- It highly decreased my motivation.

**8. Please briefly describe the aspects of the student support services that were most beneficial in helping you prepare for further education.**

**9. What other benefits did you derive from the Middle College program?**

**10. How have your experiences as a Middle College student positively or negatively influenced your decisions relating to your pursuit of a two-year or four-year college certificate or degree?**

**11. Assume that one of your friends is thinking about enrolling in the Middle College program and has asked for your advice. What would you tell your friend about your experience in the Middle College program?**

**12. Community college certificates are designed to be completed in one year and community college degrees are designed to be completed in two years if a student enrolls full time. In the space provided, briefly explain reasons why your certificate or degree took longer than 1 or 2 years.**

**13. On behalf of the Virginia Community College System and your Middle College program, we really appreciate your feedback on this survey. Please provide any additional comments regarding the Middle College program.**

**APPENDIX E**  
**LETTERS TO PARTICIPANTS VIA PROGRAM MANAGERS**

<DATE>

«Title» «FirstName» «LastName»  
«Address1»  
«City», «State» «PostalCode»

Dear «Title» «LastName»:

Congratulations on your completion of Middle College and your college credential!

As your current Middle College Program Manager, I am requesting your participation in a study that will be conducted on Virginia Middle College completers throughout Virginia. Thank you in advance for your participation.

We are working closely with a researcher, Jason Perry from Rappahannock Community College, and the Virginia Community College System in conducting a study involving 2006-2008 Virginia Middle College completers in Virginia. As your prior Middle College Program manager, I am simply passing along the invitation from the VCCS and the researcher to you.

You have been invited to participate in an Internet survey on the effectiveness of community college support services. Community college support services typically involve such assistance as computer lab time, tutoring and study skills courses, and student study groups.

In a few days, I will be forwarding an email message to you from Jason Perry, who is working closely with me to conduct this survey. The message will be entitled, "Middle College Completer Survey." Please complete this survey by clicking on the link in the email message. This survey should take less than 20 minutes to complete. The survey is important as it will yield valuable information for leaders of the Middle College programs in Virginia and it will benefit future participants in our local Middle College program. The link to this survey may be found at:

<https://www.surveymonkey.com/r/MiddleCollegeSurvey2016>

The results will NOT contain any personal identifiable responses of any individuals and participants' responses will be kept strictly confidential. As a program manager, I will only receive information related to our program. I will not have access to information specific to individuals in this survey. Thank you for your assistance with this study! The results of this study may be published and used for a dissertation. I realize how valuable your time is, and I appreciate your help with this short survey. If further assistance is needed, or if you have any questions, please feel free to contact the researcher, Jason Perry by phone (804-758-6751) or e-mail (jperry@rappahannock.edu). Should you have any questions or concerns about the study's conduct or your rights as a research subject, you may contact the VT IRB Chair, Dr. David M. Moore at [moored@vt.edu](mailto:moored@vt.edu) or (540) 231-4991.

**APPENDIX F**  
**FOLLOW UP EMAILS VIA PROGRAM MANAGERS**

First E-Mail

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**From:** Program Manager

**To:** «e-mail address»

**Subject:** Middle College Completer Survey

**Message:** Recently you received a letter which described a survey on the effectiveness of community college support services as perceived by Virginia Middle College completers. The survey link is:

<https://www.surveymonkey.com/r/MiddleCollegeSurvey2016>

Your participants only need 20 minutes to complete the survey. The results will NOT contain any personal identifiable responses of any individuals and participants' responses will be kept strictly confidential.

Thank you for your help with this very important project.

---

Second E-Mail

---

**From:** <Program Manager>

**To:** «e-mail address»

**Subject:** I need your help

**Message:** Recently you received a letter and an e-mail which spoke of a survey on the effectiveness of community college support services among Virginia Middle College completers in Virginia. We really need your help in this study. If you have already responded to this survey, we thank you for your response. If not, the link to this Internet survey is:

<https://www.surveymonkey.com/r/MiddleCollegeSurvey2016>

Your participants only need 20 minutes to complete the survey. The results will NOT contain any personal identifiable responses of any individuals and participants' responses will be kept strictly confidential.

Thank you for your help with this very important project.

---

### Third E-Mail

---

**From:** Program Manager

**To:** «e-mail address»

**Subject:** I haven't heard from you

**Message:** I truly need your help with a survey on effectiveness of community college support services offered through the Middle College program in Virginia. To get accurate findings on effectiveness of services offered, we need all completers in Virginia to respond. As of today, the researcher, Jason Perry, has not heard from you. If you have already responded to this survey, we thank you for your response. I really hope you will decide to complete the survey. The link to this important Internet survey is:

<https://www.surveymonkey.com/r/MiddleCollegeSurvey2016>

Your participants only need 20 minutes to complete the survey.

Thank you for your help with this project that will benefit future Middle College students.

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### Fourth and Final E-Mail

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**From:** Program Manager

**To:** «e-mail address»

**Subject:** Final Chance to Participate in Middle College Survey

**Message:** I wanted to send one final e-mail to invite you to participate in the Virginia Middle College Completer survey, which is being conducted by Jason Perry. The survey will be closing on Friday, June 10 @ 5:00 pm. The survey will have potential benefits for future Middle College students. The link to this Internet survey is:

<https://www.surveymonkey.com/s/VCCSMiddleCollegeSurvey2014>

You only need 20 minutes to complete the survey.

Thank you for your help with this very important project.

---

## APPENDIX G

### IRB APPROVAL



Office of Research Compliance  
Institutional Review Board  
North End Center, Suite 4120, Virginia Tech  
300 Turner Street NW  
Blacksburg, Virginia 24061  
540/231-4606 Fax 540/231-0959  
email [irb@vt.edu](mailto:irb@vt.edu)  
website <http://www.irb.vt.edu>

#### MEMORANDUM

**DATE:** March 17, 2016  
**TO:** Bill Price Jr, Jason Edward Perry  
**FROM:** Virginia Tech Institutional Review Board (FWA00000572, expires January 29, 2021)  
**PROTOCOL TITLE:** Virginia's Middle College Program: Factors of completion, community college success, and perceptions of student support services  
**IRB NUMBER:** 16-148

Effective March 17, 2016, the Virginia Tech Institutional Review Board (IRB) Chair, David M Moore, approved the New Application request for the above-mentioned research protocol.

This approval provides permission to begin the human subject activities outlined in the IRB-approved protocol and supporting documents.

Plans to deviate from the approved protocol and/or supporting documents must be submitted to the IRB as an amendment request and approved by the IRB prior to the implementation of any changes, regardless of how minor, except where necessary to eliminate apparent immediate hazards to the subjects. Report within 5 business days to the IRB any injuries or other unanticipated or adverse events involving risks or harms to human research subjects or others.

All investigators (listed above) are required to comply with the researcher requirements outlined at:

<http://www.irb.vt.edu/pages/responsibilities.htm>

(Please review responsibilities before the commencement of your research.)

#### PROTOCOL INFORMATION:

Approved As: Exempt, under 45 CFR 46.110 category(ies) 2,4  
Protocol Approval Date: March 17, 2016  
Protocol Expiration Date: N/A  
Continuing Review Due Date\*: N/A

\*Date a Continuing Review application is due to the IRB office if human subject activities covered under this protocol, including data analysis, are to continue beyond the Protocol Expiration Date.

#### FEDERALLY FUNDED RESEARCH REQUIREMENTS:

Per federal regulations, 45 CFR 46.103(f), the IRB is required to compare all federally funded grant proposals/work statements to the IRB protocol(s) which cover the human research activities included in the proposal / work statement before funds are released. Note that this requirement does not apply to Exempt and Interim IRB protocols, or grants for which VT is not the primary awardee.

The table on the following page indicates whether grant proposals are related to this IRB protocol, and which of the listed proposals, if any, have been compared to this IRB protocol, if required.

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