

**Resilience of Community College Students in Rural Appalachia:
A Quantitative Correlational Study**

Michael Paul Waide

Dissertation Submitted to the Doctoral Program
of the American College of Education
in partial fulfillment of the requirements for the degree of
Doctor of Education in Leadership
December 2021

**Resilience of Community College Students in Rural Appalachia:
A Quantitative Correlational Study**

Michael Paul Waide

Approved by:

Dissertation Chair: Sherry Ayala, Ed.D.

Committee: Katia Chamberlain, Ed.D.

Copyright © 2021

Michael Paul Waide

Abstract

College students' persistence to academic success has been a concern for higher education institutions (HEIs). The educational attainment and academic achievement of community college students have created employment and economic opportunities for individuals. Despite the benefits of higher education, some community college students failed to continue toward academic success while others persisted. Continued research beyond a focus on barriers was needed to address a gap and determine protective factors' role on academic success. Further investigation was needed to determine if protective resources, such as resilience, and college persistence factors were useful in helping nontraditional community college students in rural Appalachia persist toward academic success. The purpose of the nonexperimental, quantitative correlational study was to explore the relationship between the resilience and college persistence of nontraditional community college students in rural Appalachia and success. The study's scope included 136 nontraditional aged college students, enrolled in community colleges in rural Appalachia. Grounded in an adaptation and resilience model and resilience theory, the study incorporated a correlational design. Two Pearson product-moment correlations were analyzed and determined statistically significant correlations between Appalachian nontraditional community college students' resilience, persistence, and academic success. The study's significant findings offer practical implications for higher education leaders, who seek to promote college students' academic success through resilience or capacity-building programs and student-centric persistence initiatives. Policy changes and recommendations for future studies are discussed.

Keywords: resilience, college persistence, non-traditional, community college, rural Appalachia

Dedication

Words fail to capture the depth of gratitude for family, friends, and mentors along the journey. From the initial embarkment to minor setbacks through which I have persisted, the constancy of support has helped me reach this destination. This dissertation is dedicated to the memory of my mother, to my family and friends for their patience and support, and to the people of Appalachia.

Acknowledgments

This dissertation would have been impossible without the inspiration and help of my mother, who encouraged me to soar academically; friends, who provided reassurance; and colleagues who offered ideas and scholarly help.

To professors, facilitators, and friends along the journey, thank you. Thank you to my dissertation chair, Dr. Ayala; and my committee member, Dr. Chamberlain; for your guidance, patience, and wisdom along the dissertation journey. Thank you to Dr. Karina Becerra-Murillo for your editorial review.

Table of Contents

List of Tables	14
List of Figures	15
Chapter 1: Introduction	16
Background of the Problem	17
Statement of the Problem.....	19
Purpose of the Study	21
Significance of the Study	22
Research Questions and Hypotheses	23
Theoretical Framework.....	24
Definitions of Terms	25
Assumptions.....	26
Scope and Delimitations	27
Limitations	28
Chapter Summary	29
Chapter 2: Literature Review.....	31
Literature Search Strategy.....	32
Theoretical Framework.....	33
Model of Adaptation and Resilience.....	33
Resilience Theory	34

Research Literature Review	37
Contexts for Higher Education	37
Community Colleges	37
Rural Appalachia	41
Stresses, Risk Factors, and Barriers	49
Academic Preparedness	49
Lack of Social Support.....	51
Financial Strain and Poverty	52
Work and Family Obligations.....	56
Rural Appalachian Identity	58
College Persistence	59
Distinctions between Retention and Persistence.....	60
Persistence Leads to Retention	61
Predictors of Persistence	62
Persistence and Resilience	63
Resources for Academic Success.....	64
Social Integration and Academic Success	65
Social Support Resources and Academic Success.....	66
Financial Support and Academic Success	68
Personal Resources and Academic Success.....	68

RURAL COLLEGE STUDENTS' RESILIENCE	9
Resilience.....	70
Conceptualization of Resilience	71
Factors of Resilience.....	72
Resilience as a Trait.....	73
Resilience as a Process.....	74
Resilience among College Students.....	76
Strategies for Resilience	78
Resilience versus Grit	79
Counterargument for Resilience	80
Gaps in the Literature.....	81
Rural Community Colleges.....	82
Nontraditional Students	82
Theoretical Frameworks	83
College Persistence	83
Resilience.....	83
Chapter Summary	84
Chapter 3: Methodology	86
Research Questions and Hypotheses	87
Research Design and Rationale	88
Research Procedures	90

RURAL COLLEGE STUDENTS' RESILIENCE	10
Population and Sample Selection.....	92
Instrumentation	95
Academic Success.....	95
Brief Resilience Scale	96
College Persistence Questionnaire.....	96
Permission for Use.....	97
Data Collection	98
Data Preparation.....	99
Construction of the Variables	100
Academic Success (Variable #1)	100
Resilience (Variable #2)	100
Persistence (Variable #3)	101
Data Analysis	102
Descriptive Analyses	103
Assumptions of Pearson Correlations	103
Concern for Use of Ordinal Likert Scales.....	105
Justification for Use of Ordinal Data as Continuous Data.....	105
Analytical Strategy.....	106
Resilience and Academic Success	108
Persistence and Academic Success	108

RURAL COLLEGE STUDENTS’ RESILIENCE	11
Reliability and Validity	109
External Validity	110
Internal Validity	111
Ethical Procedures	111
Chapter Summary	113
Chapter 4: Research Findings and Data Analysis Results	115
Data Collection	116
Target Population.....	117
Sample Population	117
Informed Consent.....	118
Exclusion Criterion and Missing Data	118
Construction of Variables	119
Demographic Characteristics of Sample.....	120
Descriptive Statistics of the Variables	121
Justification for Inclusion of Outliers	123
Data Visualization Comparisons.....	127
Data Analysis and Results	130
Assumptions of Data and Parametric Test.....	130
Nature of the Data	131
Normality of Data	132

RURAL COLLEGE STUDENTS’ RESILIENCE	12
Pearson Product-Moment Correlations	135
Evaluation of Findings	138
Reliability and Validity	140
Chapter Summary	142
Chapter 5: Discussion and Conclusions.....	144
Findings, Interpretations, and Conclusion	146
Interpretation of Findings	149
Theoretical Implications	151
Conclusion	153
Limitations	154
Recommendations.....	156
Implications for Leadership	159
Conclusion	161
References.....	164
Appendix A: Site Permission to Collect Data.....	192
Appendix B: Recruitment Letter and Social Media Flyer Content.....	198
Appendix C: Informed Consent	201
Appendix D: Permission to Use Questionnaire	204
Appendix E: Resilience and Persistence Survey	206
Appendix F: Scales	209

RURAL COLLEGE STUDENTS’ RESILIENCE	13
Appendix G: Target Sample Size	211
Appendix H: IRB Approval Letter	212
Appendix I: Verification of Informed Consent.....	213
Appendix J: Email Notification and Reminder for Data Collection.....	214

List of Tables

Table

1. Frequency Data Describing the Sample.....	121
2. Descriptive Statistics of Academic Success, Resilience, and Persistence with Outliers and without Outliers for Academic Success	126
3. Shapiro-Wilk Test for Normality for Academic Success, Resilience, and Persistence ..	133
4. Skewness and Kurtosis Statistics and z-Values for Academic Success, Resilience, and Persistence with Outliers.....	135
5. Pearson Correlations for Resilience, Persistence, and Academic Success in a Sample of Rural Nontraditional-aged Community College Students with Outliers	136
6. Pearson Correlations for Resilience, Persistence, and Academic Success in a Sample of Rural Nontraditional-aged Community College Students with No Outliers	137
7. Six Items of the Brief Resilience Scale (BRS)	209
8. Five Items of the College Persistence Questionnaire (CPQ)	210

List of Figures

Figure

1. Theoretical and Conceptual Model Depicting the Interaction between Personal and Social Resources, which Promote Students' Resilience and Persistence to Academic Success . 36
2. Depiction of the Relationship between Resilience, College Persistence, and Academic Success, measured as Overall GPA 107
3. Histogram for the Academic Success of Nontraditional Aged Community College Students in Rural Appalachia with Outliers.....122
4. Box Plot for the Academic Success of Nontraditional Aged Community College Students in Rural Appalachia with Indicated Outliers and without Outliers.....123
5. Comparison Histogram for the Resilience of Nontraditional Aged Community College Students in Rural Appalachia with and without Outliers.....127
6. Comparison Box Plot for the Resilience of Nontraditional Aged Community College Students in Rural Appalachia with Indicated Outliers and without Outliers.....128
7. Comparison Histogram for the Resilience of Nontraditional Aged Community College Students in Rural Appalachia with and without Outliers.....129
8. Comparison Box Plot for the Persistence of Nontraditional Aged Community College Students in Rural Appalachia with Indicated Outliers and without Outliers.....129
9. Comparison Histogram for the Persistence of Nontraditional Aged Community College Students in Rural Appalachia with and without Outliers.....130
10. G*Power for Sample Size Estimation for Correlational Analyses211

Chapter 1: Introduction

The academic success of post-secondary education students is an essential priority of higher education institutions (HEIs). Completing a college degree advances opportunities for gainful employment, acquirement of skills, and the potential for positive influence on wage earnings (Dunn & Kalleberg, 2017). Comprehensive in design and with a consistent mission to provide access to education opportunities, community colleges offer two-year and one-year degrees to students seeking educational attainment or workforce training. Community colleges' workforce development and education equip students, promoting entry into the workforce (Hlinka, 2017).

Despite aspirations to attain the benefits of academic success and higher education, community college students are not progressing toward completion or academic success (Deterding, 2015). In rural areas, community college students, faced with academic and economic challenges, face high rates of non-completion with approximately 30% completing a two-year degree within four years and only one-in-twelve earning a two-year degree within two years (American Association of Community Colleges [AACC], 2020). Traditional studies of college students' progression focused on deficits or lack of academic preparedness, impeding success (Tinto, 2017a). The introduction of promotive factors like resilience and college persistence provides information on potential resources for college students' persistence to academic success.

Detailed in Chapter 1 is an introduction to the quantitative correlational study. The background provides the research context, including a brief literature review on resilience, college persistence, and academic success. The model of adaptation and resilience and resilience

theory guide the study's research questions and hypotheses. The introduction includes the study's definition of terms, assumptions, delimitations, limitations, and significance.

Background of the Problem

College students' completion and academic success have been a concern for colleges and universities, obligated to regularly report retention and graduation rates (National Center for Education Statistics [NCES], 2020). Many studies on college persistence focused on students' first-year or first-semester experiences (Ganss, 2016; Haktanir et al., 2018; Morton et al., 2018) or the first-generation enrollment status of college students (Azmitia et al., 2018). College persistence research focused on traditional-aged students' academic success and has centered on conventionally explored barriers or risk factors which impede college students' progress to academic success or completion (Chung et al., 2017). These studies focused on the deficiencies or limitations of students, such as lack of academic preparedness (Bauer et al., 2019), lack of social support (David et al., 2013; Mansfield et al., 2016; Morton et al., 2018), lack of family support (Beale et al., 2019), financial strain or poverty (Azmitia et al., 2018), and stresses associated with work or family obligations (Wilbur & Roscigno, 2016).

Despite the focus on the barriers or risk factors, a gap exists. Missing is a focus on the relationships between protective resources and academic success. Some researchers reported the benefit of exploring college persistence (Fong et al., 2018) instead of focusing on institutional enrollment data and pushed higher education institutions to explore the contributions to college student success. As a construct, persistence captures student-focused characteristics or qualities which motivate and influence college students' success. In contrast to a deficit-based focus on barriers, persistence allows a college student to continue toward an academic goal (Betts et al., 2017; Kennel & Ward-Smith, 2017; Kimbark et al., 2017). Considered a pioneer in studies of

college persistence, Tinto (2017a, 2017b) described students' interest in persistence as the means to achieve an academic goal and claimed college students persist not for the sake of retention by the HEI but for the goal to achieve a positive outcome.

Novel to the research on college persistence is the concept of resilience. The persistence of college students varies based on the individual characteristics of college students (Stewart et al., 2015), a focus on resilience may explain why some students persist, and others do not. Scholars have conceptualized resilience as the individual's capacity to overcome adversity, challenges, or stress through positive adaptation and practical coping skills (Chadwick, 2019; Stoffel & Cain, 2018). The positive relationship between resilience and outcomes in developmental and psychological disciplines is well documented (Thomas & Asselin, 2018). In higher education, less is known about the exploration and application of the concept of resilience (Mansfield et al., 2016).

Many non-traditional community college students in rural Appalachia are not persisting toward academic success. High rates of rural college students, primarily representing non-traditional-aged students experiencing challenges of work and family obligations while enrolled, do not persist toward completion and academic success. In community colleges, students enrolled in post-secondary higher education represented 41% of all college-going students (AACC, 2020). One-quarter of all community college students attend institutions within rural Appalachia (Schiess & Rotherham, 2015), seeking to advance skills, acquire an education, or earn gainful employment. When faced with risk factors or adversity, such as low socioeconomic status (SES) or low academic preparedness, nontraditional community college students in rural Appalachia, who demonstrate resilience, are more likely to persist and academically succeed (Thomas & Asselin, 2018). Missing in the literature on college persistence and academic success

is a discussion of factors which promote persistence for nontraditional aged college students.

Data about nontraditional community college students' educational persistence in rural Appalachia are scant and provide valuable information for community colleges to foster college persistence.

Assuming educational attainment is a positive outcome for college students, a focus on resilience and college persistence could provide valuable data on how nontraditional community college students in rural Appalachia navigate challenges or stresses, harness resources, and persist toward an academic goal or success. For at-risk college students, exploring positive protective and adaptive mechanisms of resilience offers student-focused resources for students' progression or persistence toward academic success, contrasting a focus on limitations or academic deficiencies (Tinto, 2017a).

Statement of the Problem

The problem is a considerable number of nontraditional college students in rural Appalachia are not persisting toward academic success. Less than one in three community college students in Appalachia complete and earn a college degree (Hollifield-Hoyle & Hammons, 2015). Educational attainment and the academic achievement of a college degree open the doors for college students, advancing opportunities for gainful employment, better living wages, and a potential change in socioeconomic status for individuals. The background of the problem is in impoverished regions community college becomes a ladder to help students transcend economic poverty (Hlinka, 2017; Hollifield-Hoyle & Hammons, 2015). The extent of the problem is in rural Appalachia, where the poverty rate is above the national average, and impoverished community college students are unlikely to persist and succeed academically.

A literature review detailed in Chapter 2 demonstrates a need for more studies examining the relationship between promotive factors like resilience and college persistence and academic success. A reason for the necessity of the study was to explore the factors which promote nontraditional community college students' persistence toward academic success. Previous studies on academic success focused on traditional-aged students enrolled in four-year universities or colleges (Chung et al., 2017), institutional practices (Kennel & Ward-Smith, 2017), college students' academic deficiencies (Stewart et al., 2015), or barriers impeding progress and creating risk (Bauer et al., 2019). Studies, narrowly focused on protective factors like resilience or college persistence, may provide helpful information to community college leaders seeking to establish practices which promote student-centered persistence to academic success.

Evidence suggests some college students persist and achieve academic success despite stress or strains because of promotive factors (Curtin et al., 2016). Lesser known were the roles of resilience and the factors of college persistence in the progression of nontraditional aged community colleges to academic success. More specifically, a literature search found no investigations had been conducted on the association between resilience and rural, nontraditional community college students' academic success in Appalachia, an area economically at-risk. In impoverished regions like Appalachia, community colleges become ladders to help students transcend socioeconomic limitations (Appalachian Regional Commission [ARC], 2020; Hlinka, 2017). Implementation of programs which promote or improve resilience could improve nontraditional community college students' educational success in rural Appalachia.

Purpose of the Study

The purpose of the quantitative correlational research study was to explore and determine a significant relationship between the resilience and persistence of 136 nontraditional community college students in rural Appalachia and academic success. Measurement was accomplished by sampling and collecting data from nontraditional aged community college students in rural Appalachia. The present study was necessary to comprehend ways nontraditional rural community college students persist toward academic success. Findings from the research study could address non-completion rates of nontraditional community college students in Appalachia by exploring factors of resilience that could promote persistence and success, evaluated as grade point average (GPA). In the study, resilience and persistence were measured as summed scores from reliable instruments.

The study addressed a current limitation in the literature on college persistence by examining student-centered promotive factors of rural Appalachian, nontraditional community college students' persistence. A model of adaptation and resilience and resilience theory provided the structure for exploring the relationships between resilience, college persistence, and academic success. In the study, resilience and college persistence were measured as summative scores using reliable and valid instruments. Academic success was measured as a self-reported GPA on a 4.00 scale. Correlational data displayed two non-causal relationships between (1) resilience and academic success and (2) college persistence and academic success.

The study contributed to the literature on the college persistence of community college students by demonstrating the relationship between the resilience and persistence of nontraditional community college students in rural Appalachia and academic success. Since little is known about students' resilience and academic success in rural Appalachia, the impact of

resilience and persistence on academic success will be shared with community college leaders and provide helpful information on the influence of resilience on educational success. The results of the quantitative study may inform policy, promote best practices in academic or student affairs, or illustrate the role of resilience in helping community college students academically succeed (Chadwick, 2019; Mansfield et al., 2016; Stanley & Bhuvaneswari, 2015).

Understanding the relationship between resilience, persistence, and academic success for nontraditional aged community college students in rural Appalachia could shape community colleges' responses to promote individuals' resilience and persistence to academic success.

Significance of the Study

Outcomes of the correlational study may provide useful information to stakeholders. Higher education institutions, which provide post-secondary education and are concerned with the institutional retention of college students, may benefit from knowing the relationship between promotive factors and college students' persistence to academic success. College students, specifically nontraditional community college students in rural Appalachia, who may be at risk may benefit from understanding the relationship between resilience, factors which promote persistence, and academic success. Determination of any associations among resilience, persistence, and nontraditional community college students' academic success within rural Appalachia could inform or shape responses which promote resilience and empower persistence toward academic success and completion. The study is significant because the results may contribute to the body of knowledge on college persistence by exploring and providing data on the correlation between resilience, college persistence, and academic success.

Research Questions and Hypotheses

Specific questions to guide the study stem from the problem statement. The research questions for the study were researchable, measurable, and crafted to determine the correlation between the variables of academic success, resilience, and persistence. To achieve the study's goal, two research questions guide the research:

Research Question 1: Is there a statistically significant relationship between resilience and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia?

Research Question 2: Is there a statistically significant relationship between persistence and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia?

The quantitative correlational study proposes the following research hypotheses to explore the relationship between resilience, persistence, and success:

H₀: No significant correlation exists between resilience and the academic success of nontraditional community college students in rural Appalachia.

H₁: A significant correlation exists between resilience and the academic success of nontraditional community college students in rural Appalachia.

H₀: No significant correlation exists between persistence and academic success of nontraditional community college students in rural Appalachia.

H₂: A significant correlation exists between persistence and academic success of nontraditional community college students in rural Appalachia.

Theoretical Framework

The model of adaptation and resilience (Masten & Monn, 2015) and resilience theory (Walsh, 2016) served as appropriate theoretical frameworks for the study. The adaptation and resilience model explains how process-oriented skills for coping promote college students' adaptation and responses to stress associated with persistence, such as academic challenges or adversity. College students' resources, such as coping skills, promote persistence and demonstrate individuals' resilience to overcome limitations or barriers associated with academic attainment. The model explained how some college students persisted in academic success when faced with challenges or stress associated with post-secondary education. Resilience theory further guided and served the research study. Masten and Monn (2015) conceptualized resilience as positive functioning in the face of adversity or challenge, positing individuals like college students, when faced with stresses or challenges, employ protective resources to adapt and bounce back and overcome the challenge (Masten & Monn, 2015; Ungar, 2016).

The application of resilience theory was helpful in the research study to understand how nontraditional community college students in rural Appalachia overcome challenges and persist toward academic success. Dimensions of adaptation and resiliency theory supported each research question. The study's research questions and hypotheses were based on a theoretical framework where resilience and college persistence were resources which promote the academic success of the student. Resilience and college persistence could have affected rural, nontraditional community college students' academic success within rural Appalachia. Exploring the relationship between resilience, persistence, and academic success, the study may inform educational leaders about processes for positive adaptation in the face of community college students' risk.

Definitions of Terms

Definitions were provided for the study's three variables: academic success, resilience, and persistence. The context and the sampling frame for the study were defined. Additional terms used in the study which could have ambiguous meanings are included. The following definitions provide clarification for concepts which are not common but used in the study.

Academic success. Academic or educational success refers to the community college student's overall or cumulative grade point average (GPA) on a 4.00 scale. Academic success has been measured as an overall or cumulative GPA on a 4.00 scale (David et al., 2013; Van Rooij et al., 2018; Warden & Myers, 2017; York et al., 2015; Yu, 2017).

College persistence. College persistence refers to a constellation of factors which promote students' persistence toward academic goals or outcomes (Davidson et al., 2009). While institutions typically use the concept of retention, persistence describes students' personal or social characteristics, which promote progress toward academic success or the ability to achieve academic goals (Stewart et al., 2015).

Community college. Refers to degree-granting higher education institutions, which award primarily two-year and one-year degrees (AACC, 2020). Characterized by open admissions or non-selective policies and practices, community colleges provide education and workforce training.

Nontraditional. The qualification of nontraditional status for college students refers to the certain age of the students. A literature review of college persistence and academic success consistently identifies the age of 24 years as the distinction between traditional and nontraditional students (Chung et al., 2017). Higher education reporting standards, such as

Integrated Postsecondary Education Data System (IPEDS) (NCES, 2020), identify 24 years or older as nontraditional students.

Resilience. Resilience refers to an individual's ability to bounce back or positively adapt to or overcome adversity (Chadwick, 2019; Haktanir et al., 2018). In higher education, resilience is the adult learner's capacity to harness personal and social resources to navigate and overcome challenges (Mansfield et al., 2016).

Retention. Retention, distinct from college persistence, refers to an institutional measure representing the number of students returning from year one to year two and are retained academically by the higher education institution (Kennel & Ward-Smith, 2017).

Rural Appalachia. According to the Appalachian Regional Commission (ARC), the Appalachian region is a 205,000 square mile region, tracing the Appalachian Mountains and extending from Mississippi to New York (ARC, 2020). Twelve states lie partially within Appalachia. One state, West Virginia, falls entirely within the bounds of Appalachia (ARC, 2020). Appalachia, described as predominantly rural, has faced cultural challenges of poverty, lower gainful employment rates, and low college attendance rates (Hlinka, 2017).

Assumptions

Assumptions of a study are circumstances beyond the control of the researcher and are assumedly true (Simon, 2011). The study collected data from nontraditional aged community college students in Appalachia to explore the correlation between resilience or college persistence and academic success. Assumed in the study was participants answered the survey questions honestly, thoroughly, and factually. As the study relied on self-reported GPA to create a variable for academic success, the reliability and validity of self-reported outcomes were

assumed. The assumption was necessary as no other collection of verifiable academic success data was available.

The study relied on data collection from nontraditional community college students in rural Appalachia. Assumed in the study was the qualification or characterization of Appalachia as an impoverished region with lower educational attainment rates and higher rates of non-completion. The assumption presumed rural college students experienced common stresses, challenges, or adversities associated with higher education in Appalachia.

Scope and Delimitations

The study focused on nontraditional aged community college students in one area of rural Appalachia. *One* delimitation was collecting cross-sectional data from students to analyze the relationships between process-oriented variables and academic success. Resilience represents the ability of the college student to adapt and bounce back from stress or challenge (Chadwick, 2019), suggesting a learned development process for coping (Argyros & Johnson, 2019), uncaptured with a snapshot of cross-sectional data.

A *second* delimitation was the reports of traditional community college students, and four-year colleges or universities were not a part of the study. While most of the literature on college persistence focused on traditional-aged college students in four-year colleges or universities (Chung et al., 2017), the research study's sample consisted of 136 nontraditional aged college students enrolled in community colleges in one area of rural Appalachia and represented a *third* delimitation of the study. A *fourth* delimitation of the study was the correlational design to assess the relationships among variables. The study's scope likely limited the generalizability of findings to other student categories or other institutions of learning beyond community colleges within rural Appalachia.

Limitations

The study explored and determined the relationships between resilience, college persistence, and nontraditional community college students' success in rural Appalachia. A *first* limitation was the targeted sampling frame of nontraditional community college students in rural Appalachia, minimizing the representativeness and generalizability of findings. To promote representativeness and enhance the finding of significant relationships between variables, data from a targeted population of 136 participants were collected.

A *second* limitation of the study was the research procedures. The present study relied on self-reported data from community college students. Variable construction relied on the self-reporting of students' GPA and responses to inventories on resilience and college persistence, which could have biased the data. No other strategy to collect data was available in the study. The self-reporting of college students' data was used to create the variables. One way the research attempted to eliminate the bias of the respondents on self-reported scales was the assurance of anonymity and the maintenance of confidentiality in the survey (Creswell & Creswell, 2018). The researcher's role in community college administration excluded the college of employment from sampling to remove any conflicts or biases and promote objectivity.

A *third* limitation of the study is related to the research design. Data were collected at one point in time within the 2020-2021 academic year. The cross-sectional data could have represented college students' responses at the time of collection. Resilience and college persistence are process-oriented, developmental outcomes which may not be captured simply at one point in time (Chadwick, 2019). College students may have adapted and progressed but have not retrospectively reported on the roles of resilience or factors of college persistence.

A *fourth* limitation of the study could have been confounding variables affecting resilience and college persistence. Demographic variables, such as age and gender, have demonstrated an influence on resilience (Van Agteren et al., 2019). Employment status, prior academic success, and pre-college academic preparedness could impact students' success (Howard et al., 2019; Kimbark et al., 2017; Marrero & Milacci, 2018; Zolkoski et al., 2016).

Chapter Summary

The benefits of higher education and the attainment of academic success are innumerable for college students. Despite advantages and the presence of limitations or barriers to success, some college students neither persist nor complete and achieve academic success. Historically, community colleges enroll non-traditionally aged and academically underprepared students and are not immune to those enrollment trends. Much of the research on college persistence explores the limitations and barriers for college students' academic success. Introduced in the study was the relationship between community college students' protective or promotive factors and academic success.

The purpose of the quantitative correlational study was to explore and discern the relationships among resilience, persistence, and academic success in a sample of 136 nontraditional community college students within rural Appalachia and academic success. Measurement was accomplished by sampling and collecting data from nontraditional aged community college students in rural Appalachia. The problem is nontraditional community college students in rural Appalachia are not persisting toward academic success. Despite the trend, some community college students persist. Less is known about the factors which promote students' college persistence. Findings of the quantitative correlational study contributed to the current literature and answered questions about the existence of relationships between resilience

or college persistence and academic success. The model of adaptation and resilience and resilience theory guided the research questions and hypotheses.

Framed around the assumptions, scope, and delimitations, the study's significance was outlined and included contributions to the scholarship on resilience, persistence, and academic success. The present study's limitations were introduced. A comprehensive literature review is presented in Chapter 2.

Chapter 2: Literature Review

College students' academic success and completion are retention-based enrollment priorities for higher education institutions (HEI). Nationally, less than one-third of college students persist and complete higher education (Fong et al., 2018). In rural areas, community college students, faced with academic and economic challenges, face even higher rates of non-completion (Hlinka, 2017). The problem is nontraditional community college students in rural Appalachia are not persisting toward academic success. The purpose of the quantitative correlational study was to explore the relationships between resilience or persistence and nontraditional community college students' academic success within rural Appalachia. When faced with risk factors or adversity, such as low SES or low academic preparedness, nontraditional community college students in rural Appalachia, who demonstrate resilience, are more likely to persist and succeed academically (Thomas & Asselin, 2018).

A general literature review on college persistence demonstrated considerable gaps in Appalachian nontraditional college students' persistence studies. Research on college persistence focused more on traditional-aged university students (Chung et al., 2017) with generalized conclusions applied to two-year community college students, specifically students aged 24 years or younger. Missing were empirical studies which focused on the persistence of nontraditional college students. Studies on persistence focused primarily on the deficits of college students (Ganss, 2016; Haktanir et al., 2018; Morton et al., 2018). There is a substantive gap in how some nontraditional rural Appalachian community college students, who adapt and cope with economic and educational stresses, demonstrate resilience and persistence toward academic success (Byun et al., 2015; Cummings-Lilly & Forrest-Bank, 2019).

A *first* objective of the literature review was to explore the role of community colleges in post-secondary or higher education, focusing on rural community college education. The *second* objective was to explore barriers to students' college persistence to academic success. A *third* objective was to identify the effects of resilience on community college students' resilience on academic access. The first three objectives segued into the *fourth* objective to identify gaps in the body of knowledge about the relationship between barriers, college persistence, resilience, and academic success. A *fifth* objective was to explain the conceptual and theoretical framework guiding the study. A literature review revealed a previous focus of studies on the persistence and success of traditional-aged university students (Chung et al., 2017), supporting the purpose of the study.

The study reduced a substantive literature gap by exploring the effects of resilience on the persistence of nontraditional aged community college students in rural Appalachia. A literature review summarizes the major themes found and includes an exploration of gaps the present study fills. Upcoming sections of the literature review include the literature search strategy, theoretical framework, a comprehensive literature review, and a summary.

Literature Search Strategy

A synthesis of the literature was based on empirical research studies from scholarly and peer-reviewed journal articles. Numerous repository databases were used to review relevant literature on the influences of resilience on community college students' persistence toward academic success and completion, including Sage Publications, JSTOR, EBSCO's Academic Search Complete, Google Scholar, ProQuest, and American College of Education's Online Library. The scope of the literature reviewed consisted of five years. Keywords and phrases applied to conduct the literature review included: *community colleges*, *rural higher education*,

higher education in Appalachia, risk factors for academic success, limitations or barriers for academic success, college persistence, community college persistence, college retention, persistence of nontraditional students, academic grit, resilience, educational resilience, self-motivation, protective factors for adapting to adversity, and academic success. A literature review provided information about community college education, nontraditional students, rurality and Appalachia, college persistence, resilience, and academic success.

Theoretical Framework

Adaptation and resilience theories are helpful frameworks to understand the processes through which at-risk individuals, when faced with stresses or challenges, bounce back, and overcome to achieve positive outcomes (Ungar, 2016). The application of the overlapping dimensions of adaptation and resiliency model and resiliency theory support the purpose of the study. Not well established is whether resilient nontraditional community college students in rural Appalachia, when faced with risk factors, such as lower socioeconomic statuses signaling poverty and lower rates of academic preparedness, persist and academically succeed (Thomas & Asselin, 2018).

Model of Adaptation and Resilience

A theoretical framework for the study was the Model of Adaptation and Resilience (Masten & Monn, 2015) and Resilience Theory. The Model of Adaptation and Resiliency explained how process-oriented skills for coping allowed individuals or systems to adapt and respond to the challenges of stress or adversity (Masten & Monn, 2015). Resilience was conceptualized theoretically as positive functioning in the presence of challenge or difficulty centered on the interplay between the individual or personal resources and the adverse environment (Masten & Monn, 2015). The theoretical model posits when adverse stresses or

challenges confront an individual or system, the presence of resources and perceptions about the situation mitigate the outcome (Ungar, 2016).

Within the process-oriented theoretical model, college students' coping skills promote persistence to academic success, demonstrating the resiliency of college students to overcome limitations or barriers associated with academic attainment. Adaptation and resilience functioned as adaptational resources for the individual (Heinen et al., 2017). The Model of Adaptation and Resilience explains how individuals' resources help the individual maintain a state of balance during stressful events and progress toward a better-than-expected outcome.

Resilience Theory

Resilience theory further guided the research study. Social sciences and educational psychology attribute the origination of resilience theory to Rutter (2006), Werner and Smith (1992), and Garmezy (1991). In 2006, Rutter commented on seminal research and defined resilience as an interactive concept which involves the interaction between risk factors and positive psychological outcomes. From a child development perspective, Werner and Smith (1992) theorized mutual factors among children who demonstrate resilience. Garmezy (1991) described resilience as the capacity for recovery or adaptation to stress. Ledesma (2014) and Masten and Monn (2015) adapted the framework and applied the concepts to educational contexts, describing resilience as the capacity to reach positive outcomes through adaptive mechanisms despite encountered adversities.

Researched across various disciplines, the theory has evolved with subtle conceptual changes and adjustments to contexts of study (Shean, 2015). Across theorists, resilience theory holds two core principles: (a) challenges, risks, or stresses and (b) resources (Garmezy, 1991; Luthar & Eisenberg, 2017; Masten & Monn, 2015; Rutter, 2006; Ungar, 2016; Werner & Smith,

1992). Challenges and risks confront individuals. Individuals deploy compensatory strategies or resources to cope with or adapt to stress or adverse situation. Challenges and stresses predispose the individual to risk. If not too extreme, risk factors could promote or enhance individuals' adaptation or coping (Ledesma, 2014).

As an applied theory, resilience is the ability for a person to adjust, adapt, or bounce back from stressful situations (Walsh, 2016). The theory shifts the focus away from barriers or limitations to individuals' resources, whether personal or social, which promote positive adaptation. Personal resources include self-determination and self-motivation (Argyros & Johnson, 2019; Develos-Sacdalan & Bozkus, 2018; Herbert & Manjula, 2017; Moke et al., 2018) or resilient coping (Heinen et al., 2017) to buffer stress and promote coping.

Social resources shield stress. These social resources include social support, social belonging (Gruttner, 2019), or social engagement (Hatch & Garcia, 2017). Additionally, social resources promote a state of balance following or during challenging or stressful events (Pidgeon & Pickett, 2017). Personal and social resources theoretically foster adaptation and promote positive outcomes for individuals.

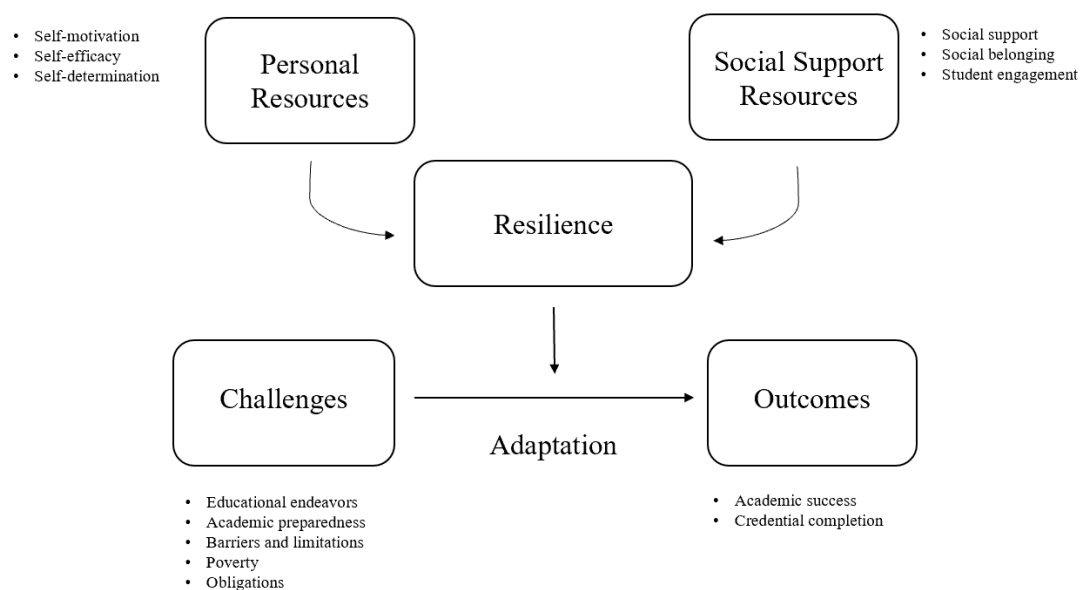
The Adaptation Model and Resilience Theory consist of several concepts. Stressors and challenges create risks for college students. In response to stress, college students use resources to buffer the effects associated with stress. The desired outcome is the positive adaptation to the stress, a better-than-hoped-for outcome for the at-risk college students. Resilience theory helps educators and institutions understand how students' protective factors and resources mitigate challenges associated with risk factors and persistence toward academic success (Cotton et al., 2017). When applied to understand risk factors and stress associated with college transition and

persistence, resilience explains the factors or processes promoting students' adaptation and success (Goncalves et al., 2017; Gupton, 2017; Heinen et al., 2017).

Within higher education, resilience describes the process through which students navigate challenges associated with educational attainment (Chadwick, 2019). College students experience a constellation of stressors, ranging from work and family responsibilities, academic challenges, socioemotional stress, maladaptive behaviors associated with college stress, and financial strain (Shatkin et al., 2016). Personal and social resources could facilitate college students' positive stress management or adaptation, promoting persistence toward academic success. A visual representation of the challenges or risks associated with academic success and how college students' resources buffer or mitigate risk factors to promote persistence to academic success is provided in Figure 1.

Figure 1

Theoretical and Conceptual Model Depicting the Interaction between Personal and Social Resources, which Promote Students' Resilience and Persistence to Academic Success



Research Literature Review

A review of the current literature provides context and conceptually relevant literature to the study. The context for the study is community colleges in rural Appalachia, an understudied yet important institution of higher education for nontraditional aged college students.

Conceptually, the literature review includes a discussion of college persistence, resilience, and academic success. The literature for the review originated primarily from peer-reviewed, scholarly journals. Thematically organized around the concepts of the theoretical framework for the study, the literature review includes stumbling blocks to community college persistence, personal and social resources for college persistence, resilience, and academic success.

Contexts for Higher Education

A review of the literature on persistence showed the application of numerous variables in the exploration of factors which promote or inhibit students' progress toward completion. There are differences between students registered in four-year baccalaureate universities and students enrolled in two-year community colleges (Chung et al., 2017). Elitism ascribed to four-year universities creates sociopolitical tension between community colleges and universities (Ayers, 2017). Socio-demographic variables unique to community college students influence persistence to academic success (Yu, 2017). A gap in research on community college students' persistence within rural Appalachia exists.

Community Colleges

Nearly 90% of young adults in the United States wish to attend and complete college (Deterding, 2015). In the United States, post-secondary education consists of colleges and universities, which award one-year degrees, two-year or associate degrees, four-year or baccalaureate degrees, and advanced graduate degrees. Despite subtle nuances in community

colleges' missions or visions, the goal of community colleges is to supply educational opportunities, offering primarily one-year and two-year degrees. Community colleges' open admissions practices afford access and educational opportunities to undergraduates from diverse educational and socioeconomic backgrounds. Hlinka (2017) noted entering community college students, when compared to traditional university students, were less college-ready, controlled fewer financial resources, and had fewer social resources.

Access to Higher Education. With traditionally open-access and admissions policies and lower costs associated with attendance, community colleges serve as an access point for many students (Hlinka, 2017). Approximately seven million students matriculated community colleges last year, representing 41% of the total population of undergraduate degree-seeking students. Community college students represented 39% of the number of first-time students enrolled in post-secondary education in the United States (American Association of Community Colleges [AACC], 2020). Of the seven million enrolled community college students, 36% or 2.4 million enrolled full-time. College students enrolled part-time represented 64% or 4.4 million students (AACC, 2020). 62% of full-time matriculating community college students worked full-time and part-time while completing coursework (AACC, 2020). 72% of all part-time students enrolled were employed, mostly full-time while matriculating coursework. Access and flexibility make community colleges an affordable and attractive opportunity for college students, especially nontraditional aged and employed, to pursue post-secondary higher education.

Affordability for Community College Students. The cost of attendance makes community colleges an affordable educational possibility for students. Community colleges provide less expensive alternatives to students looking to advance educational or workforce-related goals with lower attendance costs than four-year schools. The AACC compared

community college student's tuition and fees to university students' costs of attendance. In 2019, community college students across 1,050 institutions in the United States paid, on average, \$3,730 in tuition and fees for the academic year (AACC, 2020). Students enrolled in four-year universities paid, on average, \$10,440 in tuition and fees. Despite the lower tuition costs, 59% of all community college students received financial aid (AACC, 2020), off-setting direct out-of-pocket costs.

Academic Preparation of Community College Students. Community colleges afford students access and educational opportunity, creating the potential for students to enroll in higher education. The students' profiles in community colleges represent a diverse background: least likely to be admitted or enroll at a four-year university, at-risk, and academically underprepared. With increased access through the open admissions process, students from diverse educational backgrounds enroll in community colleges. Driven by a common purpose, most community colleges do not require students to possess a minimum grade point average (GPA) or minimal pre-college results on standardized examinations like American College Testing (ACT) (<https://www.act.org>) or the Scholastic Aptitude Test (SAT) (<https://www.collegereadiness.collegeboard.org>). As a result, students enrolling in community colleges were typically less prepared academically for higher education (Hlinka, 2017; Hlinka et al., 2015).

Compared to students enrolling at four-year schools, community college students tend to hold different academic or career goals (Yu, 2017). First-generation community college students did not possess college readiness skills or the academic preparedness to succeed (Holmes & Slate, 2017). The profile of a community college student represented a diverse portrait of academic preparedness. The purpose of a community college is to offer students, including those

from diverse educational backgrounds and those who are academically unprepared or underprepared, the opportunity to enroll in college and matriculate in coursework.

Background Characteristics of Community College Students. Community colleges' admissions practices and mission promote a diversity of student demographics. Designed to create accessible and flexible educational opportunities for students, community colleges match the academic needs of students who neither attend nor meet the admissions criteria of a traditional four-year school. The American Association of Community Colleges reported women to represent 57% of all community college populations (AACC, 2020). Most students, approximately 55%, enrolled in community colleges represent racial and ethnic groups other than White with the following composition: White (45%), Hispanic (26%), Black (13%), and Asian/Pacific Islander (6%). Community colleges historically enroll nontraditionally aged students. The average age of students enrolled was 28 years, with 47% of students aged 23 years or older (AACC, 2020). Other significant demographic profiles of community college students include first-generation attendees (29%), students with disabilities (20%), single parents (15%), non-U.S. citizens (9%), and veterans (5%) (AACC, 2020).

Benefits of Community College Education. The literature reinforces the benefits of post-secondary or higher education. Benefits are evident for individuals and society. For many students, educational attainment or the academic achievement of a college degree opens many doors. The provision of access creates a non-selective student population, which could be academically unprepared. Completing a college degree advances opportunities for students' gainful employment, better wages, and the potential to impact socioeconomic status (SES) positively. The AACC reported completers of a two-year degree from a community college earned, on average, ten thousand dollars annually more than students with only high school

diplomas (AACC, 2020). Increased employment and wages benefit the economy and society, which profits from the infusion of income revenue. College graduates benefit financially and developmentally by developing knowledge and skills, which prepare students to enter the workforce.

Challenges for Community Colleges. Community colleges' missions to provide all students access and educational opportunities present challenges for community colleges (Marre, 2017). Though community colleges enroll 45% of all students in higher education (AACC, 2020; Yu, 2017) and educate or train underprepared students for entry into the workforce or transfer to another four-year college or university, community colleges face the challenge of low graduation rates. The National Center for Education Statistics (NCES) reported only 13% of all community college students completed and earned a degree within two years. The graduation rate hovers around 30% for students completing or graduating within four years (NCES, 2020). Lower graduation or attrition rates represent students' academic preparedness and confront community colleges with missions to serve a diverse population of students.

Rural Appalachia

Community colleges in Appalachia are not immune to the national demographic trends in community college education. Few studies examined rural community college students' academic success within Appalachia. Appalachia, described as a predominantly rural area of the United States and inclusive of more than 25 million people, spans 205,000 square miles along the spine of the Appalachia Mountains across 13 states from northern Mississippi and northern Georgia to southern New York (Appalachian Regional Commission [ARC], 2020). The ARC classifies 42% of the region as rural, compared to 20% of the United States population.

Access and Affordability of Higher Education. Appalachia has endured the challenges and outcomes of systemic poverty, high unemployment rates, limited opportunities for gainful employment, and low college-going rates (Appalachian Regional Commission [ARC], 2020). A disproportionately high number of individuals living in poverty reside in Appalachia (Hlinka, 2017). According to the Appalachian Regional Commission (2020), the poverty rate in Appalachia is 1.5 times more than the average poverty rate for the United States. In certain counties in Appalachia, one-third of individuals reside significantly below the national poverty line (Hlinka, 2017). Compared to urban peers, rural students are unlikely to enroll immediately upon graduation (Marcus & Krupnick, 2017), indicating a delay in transition or educational aspirations. With its affordability and regionalism, a community college education provides students the educational opportunity to traverse socioeconomic barriers and earn gainful employment.

Benefits of Community College Education. A community college education remains a pathway for access in rural Appalachia, where an educated workforce and gainful employment are priorities. The Appalachian Regional Commission reported the percentage of persons with associate degrees in Appalachia is slightly higher than the national average (8.2%), suggesting the perceived value of a two-year degree for students in Appalachia (2020). Acquiring a two-year degree, certificate, or skill set offers value to students who prefer to remain in the community or region and perceive a return on higher education investment (Morton et al., 2018).

Access to and completion of higher education presents potential benefits for rural students and the regional economy. Community colleges perform a significant function in post-secondary education. Historically, community colleges have served as a solution to societal concerns of poverty (Hollifield-Hoyle & Hammons, 2015). Comprehensive in scope, community

colleges provide academic instruction and supply technical or vocational training to meet workforce needs (Dunn & Kalleberg, 2017). With workforce education, training, and the development of technical skills, community colleges equip students in Appalachia for entry into the workforce.

Educational attainment signals to employers the abilities of a skilled workforce (Marre, 2017) and contributes to the labor market and the regional economy (Dunn & Kalleberg, 2017). Gainful employment provides the benefits of increased earnings for students and supports the regional economy. Tasked with the mission for workforce development and training, community colleges attract industry partners to regional economies. A skilled workforce with increased earnings contributes to the tax-revenue-based economy, promoting the region's economic development (Yu, 2017).

Challenges for Community Colleges. Appalachia's community colleges attract students from lower socioeconomic and educationally diverse backgrounds with lower tuition and fees. College students in rural Appalachia tend to be academically underprepared, have fewer financial or social resources, and are less likely to persist toward completion and academic success (Hlinka, 2017; Hlinka et al., 2015). One study noted the link between prevailing poverty rates and lower educational attainment (Hlinka et al., 2015). The Appalachian Regional Commission reported a post-secondary education enrollment of 63.5% (2020). Nontraditional students in Appalachia, described as 24 years or older, registered or enrolled in post-secondary education at rates lower than 63.5% (52%) (ARC, 2020). Navigating community colleges, a fraction of students, roughly 36%, complete a degree within six years (Yu, 2017).

The graduation rates in community colleges represent the reality students do not persist toward completion (Marre, 2017). A review of the literature details numerous challenges for

students in Appalachia. Work and family obligations further challenge community college students in rural Appalachia, creating strain or conflict and negatively influencing completion and success (Hlinka, 2017; Hollifield-Hoyle & Hammons, 2015). Since community colleges provide accessible opportunities for all students, community colleges enroll students typically not academically prepared for selective programs. Compared to nonrural peers, rural students are less equipped academically and unlikely to enroll in post-secondary education (Schiess & Rotherham, 2015). The Appalachian Regional Commission reported 55% of students enrolled in community colleges in Appalachia require remedial education (2020). When combined, barriers and risk factors contribute to higher college dropout rates (Hensley et al., 2015) and lower educational attainment rates (Hlinka et al., 2015; Yu, 2017) for community college students in rural Appalachia.

Although research on rural college students is deficient, some researchers have begun to study the persistence and success of rural college students (Marcus & Krupnick, 2017). Other studies tended to concentrate on rural students' deficits. In a qualitative study on rural college students' barriers to education, Morton et al. (2018) found academically prepared high school students indicated a perceived lack of preparation for college, which negatively impacted admission and successful college completion. Poverty and social isolation associated with ruralness were contributors to low levels of academic preparation (Morton et al., 2018).

Ganss (2016) examined the transition of college students in the rural Pacific Northwest. Ganss (2016) concluded themes emerged from the shared narrative experiences of sampled students. Rural students encountered unexpected emotional and social changes with the transition to college and described deficiencies in academic preparation before entering college. Rural students expressed awareness of rural identity and differences from nonrural students (Paskett et

al., 2019). Rural students indicated the absence of social engagement and co-curricular participation and shared perceptions of limited support within the higher education institution.

Means et al. (2016) explored rural college students' financial hindrances and academic obstacles compared to nonrural counterparts. Sampling rural African American students, Means et al. (2016) examined access barriers and opportunities for rural students enrolling in community college and reported three themes. Rural students reported the accessibility of more community social resources available through smaller, tighter-knit communities (Nelson, 2019) and attributed academic success to the availability of those closer support systems in smaller towns. Despite the available community resources, rural students expressed the need for more hands-on information and interaction with community college staff to navigate higher education.

Hlinka (2017) and Hlinka et al. (2015) explored retention, an institution-centered concept of persistence, in rural Appalachia. Hlinka (2017) interviewed traditional-aged students enrolled in a rural community college in Kentucky and faculty or administrators to explore sources of encouragement for rural students. Phenomenologically, Hlinka (2017) reported the community' or family' values of education created an impetus for rural students to persist. The value-based education perspective provided a driving force for students to push through the challenges associated with higher education when work and family obligations created stress.

The drive to achieve a college degree and the tug of work and family obligations create tension, stress, and persistence issues for rural students (Hlinka et al., 2015). Conflicting time demands or schedules impacted students' decisions and academic choices, placing rural students at higher risk for academic success (Hlinka, 2017; Hlinka et al., 2015). Rural students reported a shared desire to stay in the region to attend college and work gainfully than a desire to leave the region imbued with cultural and family values.

Using longitudinal data, Byun et al. (2015) investigated the college attendance and transition patterns of rural students transitioning to college. Results of the study revealed rural students, compared to nonrural students, were less likely to attend selective programs or higher education institutions. Rural students were more likely to postpone entry into college, reinforcing the predominance of nontraditional students enrolled in community colleges in rural areas (Koricich et al., 2018). Rural students who enrolled in community colleges were less likely to remain continuously enrolled (Byun et al., 2015).

Background Characteristics of College Students. The persistence of college students toward academic success and completion was an essential concern for higher education institutions. A review of the literature on college persistence highlighted studies of persistence, which focused on traditionally studied demographic groups or characteristics and experiences associated with students (Howard et al., 2019; Kimbark et al., 2017). The literature review revealed a skewed focus on associated background factors, such as sociodemographic variables, academic preparedness, program or discipline selection, and generational status. A significant gap in the literature was the influence of other background factors which influence college persistence and academic success.

Gender. Widely published in the literature are the intersections between gender and college persistence. In a 2017 study, Sanchez and Smith explored the influence of gender in the persistence of college students toward academic success or completion, noting traditional studies on persistence measured conventional variables like academic GPA or completed college credit hours. Students with higher pre-college academic success, such as GPA, ACT, or SAT, persisted at higher rates. Gender had no influence or effect on students' persistence in the sciences or technology (Sanchez & Smith, 2017). In a sample of 3,213 undergraduate students, Stewart et al.

(2015) examined longitudinal data collected in one university and found no effects of gender, race, or ethnicity on persistence.

Race and Ethnicity. The literature review established the interactions between race or ethnicity, college persistence, and academic success. Marrero and Milacci (2018) focused on understanding the factors of academic persistence for nontraditional Hispanic students. College students from racial and minority groups were three times more prone not to return to college after the first semester (Hatch & Garcia, 2017). Despite studies which reported correlations, Dixson et al. (2017) found no meaningful relationship between crucial factors for persistence and academic success in a convenient sample of successful African American males from poverty. A drawback of Dixson et al.'s (2017) study was its targeted sampling of already successful students for a study on college persistence.

Academic Preparedness and Selection. The role of prior academic preparedness and academic discipline selection were pervasive topics on students' academic persistence to success or completion. Students' learner characteristics and first-term grade point average (GPA) were strong positive predictors of persistence (Nadasen & List, 2016). Other factors negatively influence academic engagement and success (Hensley et al., 2015). Under-preparedness of college students was a significant impediment to college students' persistence (Betts et al., 2017; Holmes & Slate, 2017; Yu, 2017).

Notwithstanding barriers, college students from diverse academic backgrounds and distinct levels of academic preparation demonstrated coping strategies and adaptation (Hensley et al., 2015). Program selection, indirectly reflective of academic preparedness, correlated with academic success. Students enrolled in selective, competitive programs like science, technology,

engineering, and mathematics (STEM) or members of cohort models of academic programs were more likely to persist toward completion (Kohler, 2017).

Generational Status. The role of generational status is well-established in the literature. From intergenerational transmission of educational values (Tinto, 2017a) and financial status or poverty (Potter et al., 2020), the influence of generational status on college persistence was mixed. Generational cycles of poverty perpetuated barriers to persistence as students struggled with balancing work and family obligations with academic endeavors. Generational values of education influenced and motivated students' persistence to completion. Values pulled students from continuing generation college families through the first year toward academic success, but first-generation students' outcomes are not the same. Comparing different generational statuses, Nichols and Islas (2016) described the push-and-pull effect for first-generation college (FGC) students versus continuing generation students. FGC students persevered through educational experiences while struggling with ways to cope or succeed (Nichols & Islas, 2016).

Social support and social fit were factors for consideration for college students representing first-generation or continuing-generation groups (Dika & D'Amico, 2016). While students identified as first-generation (FG) or nontraditional tended to need support more than traditional counterparts, FG college students used social support services, such as counseling and other institutional support services, far less (Wood & Shumaker, 2016). Social and academic fit influenced STEM and non-STEM college students (Dika & D'Amico, 2016). There were significant gaps in students' use of services because nontraditional students prioritized work and family obligations over academic success (Wood & Shumaker, 2016).

There was scant literature on nontraditional community college students' persistence (Ellis, 2019). Chung et al. (2017) asserted research needs to investigate community college

students' persistence and not center solely on four-year students' perspectives. Peterson (2016) conducted a qualitative study on nontraditional community college parents, focusing on the challenges of balancing work, home, and childcare on students' academic success.

Nontraditional students reported a need to prioritize responsibilities, manage time, secure support services, and develop strategies to adapt and cope with stress (Peterson, 2016). The present study attempts to fill a gap, contributing to a body of knowledge on college persistence by focusing on the persistence of rural community college students. While the study did not focus on socio-demographic or background factors, the study contributed to the literature with a focus on factors which promoted nontraditional rural students' persistence to academic success.

Stresses, Risk Factors, and Barriers

A topic addressed when exploring college students' persistence to academic success or completion were the barriers, challenges, and risk factors which impeded students' progress. Stressors and challenges create risks for college students. Tinto (2017a) described how college persistence studies focused on students' deficiencies or behaviors instead of other social or cultural limitations, which posed challenges for students.

Academic Preparedness

The challenges of academic preparedness of community colleges are documented in the literature. Impediments to persistence and academic achievement in nursing and allied health education centered around academic variables (Bauer et al., 2019; Kennel & Ward-Smith, 2017). With a mixed-methods research design, Bauer et al. (2019) attempted to identify rural students' perceived barriers to college. Findings of the study indicated rural students were less inclined to plan and attend college or prepare for post-secondary education. Bauer et al. (2019) reported the most significant perceived barriers were financial and academic. Rural students reported

deficiencies in academic success, which served as barriers to successful admission to competitive health careers programs.

There are differences in access and barriers to higher education between rural and nonrural college students (Morton et al., 2018). Implementing a qualitative research design, Hlinka (2017) examined rural community college persistence by questioning students' educational value perspectives. Rural students struggled with academic preparedness to progress from secondary to higher education, failing to make the cognitive connections necessary for mastering college coursework (Hlinka, 2017). Additionally, students in rural areas expressed fear, worry, and concerns about attending college, citing limited access to resources and self-disclosed deficiencies in academic preparedness (Morton et al., 2018). Rural students claimed levels of academic preparedness negatively impacted college persistence and completion (Bauer et al., 2019).

A literature review on persistence reinforced national data, which indicated community college, specifically rural community college, students were academically underprepared to transition to college. Data suggested students were unlikely to complete post-secondary education because of academic preparedness (Holmes & Slate, 2017; Schiess & Rotherham, 2015). Rural students posed a higher risk of being academically underprepared for a transition to post-secondary education. The Appalachian Regional Commission reported 55% of students enrolled in Appalachian community colleges required remedial education (2020). Not only did students report a lack of support within the secondary education system (Morton et al., 2018; Vega et al., 2015; Yu, 2017), rural students reported limitations of academic preparedness (Bauer et al., 2019).

Lack of Social Support

The literature review demonstrated a recurring theme: social support and social integration college students' persistence to academic success. The role of social support was well-documented in the literature on college persistence. A lack of social support was a distinct negative predictor of academic success (David et al., 2013). Socially supportive networks for college students provided buffers to the barriers and limitations associated with attrition or non-completion (Mansfield et al., 2016). College students' social support was a significant component of the student success constellation (Argyros & Johnson, 2019).

Other studies approached the role of social support through parental and familial support. Beale et al. (2019) identified social support as familial support. Family and community support functioned as social support resources, motivating African American males to achieve academic success. In a sample of academically successful African American graduate students, Turner and Juntune (2018) found social support significantly contributed to students' academic success, especially students from impoverished backgrounds. African American and Latino American students, who reported relationship-centered barriers to academic success, shared socially supportive relationships fostered positive educational experiences, leading to academic success (Vega et al., 2015). Supportive relationships create physically and emotionally safe learning environments for students (Vega et al., 2015).

Not all empirical studies evaluated the positive influence of social support on students' academic success. Hatch and Garcia (2017) researched comprehensive secondary data sets to explore the associations between academic advising and students' intentions of college persistence. Students are likely to persist and continue toward degree completion with clear long-term aspirational or career goals (Hatch & Garcia, 2017). Social support seemed to provide

immediate support for students but varied across time (Dixson et al., 2017). Based on the variability of social support, Dixson et al. (2017) questioned the stability or influences of social support on college persistence or success (Dixson et al., 2017). For some college students, participation in learning communities was more about peer-peer interaction and faculty engagement rather than academic effort and supportive academic environments (Hatch, 2017).

Strong family relationships and parental support influence rural first-generation college students (Moschetti & Hudley, 2015). Parental support influenced students' decisions to enroll or enter college and reported strong family relationships and close friendships influenced students' likelihood for enrollment and persistence to completion (Moschetti & Hudley, 2015). Describing the close-knit relational dynamics of rural contexts, Moschetti and Hudley (2015) concluded support from parents, families, and friends created significant social capital for students and suggested colleges or universities explore ways in which familial and social relationships support students.

Financial Strain and Poverty

A college education is a vehicle for the upward mobility and advancement of students living in poverty (Azmitia et al., 2018). Education remains a powerful tool to address issues of poverty (Bell et al., 2016). Educational attainment increases college students' occupational or employment opportunities. Gainful employment improves access to health care. Acquisition of a college degree and employment promote the dissolution of inter-generational cycles of poverty (Azmitia et al., 2018). First-generation students are apprehensive and hesitant about enrolling in college (Roksa et al., 2020). Of those students who enroll in college to aspire toward better socioeconomic status, only 50% persist and graduate (Azmitia et al., 2018).

Poverty is a significant factor which affects persistence. Research has consistently established individuals from lower socioeconomic levels are less likely to attend college (Bell et al., 2016). When coming from impoverished backgrounds to attend college, college students are more likely to attend full-time, less engaged academically, and more likely to delay or prolong completion (Hlinka, 2017). Students from impoverished backgrounds are less likely than peers from higher SES levels to complete academic degrees. Higher poverty rates in Appalachia correlated with lower educational attainment (Hlinka et al., 2015).

As Bell et al. (2016) claimed, surprising is how little empirical research has explained the experiences of students from lower SES in higher education. Hollifield-Hoyle and Hammons (2015) stated virtually no studies about low-income students who had managed to succeed and persisted toward completing higher education exist. Existing studies on lower SES students focused on financial aid (Bell et al., 2016). Financial aid is only one consideration for those in poverty and to access education.

Methods to address and close the gap between poverty and college persistence challenge institutions of higher education. Few studies have explored how low-income students have successfully persisted toward completing higher education (Hollifield-Hoyle & Hammons, 2015). Scant in the literature are studies on how students from poverty navigate and persist toward academic completion. Research studies have rarely explored the experiences of students from poverty (Bell et al., 2016). A gap in the literature warranted further exploration.

Studies have qualitatively explored the perceptions of students who have successfully navigated poverty and persisted toward academic success. Graduate students, who were already academically successful, described growing up in poverty became an intrinsic motivational factor for success and an escape from poverty (Turner & Juntune, 2018). High-achieving high

school students entering college described how certain protective factors (e.g., social support, mentoring) contributed to academic resilience and success (Williams et al., 2015; Williams et al., 2017).

Poverty does not only signify the extent to which one has limited or no financial resources. Poverty represents deficiencies in other areas of life. Poverty could be conceptualized as the degree to which one does without supportive resources, mutually supportive relationships, and the knowledge to circumnavigate complex systems, such as institutions of higher education (Olszewski-Kubilius & Corwith, 2018).

Likewise, poverty could be conceptualized as the magnitude by which one does not possess emotional, social, or psychological resources (Hand & Payne, 2008). Impoverished college students struggle to overcome structural and emotional barriers or stress to engage and succeed academically (Hensley et al., 2015; Hlinka et al., 2015; Vega et al., 2015). Impoverished students are less likely to receive support and contributions from families and tend to have more family or work obligations (Hand & Payne, 2008; Hlinka, 2017). Absent from the literature is the examination of how support systems and resources for those impoverished students could potentially buffer the effects of poverty and promote persistence.

Food Insecurity. Financial strain and food insecurity impact rural college students' persistence and academic success (Hagedorn & Olfert, 2018). With a quantitative research design, Hagedorn and Olfert (2018) assessed the prevalence of food insecurity associated with poverty in rural areas. The purpose of Hagedorn and Olfert's (2018) study was to explore relationships among food insecurity, financial strain, coping strategies, and academic achievement. One-third of students in rural colleges were food-insecure and at-risk of food insecurity. Academic performance was inversely related to food insecurity (Hagedorn & Olfert,

2018). Troester-Trate (2019) examined rural students' non-academic needs, focusing on the relationships between social services and students' persistence. In the semi-experimental study, Troester-Trate (2019) found students from lower-income brackets possessed higher chances of persisting toward completion when the institution provided non-academic resources to mitigate food insecurity, childcare, transportation, and poverty.

Homelessness and Transportation. By-products of poverty or lower levels of socioeconomic status are housing and transportation issues, which create experiences of instability for college students (David et al., 2013; Hagedorn & Olfert, 2018). Transportation challenges were negatively associated with lower grade point averages (GPA) (David et al., 2013). Food insecurity and homelessness negatively impacted academic progress and posed negative consequences for progress and students' coping strategies (Hagedorn & Olfert, 2018).

Given homelessness, poverty, and food insecurity are destabilizing forces; college students plausibly enroll in a structured institution to establish stability or security (Olszewski-Kubilius & Corwith, 2018). Many students use post-secondary education to provide better stability in life and avoid homelessness or circumvent poverty (Gupton, 2017). Noting the role of community colleges to provide flexibility and function as gateways to higher education, Gupton (2017) qualitatively found homeless students benefit from enrolling in community colleges. Homeless students faced similar challenges all impoverished students encountered: access to technology to support learning, physical safety and security, and transportation. Gupton's (2017) study presented the perspectives of homeless students who described the ease with which to become invisible and blend in with other students, promoting assimilation and identity with other students. The positive concept of identity or invisibility posed a secondary risk factor for

homeless and impoverished students. Effortlessly blending in with other students became a method which allowed academically struggling students to disappear.

Work and Family Obligations

College students face many challenges and stresses. Heightened awareness of education's value in pursuing career goals, coupled with lower academic preparedness or readiness levels, creates academic pressure and stress for college students. College students faced with stressors associated with poverty, such as financial stress, struggled with family-college-work obligations, and were less likely to persist and succeed than impoverished students (Hollifield-Hoyle & Hammons, 2015). Despite the goal of higher education to provide students access and the educational opportunity to move beyond the phenomenon of poverty, the review of the literature demonstrated college students' delay to completion or attrition when faced with primary and secondary stresses associated with economic instability (Hlinka, 2017; Hollifield-Hoyle & Hammons, 2015; Williams et al., 2017; Williams et al., 2015).

Throughout the literature, students reported challenges associated with juggling academic coursework, maintaining employment, and managing families (Hensley et al., 2015; Marrero & Milacci, 2018; Morton et al., 2018). Internal and external barriers negatively impact college students' academic progression or remediation (Clement, 2016). These barriers, such as the availability of time, create tensions and strain for students (Clement, 2016). College students reported not having enough time available to study or to complete academic tasks. Family obligations, family responsibilities, and paid employment were in direct tension with academic performance (Clement, 2016).

Imbalances between work, life, and academic obligations created potential barriers and strain for community college students. While academic integration and social engagement have

demonstrated positive relationships with college students' academic success (Bonet & Walters, 2016; Mellor et al., 2015), not all studies attributed positive outcomes to engagement. Mertes and Jankoviak (2016) examined factors impacting college students' persistence. Among the list of top four factors negatively influencing persistence were work schedules and family obligations. Mertes and Jankoviak (2016) concluded college students had conflicting interests, vying for competing schedules and time availability. The expectation for academic participation or social engagement in college activities created more stress or tension for students.

Utilizing longitudinal data and noting the absence of data on first-generation college students, Wilbur and Roscigno (2016) investigated the factors which supported or inhibited college students' completion. Socioeconomic status (SES) and poverty were significant disadvantages for college students (Wilbur & Roscigno, 2016). Due to work and family obligations, first-generation and impoverished college students were unlikely to socially participate in non-scholastic endeavors outside of the classroom setting (Hlinka, 2017; Witkow et al., 2015). Wilbur and Roscigno (2016) attributed the phenomenon of non-completion to long work hours, disequilibrium and stress in family-home environments, and family or work obligations.

Hensley et al. (2015) explored the direct influence of social engagement on academic success. While traditional literature on academic success contended social integration or engagement directly influenced academic success, Hensley et al. (2015) found highly mobile students or nontraditional students struggled with assessing the value or trade-off of social engagement. Hatch and Garcia (2017) contradicted the effectiveness of social and student engagement, claiming the academic and career goals of the college student prevail over social

engagement. The diversion of time available for employment or study to social engagement provided lesser value for the student.

Rural Appalachian Identity

Rural Appalachia is not immune to the effects of poverty. Emerging from poverty, financial insecurity, family and work obligations, less-than-gainful employment, and hunger are barriers to persistence for rural students. A disproportionately high number of persons living in poverty in Appalachia, where poverty rates are escalating, exists (Hlinka, 2017). Appalachia, described as primarily a rural area, has culturally faced poverty, lower gainful employment rates, and low college attendance rates (ARC., 2020; Hand & Payne, 2008). A priority in Appalachia was to create a more educated workforce through participation and success in higher education (ARC, 2020; Hand & Payne, 2008).

A literature review demonstrated minimal studies which explored poverty's effects on Appalachian students' completion of higher education. Students in Appalachia are less likely to be academically, socially, or financially prepared for college (Hlinka, 2017; Hlinka et al., 2015). Students in rural Appalachia possessed the most significant risk factors associated with college dropouts (Hagedorn & Olfert, 2018). Higher poverty rates in Appalachia correlated with lower educational attainment (Hlinka et al., 2015). Finally, impoverished Appalachian college students demonstrated conflicting demands, negatively inhibiting college completion (Hlinka et al., 2015). Students living in poverty experienced higher family demands, such as family obligations or stress and employment responsibilities. Demands on time negatively impacted students' persistence toward completion. In sum, Appalachian students needed more social support and attention to encourage persistence (Hlinka et al., 2015) and family and social support resources as factors to mitigate the effects of poverty on academic achievement (Hand & Payne, 2008).

Impoverished Appalachian students required the development of self-reliance and self-confidence. Absent from the literature on Appalachian college students was the examination of the role of resources and support, such as social support and resilience, within closely-knit communities of college students.

Studies on college students' persistence to completion or success focused on the stresses and barriers which impeded persistence (Clement, 2016; Mertes & Jankoviak, 2016). Missing in the literature was a discussion of promotive factors or resources. The present study explores resources college students employ to lessen burdens or stress associated with higher education and persist toward academic success.

College Persistence

A persistent individual is one who resolutely pursues intended outcomes despite opposition or warning (Hatch & Garcia, 2017; Tinto, 2017b). Persistence is a motivational factor which ensures the completion of undertaken tasks (Kimbark et al., 2017; Kohler, 2017). Academic persistence is a complex phenomenon shaped by the interplay of individual, educational, and contextual factors (Kennel & Ward-Smith, 2017).

Persistence has been a focus in research on higher education (Kennel & Ward-Smith, 2017). In the context of higher education, persistence describes a student's ability to achieve academic goals (Kennel & Ward-Smith, 2017). Persistence toward academic success or completion was an issue of concern for colleges and universities (Stewart et al., 2015). Persistence centers on the student, focusing on individual progress or persistence toward academic success (Stewart et al., 2015). Institutions of higher education have consistently struggled with low-degree completion rates (Fong et al., 2018). Risk factors and socioeconomic status impacted degree completion rates (Turner & Juntune, 2018). Nearly half of all college

students dropped out during the first year of enrollment (Fong et al., 2018). Data suggested factors which influence students' persistence were of vital concern to colleges and universities.

Distinctions between Retention and Persistence

Confusion between the concepts of retention and persistence exists. Higher education institutions often consider *persistence* and *retention* synonymous and interchangeable. Differences between the two concepts are not trivial. There are distinctions based on the locus of attention despite the interchangeable use within higher education. Retention is an institutional measure. Retention for organizations represents the number of students returning and academically retained (Kennel & Ward-Smith, 2017), typically between academic year one and academic year two. The concept of retention often globally represents the organization's ability to retain college students (NSC Research Center, 2019). Institutions often use retention as a characteristic of enrollment or how the institutions retain students from one semester to another or from one academic point in time to another.

Persistence describes individual traits and centers on the student, generally referring to the individual student's progress or persistence toward academic success and the ability to achieve academic goals (Stewart et al., 2015). Contradictory to retention, the concept of persistence captures the factors which promote the students' progress progression (NSC Research Center, 2019). Persistence assesses students' progression within a course, from course to course, or from academic term to academic term.

Persistence represents a multi-dimensional concept shaped by the interplay between personal and social factors, motivating the student and influencing academic success (Tinto, 2017a). Persistence allows a student to continue toward an academic goal. Numerous studies described the factors of persistence as perseverance or self-motivation (Dixson et al., 2017;

Hollifield-Hoyle & Hammons, 2015), self-efficacy (Moke et al., 2018), and a sense of belonging (Tinto, 2017a). As Tinto (2017a) described, students do not persist for the sake of retention by the institution. Students' interests are in persistence to completing a degree or acquiring a skill or gainful employment.

Persistence Leads to Retention

Low academic persistence is a problem across higher education institutions. Outcomes associated with low academic persistence include attrition, low graduation rates, and increased debt (Kennel & Ward-Smith, 2017). The National Center for Education Statistics (NCES) (2020) recorded nearly 32% of full-time, first-year community college students do not return the following year. Just 33% of community college students in North America complete undergraduate degrees (NCES, 2020). Increasingly, researchers noted social and economic factors influenced transitions to college. Unaddressed, such issues can significantly decrease the likelihood of academic persistence (Stewart et al., 2015). In a longitudinal investigation of 3,213 first-year college students, Stewart et al. (2015) found significant predictors of academic persistence included high school GPA and academic preparedness.

Similarly, academic achievement and pre-college success in high school, measured by GPA, SAT, or ACT scores, predicted college persistence (Shaw & Chin-Newman, 2017; Wachen et al., 2018). Students required to enroll in remedial classes were unlikely to persist (Wachen et al., 2018). High school and recently admitted college students who completed summer programs were more destined to persist and complete, leading to calls for increases in the availability and accessibility of academic and social resources (Causey et al., 2015; Wachen et al., 2018).

Predictors of Persistence

Researchers have examined the predictors of academic persistence among various students and have found persistence was less about knowledge acquisition and more about individuals' abilities, motivation, and preparation (Kennel & Ward-Smith, 2017). Betts et al. (2017) explored predictors of college completion among undergraduate nursing students. Betts et al. (2017) reported several factors affecting persistence: academic assignments and workload, support, academic and social integration, stress, and job outlook.

Reason's (2009) seminal work on persistence and model of college experience and persistence depicts two main categories of factors, which influence student persistence. The first category consists of students' characteristics and experiences before entering college, including sociodemographic status, academic performance and preparation, and disposition. The second category is student experiences in college, including classroom experiences, co-curricular activities, and extra-curricular activities. Reason's (2009) model illustrated how predictors of persistence could vary based on the experiences and circumstances of individual students. Persistence results from influences of individual and institutional factors (Kohler, 2017) and conceptually provides direction for researching individual predictors, which could develop interventions to help students overcome challenges.

Success-based courses and programs positively impacted persistence, achievement, engagement, and retention (Kimbark et al., 2017). Student success courses often include academic-style courses and learning communities which integrate seminars and support services, such as coaching and learning (Herrero et al., 2019; Wachen et al., 2018). Institutions increasingly use programs or modules as a strategy to advance students' persistence. The Kimbark et al. study (2017) revealed involvement in the course was associated with persistence,

retention, and academic engagement. The findings supported the development of college students' persistence, much like resilience (Kimbark et al., 2017). Developing interventions and programs may promote persistence.

As Hatch and Garcia (2017) explained, college persistence is challenging to study for two reasons. First, few studies integrated data, which provided a cumulative understanding of students' experiences and pathways through college. Second, persistence data is difficult to contextualize and understand without corresponding data on students' intentions and goals. While there may be a correlation between academic engagement and persistence, the relationship varies based on the student's intended goals (Hatch & Garcia, 2017). Academic and social support influenced persistence (Hatch & Garcia, 2017; Villarreal & Garcia, 2016). The influence of factors varied by student-level factors. The absence of consideration for students' goals and college persistence leads to inadequate empirical findings for research and practice (Kohler, 2017).

Persistence and Resilience

Academic persistence seems to vary by the characteristics and experiences of individual students, resilience may help explain why some students persist to graduation, and others do not. Tinto's (1975) notion of student persistence posited social and academic integration, which promoted a sense of belonging and support, were integral to persistence. These persistence domains are predictors of resilience (Azmitia et al., 2018; Gruttner, 2019). If the predictors of persistence and resilience are similar, the concepts may work in concert to help college students achieve desired outcomes. Resilience fosters persistence, persistence fosters retention, and retention fosters college completion (Rahat & Ilhan, 2016; Skilbred et al., 2016). Implementation

of programs or interventions to promote and improve resilience could enhance completion rates for academically vulnerable students.

A shortcoming of the persistence framework is predication based on the cycle of learning, confidence, motivation, or self-concept. The framework does not account for students' failure (Lee, 2017). Grit may equip students with the tenacity to persist toward academic goals. Resilience helps students recover and continue moving forward when faced with adversity (Lee, 2017). When examining stressors or barriers to college persistence, as adversity and challenges students face, resilience may provide a better lens for considering how successful students overcome adversity to persist to graduation. Persistence is the result of resilience demonstrated by underprivileged, marginalized, underrepresented, or at-risk students. Brewer et al. (2019) suggested academic resilience may be the bond which supports and fosters college persistence.

The study narrows a methodological gap in the literature. Drawing upon Davidson et al.'s (2009) College Persistence Questionnaire (CPQ), the study conceptualizes college persistence as student-centered factors which impact the academic achievement of college students. The CPQ consists of 50 close-ended items across six subcategories: (1) academic integration, (2) social integration, (3) social support satisfaction, (4) degree commitment, (5) institutional commitment, and (6) academic conscientiousness (Davidson et al., 2009). Persistence factors push beyond a general question on re-enrollment status in year two of the students' educational plan.

Resources for Academic Success

While resilience, persistence, grit, and motivation are valuable constructs for examining the affective and behavioral factors which help individuals overcome adversity and accomplish goals, the consideration of the effects of social and material resources, such as support and financial stability, is essential. Social and financial resources are categories of support and

influence the academic persistence of underprivileged college students (David et al., 2013; Wood & Shumaker, 2016). Personal resources of the college student influence persistence and academic success (Heinen et al., 2017). While motivation and determination predicted academic success (Heinen et al., 2017; Oz, 2016), less is known about nontraditional community college students' resilience and persistence toward academic success.

Social Integration and Academic Success

A review of the literature demonstrated a recurring theme. Research has suggested social integration and engagement promote students' persistence toward academic success. Social integration promotes academic achievement (Garza et al., 2014). The findings of Wolf et al. (2017) suggested students' social integration into other supportive communities leads to the success of college students. Interventions supported by social integration create social connections to promote students' resilience and persistence by creating a sense of belonging, enhancing students' academic success (Sharma, 2017; Wolf et al., 2017).

Qualitative data from Garza et al. (2014) revealed social-themed data. Based on students' reports, Garza et al. (2014) concluded social integration in activities within higher education promoted students' persistence and subsequent success, measured with academic indicators. Social integration was a foundation of students' abilities to adapt and cope. Students' social support, measured as social and family resources, positively affected persistence in higher education (Williams et al., 2017).

Not all studies reported the benefits of social integration for students' persistence or academic success. Studying the influence of social engagement and integration on students' success, Hatch (2017) hypothesized social engagement, specifically student success programs, promoted students' academic persistence and success. Reinforcing previous findings from

research on social integration, Hatch (2017) found a limited impact of social integration or participation on students' success. Social integration and social engagement promoted the success of students when programs' goals matched the academic discipline (Hlinka, 2017). When institutions developed success-based programs to match the needs of specific disciplines or academic programs, social integration promoted academic success (Hatch, 2017).

Concentrated on a targeted sample of community college students, Bonet and Walters (2016) studied the influence of social integration through learning communities on students' persistence and academic success. Social integration within communities of learning positively impacted students' success (Bonet & Walters, 2016). Like Hatch (2017), distinctions between contextual factors, content alignment with discipline, and relevance promoted the success of the social community for students' persistence (Bonet & Walters, 2016).

Social Support Resources and Academic Success

Social support provides several benefits to college students. Research indicated students with social support experience better emotional well-being, life satisfaction, self-esteem, and physical health (Causey et al., 2015; Khallad & Jabr, 2015; Shaw & Chin-Newman, 2017). Social support is associated with improved retention and GPA (Shaw & Chin-Newman, 2017). In a study on the academic outcomes of engineering students, Lent et al. (2016) found social support directly linked to academic persistence. Family support was vital for first-time and first-year college students' academic accomplishments (Rodriguez et al., 2017). Social supports are correlated with academic success among underprivileged students and racial minorities (Beale et al., 2019).

Among the shared experiences of African American men who attended college, Beale et al. (2019) uncovered the roles of family support and social support on students' academic

attainment. Though Beale et al. (2019) sampled an already high-achieving group of students, family or parental support significantly contributed to students' success. The support of family members, especially parents, and social engagement were a strong motivational force to promote students' progress or persistence and a resource for students seeking to break intergenerational cycles of poverty (Beale et al., 2019; Wolf et al., 2017).

Focusing on nontraditional community college students, Wood and Shumaker (2016) explored the influence of social support on academic success and questioned whether students benefited from social support services. Nontraditional students tended not to utilize social support services despite the need (Wood & Shumaker, 2016). Nontraditional students, typically lower-income and first-generation collegegoers, encountered work and family priorities in conflict with services provided in socially supportive ways (Wood & Shumaker, 2016). In contrast to Wood and Shumaker (2016), Johnson et al. (2016) reported contradictory findings. Peer-level and personal support variables predicted nontraditional students' academic success.

Targeting the role of social support in rural communities, Morton et al. (2018) explored through a social capital framework students' perception of resources and opportunities to transition to higher education. High school students expressed fear and apprehension about attending college (Morton et al., 2018). While participants reported limited access to the resources needed to attend and complete college, students expressed the benefits of social support in mitigating stresses and anxiety (Mansfield et al., 2016).

Financial Support and Academic Success

Financial support and availability of material resources are necessary for college success, especially for underprivileged or marginalized students. As tuition costs, books, and essential resources rise, access to the economic resources needed to enroll or re-enroll in college (White et al., 2018) is essential for college students. College students who need the most financial support often struggle to access financial resources (David et al., 2013). Consistently, researchers reported inadequate financial resources were associated with higher college dropout rates (Albica & Martinez, 2016; Bernardo et al., 2016; Esteban et al., 2016).

Personal Resources and Academic Success

The literature review revealed numerous studies centered on college students' individual or personal resources to promote academic success. Personal resources encompassed self-motivation, self-efficacy, self-determination, self-confidence, grit, and resilience. In a quantitative study, Heinen et al. (2017) employed structural equation modeling (SEM) to evaluate the associations between students' perceptions of stress and outcomes of distress. Specifically, personal resources like motivation or self-efficacy mediated the relationship between challenges or stress and outcomes and determined personal resources mitigated stress (Heinen et al., 2017). Students who reported higher self-efficacy and resilient coping were less likely to demonstrate adverse outcomes (Heinen et al., 2017; Moke et al., 2018). The association between resilience and academic success is detailed thoroughly in the literature.

Self-motivation and Self-efficacy. Higher education would be remiss to discuss academic resilience and persistence without reviewing the literature on academic motivation. Academic motivation describes behaviors related to classes and school experiences (Heinen et al., 2017). Academic motivation describes aspiration, determination, and persistence related to realizing

academic success (Trolan et al., 2016). Academic motivation can positively affect college persistence and retention (Tinto, 2017b) and often declines throughout college (Bickerstaff et al., 2017). Motivation can increase and decrease alongside individuals' experiences and situations, motivation, like resilience, appears to be a malleable trait (Trolan et al., 2016).

Unlike resilience, motivation does not require adversity or challenges to emerge. Motivation manifested as either extrinsic, an activity resulting in an external reward, or intrinsic, an activity performed for internal satisfaction or confidence (Bickerstaff et al., 2017). Motivation is conceptually distinct from resilience and persistence. Academic motivation is correlated with academic achievement (Oz, 2016), but other internal factors may facilitate academic motivation. College students' resilience and persistence may motivate the completion of tasks required to achieve goals.

In studies on persistence and academic success, few researchers explored associations among students' motivation and persistence. While nationwide, there are lower percentages of students who graduate college (NCES, 2020), few studies explored the influence of motivation for those students who successfully graduate college. College students' motivation inspired persistence to completion and success by promoting and building confidence (Bickerstaff et al., 2017). Self-determination and self-motivation fostered academic achievement and created a solid foundation for persistence (Reraki et al., 2015). Motivation predicted academic achievement (Goncalves et al., 2017). Students who were motivated were more likely to persevere and persist toward academic achievement (Reraki et al., 2015). Lesser known or reflected in the literature is the relationship between motivation and persistence. Studies traditionally have relied on qualitative data collection to observe students' self-reported motivation. Unknown is the role of motivation as a mediator, which promotes resilience for college students.

Self-determination. Conceptualizing motivation as self-determination, Villarreal and Garcia (2016) explored the factors which helped community college students succeed and persist in college-level courses, notwithstanding encountered obstacles. Participants reported self-determination buffered anxiety and stress associated with developmental coursework (Villarreal & Garcia, 2016). When faced with adversity, students reported drawing upon the personal resource of self-determination to persist (Marrero & Milacci, 2018). Villarreal and Garcia (2016) reported college students chose to stay in challenging curricula because of the resolve to reach academic aspirations. Another theme emerged in Villarreal and Garcia's (2016) findings. Community college students' self-determination to succeed promoted social support networks with faculty and peers, suggesting the importance of social relatedness in academic success.

Not all studies supported the relationship between motivation and academic persistence or success. In 2019, Lumontod inquired about the role of motivation and happiness on students' academic performance. In a sample of 313 undergraduate students, Lumontod (2019) found no meaningful relationships among students' academic adjustment, happiness, motivation, and academic performance. Others reported similar findings and concluded limited predictive ability of personal variables on academic performance because of the covariance between the constructs (Garza et al., 2014).

Resilience

Resilience is a personal resource for college students' persistence in academic success. Resilience is not a new concept. Research within psychology, sociology, human development, and other social sciences has conceptualized resilience as the ability to transcend challenges and transform adverse outcomes into positive experiences (Thomas & Asselin, 2018). Traditionally, research has explored the relationships between the resilience of individuals and the ability to

manage or cope with stress (Curtin et al., 2016). There were positive relationships between the effects of resilience and academic success in school-aged children demonstrating children display resilience and adapt to social and educational settings (Masten & Monn, 2015). Research has underlined the positive outcomes of resilience in children completing developmental tasks (Masten & Monn, 2015). In the literature on the development of children within educational contexts, there is an expectation for the student to adapt to the system and demonstrate resilience (Masten & Monn, 2015).

Conceptualization of Resilience

Researchers have defined resilience in several ways (Southwick et al., 2014). Resilience describes an individual's capacity to view outcomes positively, even when threats to adaptation or development exist (Chadwick, 2019). Resilience is the capacity to manage problems throughout the lifecycle (Goncalves et al., 2017). Positive outcomes and functioning despite adverse situations and risks describe resilience (Haktanir et al., 2018). For young adults, resilience is the capacity to adapt or adjust effectively based on the demands of social conditions (Buzzanell & Houston, 2018; Develos-Sacdalan & Bozkus, 2018). The prevailing sentiment across these definitions in the literature review was the ability to overcome challenges or bounce back and persist toward goals.

While not an unfamiliar concept in the literature on development, resilience is an understudied concept in higher education. There is scant literature on the relationships between resilience and persistence to academic success. Research has demonstrated the positive relationship between non-cognitive, personal characteristics like resilience or grit and academic wellbeing (Stoffel & Cain, 2018). Within the context of higher education, Mansfield et al. (2016) termed resilience as the capability of learners to employ personal and social resources to navigate

challenges and overcome adversities dynamically. When conceptualized as a process, resilience in higher education may involve navigating toward goals and leveraging resources to accomplish those goals, even when adversity is present (Chadwick, 2019).

Resilience conceptualized psychologically and socially has been associated with positive outcomes in professional practice (Thomas & Asselin, 2018). Resilience mediated the relationships between students' perfectionism, stress, and academic success (Develos-Sacdalan & Bozkus, 2018; Van Agteren et al., 2019). The works of Williams et al. (2017) and Williams et al. (2015) explored students' perceptions of the protective factors which buffered stress, conceptualized resilience as an adaptive coping strategy, and discovered social support promoted resilience. Despite the broad conceptualizations, the positive protective and adaptive mechanisms of resilience have been well-documented in the literature. The study conceptualized resilience as the ability or skill set needed to overcome adversity and transform any experience into a positive experience (Thomas & Asselin, 2018).

Factors of Resilience

Studies indicated several factors could influence resilience, including age and gender. Individuals tend to display more remarkable persistence with age, and men tend to have higher levels of resilience than women (Van Agteren et al., 2019). Single marital status and rural residence correlate with levels of higher resilience (Goncalves et al., 2017). Senses of belonging and social support correlated with resilience (Gruttner, 2019; Rahat & Ilhan, 2016; Skilbred et al., 2016), as were coping strategies, adjustment (Van Rooij et al., 2018), and positive affect (Argyros & Johnson, 2019). Social support and belonging fostered academic resilience in an at-risk college student group (Gruttner, 2019). Attachment style, spirituality, and self-efficacy were associated with resilience (Argyros & Johnson, 2019). Resilience may influence the relationships

between personal factors, such as determination or self-efficacy, and success (Develos-Sacdalan & Bozkus, 2018). Investigating university students, Moke et al. (2018) found resilience mediated the relationship between self-efficacy and competitiveness, promoting students' success.

Resilience represented protective processes in the form of resources, skills, and competencies (Haktanir et al., 2018). Resilient individuals demonstrate tolerance and flexibility, adjust, and access the resources required to overcome challenges (Howard et al., 2019). Resilient individuals are less vulnerable to life stressors because resilience serves as a buffer against depression and can improve life satisfaction (Moke et al., 2018). Resilience is essential to students' quality of life, independence, and emotional health (Herrero et al., 2019).

Resilience as a Trait

Resilience research began with Werner and Smith (1982), who constructed resilience psychologically. Several personality factors including self-esteem, self-efficacy, self-control, and openness to experience predicted resilience (Rutter, 2006; Werner & Smith, 1982). Early resilience studies viewed resilience through a personality lens rather than a process orientation.

Trait resilience is a personality trait which helps individuals adapt and recover from adversity when faced with challenges (Lock et al., 2020). Trait resilience is a complex construct influenced by trait-level factors, encompassing an internal locus of control, optimism, self-efficacy, hardiness, positive self-image, and active coping (Lock et al., 2020). Psychologists viewed trait resilience as a fixed personality construct and correlated resilience with aspects of psychological affect. Researchers have investigated correlations between trait resilience and mental health (Hu et al., 2015), social anxiety (Wu et al., 2018), self-compassion (Shebuski et al., 2020), and post-traumatic stress (Zang et al., 2017). While a trait-based examination of resilience was beneficial for exploring relationships between psychological effects and

personality (Saunders-Scott et al., 2018), the research conceptualized resilience as a strategy or process employed to overcome adversity, examining the adaptation of non-traditional community college students.

Resilience as a Process

More recent scholars conceptualized resilience as a process or tool capable of fostered development rather than a personality trait (Argyros & Johnson, 2019; Moore et al., 2018; Parsons et al., 2016). Others increasingly discussed resilience as a process-oriented outcome rather than a fixed attribute (Develos-Sacdalan & Bozkus, 2018). Resilience develops during childhood and may increase over the lifespan as individuals confront and overcome adversity (Ungar, 2016). From a systems-oriented perspective, which emphasizes the effects and interactions of systems and processes, resilience was not a trait (Masten & Monn, 2015). Resilience was the capacity to enact adaptive processes in response to disturbances or challenges within systems (Masten & Monn, 2015).

Some personality traits might be associated with resilience, but inconsistencies suggested resilience was more likely a learned process. Students' openness to experience, agreeableness, self-esteem, and grit were positively associated with resilience (Argyros & Johnson, 2019). While predictors of resilience did not include extraversion, stress, or life satisfaction, students' resilience may develop over time, suggesting resilience is more of a process than a trait (Galante et al., 2018; Parsons et al., 2016).

Other studies suggested resilience is a process. In a study on resilience among first-time college students, Azmitia et al. (2018) found students' actions and behaviors fostered resilience by developing supportive relationships with faculty and a heightened belief in self-ability. Goncalves et al. (2017) examined how adverse life events influenced post-secondary students'

resilience and found negative experiences positively and directly correlated with resilience; the more negative events individuals experienced, the higher the average resilience scores. Life experiences may develop resilience in students (Goncalves et al., 2017).

Students from disadvantaged backgrounds, such as those who are underrepresented minorities, immigrants, impoverished, or at-risk groups, often demonstrate resilience as a process to overcome disadvantages (Luthar & Eisenberg, 2017). Reynoso's (2017) study of academic success among academically underprepared learners, such as those who immigrated to the U.S., revealed the primary challenges students faced were separation from loved ones, economic instability, and lack of English language skills. Despite disadvantages associated with academic preparedness and poverty, the students persisted toward college completion or academic success by employing key resilience strategies: (a) coping challenges via psychological strength, (b) developing supportive relationships with loved ones and college faculty, and (c) developing a bi-cultural ethnic identity. The strategies employed by the students in Reynoso's (2008) study further supported the notion resilience was a process and skill set sharpened through adversity.

Resilience appears to be a skill or tool which individuals can develop. Some researchers have recommended training to improve resilience as a strategy for overcoming stressful or challenging life circumstances (Herrero et al., 2019; Reyes et al., 2015). Building resilience through cognitive behavioral training as a strategy to reduce anxiety and depression with first-year college students could support success for students (Haktanir et al., 2018). Courses on resilience, coping skills, and stress management were associated with improvements in coping and reductions in stress or anxiety among students (Shatkin et al., 2016).

Resilience among College Students

Early adulthood is often a period of high psychological stress due to transitions and new challenges (Peer et al., 2015). The transition to post-secondary education is associated with sweeping changes to individuals' social systems, physical surroundings, and new personal pressures (Peer et al., 2015). The challenges and changes which occur during transitions to college increase vulnerability to stress, anxiety, and worry, particularly amongst first-year students (Haktanir et al., 2018). As Herrero et al. (2019) explained, when considering the high incidence of emotional problems faced by young adults worldwide, the promotion of resilience is essential to well-being.

The research suggested college students experience more significant stress and anxiety than past generations (Lukianoff & Haidt, 2015). The study revealed a majority, nearly 54% of students surveyed students, had experienced overpowering angst in the previous year of enrollment (Lukianoff & Haidt, 2015). Researchers have speculated over the reasons for increased anxiety among college students. Some scholars suggested college students experience a greater fear of failure and increased pressure to perform in tight job markets (Davis et al., 2015). Others suggested college students demonstrate more inadequate psychosocial adjustment and possess less resilience and grit due to differences in upbringing (Stoffel & Cain, 2018).

Transitions to higher education can be challenging for college students, and resilience may be essential to helping students overcome associated challenges and persist in college completion. Researchers have reported on the low rates of resilience among college students. Nearly half (45%) of sampled college students demonstrated low levels of resilience (Van Agteren et al., 2019). Students with low resilience are unlikely to be psychologically prepared to

overcome personal and academic challenges (Thomas & Asselin, 2018; Van Agteren et al., 2019).

Resilience offers many benefits to post-secondary college students. Resilient students are likely to have stronger coping skills (Stanley & Bhuvaneswari, 2015), which may help college students deal with new challenges associated with the transition to young adulthood. Resilient students can better progress from failures and achieve academic success despite past circumstances or disadvantages (Moke et al., 2018). Resilient students are more motivated and perform better when facing challenging circumstances (Goncalves et al., 2017). As Goncalves et al. (2017) pointed out, resilience fosters academic success and helps students develop supportive relationships with teachers and peers.

Resilient students are more likely to understand the potential to learn, improve, and become better or more engaged learners (Goncalves et al., 2017). The Haktanir et al. (2018) study demonstrated statistically meaningful, direct relationships between resilience and academic adjustment in a sample of first-time students. Among nursing students, resilience mediated the relationships between distress, persistence, and success (Reyes et al., 2015). Resilience was an essential process related to college students' protective mechanisms.

In addition to the typical challenges encountered during emerging adulthood and transition to college, some groups may face compounding disadvantages. College students from impoverished backgrounds may struggle to meet material needs and cover the cost of books and tuition (David et al., 2013; Hensley et al., 2015). Economic disadvantage is a barrier to education and persistence for growing numbers of U.S. students. As Williams et al. (2015) reported, over half of the nation's public-school students are from families living near or below the poverty line. Economic disadvantage is related to poor academic outcomes, and resilience may be

particularly remarkable for students with backgrounds of economic instability. Despite the adverse effects of economic disadvantage on many underprivileged students, many obtain academic success. These poor undergraduate students, as Williams et al. (2015) explained, are academically resilient.

Strategies for Resilience

Findings revealed two critical strategies college students used to improve resilience and academic success. First, students sought out and developed meaningful relationships with faculty and staff. Then, students discussed the importance of accessing available resources to overcome poverty-related barriers. College students' experiences demonstrated how economically disadvantaged students improve resilience to help achieve academic goals (Marrero & Milacci, 2018; Turner & Juntune, 2018; Williams et al., 2015). Results demonstrated resilience is a process through which individuals act to build resilience during adversity. From the process lens, emerging adulthood is an ideal time for implementing interventions to build resilience.

Younger students in secondary and post-secondary education demonstrated the process of building and demonstrating resilience to overcome economic disadvantage (Herrero et al., 2019; Morton et al., 2018). External factors and behaviors contributed to low-income students' resilience and success (Williams et al., 2017). Students' supportive relationships with teachers and leveraged family or community resources contributed to academic resilience and provided the means to meet academic demands. Students sought out mentors and advice from individuals in social networks, pursued academic opportunities, and participated in extracurricular activities and programs which contributed to academic success (Williams et al., 2017). These environmental factors, which included supportive teachers and positive learning environments, fostered at-risk students' academic resilience (Zolkoski et al., 2016).

Capacity-building and programs to foster college students' resilience could positively influence college persistence and academic success (Herrero et al., 2019). Lessons in autonomy, healthy coping, planning, and goal setting can foster resilience among young adults (Shatkin et al., 2016). The community college setting offers an ideal environment for such skill development because higher education requires a transition to autonomy and personal responsibility (Shatkin et al., 2016; Tinto, 2017a; Yun et al., 2018) and serves underrepresented and vulnerable student demographics.

Incorporating resiliency-based education into education programs could introduce students to the coping skills needed for demanding situations in the nursing profession (Thomas & Asselin, 2018). Among nurses, resilience positively influenced professional practice (Thomas & Asselin, 2018). Conceptually, the ability to adapt and cope with stress or stressors, such as poverty, indicates resilience. Studies, which have incorporated and explored resilience as the ability to cope and adapt to academic-associated stress, found a significant relationship (Williams et al., 2017; Williams et al., 2015). Social support, a factor of resilience, promoted academic success (Zolkoski et al., 2016). Resilience, self-motivation, and academic achievement were correlated (Develos-Sacdalan & Bozkus, 2018; Martin et al., 2014). Resilience mediated the relationship between students' self-reported stress and academic success (Moke et al., 2018).

Resilience versus Grit

Higher education institutions often use the terms resilience and grit interchangeably. The two concepts are distinct (Stoffel & Cain, 2018). Crucial are the differences between these two concepts and underscore why research focuses on resilience, not grit. Grit, a personality characteristic, depicts an individual's perseverance toward aspirational goals despite setbacks or failures (Duckworth & Quinn, 2009; Kannangara et al., 2018; Tang et al., 2019; Yeager &

Dweck, 2012). Resilience generally describes an individual's ability to maintain or recoup emotional and psychological well-being after having trouble (Howard et al., 2019; Stoffel & Cain, 2018).

The construct of grit has received considerable criticism, both in measurement (Crede et al., 2017) and operationalization. Grit is not uniquely distinct from other constructs, such as perseverance, hardiness, and endurance (Hochanadel & Finamore, 2015). Werner et al. (2019) explained a boisterous debate over the overlap between grit, self-control, and conscientiousness and described grit as a higher-order personality attribute which promotes longer-term goal achievement. Criticisms of grit aside, the research study focused not on grit because of the personality trait of the concept. The study explored resilience as a malleable quality and tool which students develop to overcome challenges.

Counterargument for Resilience

Although positive outcomes of persistence on academic success were well-documented, not all research agreed resilience could influence persistence and academic success. When conceptualized as self-efficacy, there was no relationship between college students' resilience and college persistence (Garza et al., 2014). Examining the contribution of psychosocial variables, such as the grit or the growth mindset of high-achieving African American students, Dixon et al. (2017) found no significant contributions of grit or growth mindset to academic success and concluded some psychosocial resources were not significant predictors of academic success. Interventions to improve grit or to promote a growth mindset or resilience were not adequate (Dixon et al., 2017)

Dixon et al. (2017) conceptualized resilience as grit and growth mindset, two psychosocial variables related to resilience. Grounding the study within a social integration

framework, Dixon et al. (2017) explored the effects of resiliency and students' self-efficacy on persistence in higher education. The results of Garza et al. (2014) noted the absence of any significant correlation between resilience and success. Walsh (2016) claimed exploring resilience could help educational institutions better understand vulnerable student populations. Because of a broad conceptualization and traditional application to chronic adversity, Walsh (2016) cautioned against the concept of resilience.

Despite its widespread misuse, the concept of resilience helps understand students' adaptive skills to manage stress and risk (Mansfield et al., 2016). A deeper understanding of mediating factors between stress and academic success could yield implications for developing programs to influence students' persistence toward educational attainment positively. Community colleges could become instrumental in promoting resilience with programs to promote students' adaptive skills. Programs which promote students' positive mindsets help establish resilience and, subsequently, student success (Cotton et al., 2017; Herrero et al., 2019).

Gaps in the Literature

A literature search for "persistence of community college students" returned different themes. The literature on the persistence of community colleges centered around demographic variables which impede persistence to completion. Barriers and limitations present challenges for students enrolled in community colleges (Bauer et al., 2019). Social support and integration emerged as resources to promote students' success (Bonet & Walters, 2016). Personal resources, student-centered characteristics like self-motivation and self-efficacy, influenced the likelihood of college persistence (Fong et al., 2015). A significant limitation of the research on college students' persistence is its focus on traditionally studied factors which influence persistence. Many studies concentrated on the first-year or first-semester transition and encounters of

students (Ganss, 2016; Haktanir et al., 2018; Morton et al., 2018). Other studies focused on college students' first-generation enrollment status (Azmitia et al., 2018; Wilbur & Roscigno, 2016).

Missing in the literature were the factors which promote the persistence of rural community college students to success. Guided by a conceptual framework on adaptation and resilience, the study attempted to investigate rural college students' factors of persistence toward academic success. With attention to factors which promote college persistence and resilience, the study seeks to fill a gap in the body of knowledge.

Rural Community Colleges

Despite studies to gather more data on college persistence, one area which appears to receive scant attention in the literature focuses on students from rural areas. Though a quarter of the secondary and post-secondary students attend schools in the rural United States, attention is scarce on community college students enrolled in two-year schools in rural areas (Schiess & Rotherham, 2015). Rural identity appears not to be a well-studied area (Ganss, 2016). Rural students enroll in community colleges for educational attainment, albeit at worse rates than traditional students in four-year schools, seeking to advance skills or earn gainful employment. The study seeks to contribute to the extant literature on community college students' persistence, emphasizing rural students in community colleges.

Nontraditional Students

Throughout the literature on college persistence, research focuses on the academic preparedness and risk factors for the persistence of traditional-aged students (Chung et al., 2017). High rates of rural students, primarily representing nontraditional aged students, do not persist and complete to completion or academic success. The study contributed to the current literature

and explored the college persistence of nontraditional aged students, balancing work or family obligations, in rural community colleges and the promotive factors to support college students' completion.

Theoretical Frameworks

The study contributed to the current literature on the persistence of rural community college students with its application of a conceptual framework for adaptation and resilience theory. No specific theories address community college students' persistence in rural areas (Byun et al., 2015). Though not well understood in higher education, the use of resilience theory provides a framework to help educators understand how rural students adapt in positive ways and promotively respond to situations (Moke et al., 2018).

College Persistence

The study fills in a methodological gap in the literature and conceptualized persistence as a constellation of student-centric factors or variables which promote academic success in the face of challenges or stress. A review of the literature demonstrated ambiguity and confusion between *retention* and *persistence*. The study seeks to supplement the existing knowledge on college students' persistence to completion or success, focusing on college persistence, including *academic integration*, *social integration*, *social support satisfaction*, *degree commitment*, *institutional commitment*, and *academic conscientiousness* (Davidson et al., 2009). Persistence factors push beyond a general question on students' re-enrollment statuses toward a concentration on student-centered dynamics.

Resilience

While numerous studies focus on persistence as student success, less is known about the relationship between other variables, such as resilience, and students' persistence toward

academic success. Beyond college students' motivation or academic preparedness, other factors influence the persistence of adult learners. A scant body of literature highlighted the protective mechanism of resilience in higher education (Chadwick, 2019; Howard et al., 2019), incorporating resilience into studies on the academic achievement of adult learners.

While traditionally incorporated in studies on the development of children (Curtin et al., 2016), resilience offers many benefits to post-secondary students, including the development of coping skills (Stanley & Bhuvaneswari, 2015), which may lessen challenges related to enrolling in higher education. Resilient students can better progress from failures and achieve academic success despite past circumstances or disadvantages (Moke et al., 2018) and demonstrate better performance when faced with challenging circumstances (Goncalves et al., 2017). Resilient students more certainly understand the potential to learn, improve, and become better or more engaged learners, mitigating the consequences of stress on persistence (Goncalves et al., 2017). Resilience was an essential factor when examining community college student persistence, as resilience could reveal why some students continue through adversity while others give up (Cotton et al., 2017). The present study added to the body of knowledge on students' resilience, persistence, and academic success.

Chapter Summary

Chapter 2 detailed a literature search strategy and theoretical framework which guided the study. The study's framework was the adaptation and resiliency theory (Masten & Monn, 2015). Organized by themes aligned with the theoretical framework, the review synthesized explored relevant literature on barriers and limitations, stresses, resources, and academic success. College students' persistence to academic success or completion is a crucial topic with outcomes for students and institutions. The literature review summarized studies examining factors college

persistence and resilience of college students in rural community colleges. The literature review concluded with a review of contrary literature and a summary.

Little research on rural, nontraditional community college students' academic encounters was available. As a significant gap remains in the literature, the study addressed the substantive gap by determining the effects of resilience and persistence on the academic success of nontraditional community college students in rural Appalachia. The purpose of the correlational study was to determine degrees by which college persistence and resilience correlated with academic success and to contribute to the extant body of knowledge on college persistence.

Factors which promote rural community college students' persistence and resilience could support the academic success of nontraditional rural students. Research expanded upon the existing literature to explore the relationships between resilience, persistence, and academic success for nontraditional community college students in rural Appalachia and add to the knowledge base, informing practices or policies to promote resilience and persistence toward academic success in community colleges. Chapter 3 addresses the research design, research methodology, and research procedures applied in the study.

Chapter 3: Methodology

College students' completion and academic success are critical to higher education institutions (Hatch & Garcia, 2017). Less than one-third of college students persist and complete higher education (Fong et al., 2018). In rural Appalachia, the college completion rate falls significantly below the national average with only 25% completing a degree (Appalachian Regional Commission, 2020). Despite lower retention rates and graduation, some community college students in rural Appalachia persist and succeed academically.

The purpose of the non-experimental, quantitative correlational study was to explore any statistically significant relationships between resilience, persistence, and non-traditional community college students' academic success within rural Appalachia. The study was designed to provide higher education leaders in Appalachia with information about how resilience and persistence may impact non-traditional community college students' academic success. Not conducting such research leaves higher education leaders uninformed about the relationships between resilience, persistence, and academic success. If research is not conducted, persistence and academic success studies will continue to focus on traditional-aged university students (Chung et al., 2017).

The quantitative correlational study endeavored to add to the literature on persistence and academic success, focusing on community college students' resilience in rural Appalachia. A quantitative correlational methodology is chosen because the research study aligns most effectively with the research questions determining a correlation between variables and confirming the hypotheses (Price et al., 2013). The rationale for choosing a quantitative correlational design was because the study used non-experimental methods to assess statistically significant associations among two or more variables without implying any cause and effect

(Price et al., 2013). A first Pearson correlation was calculated to determine the strength of a linear relationship between resilience and academic success. The second Pearson correlation was calculated to determine the strength of a linear relationship between persistence and academic success. Self-reported grade point average (GPA) on a 4.00 scale constituted Variable #1, academic success. Variable #2 represented resilience, measured as a summative score of six times. Variable #3 represented college persistence, measured as the sum of self-reported favorability values, divided by the number of answered questions (Davidson et al., 2009).

Detailed in Chapter 3 are the study's purpose and guiding research questions. Implementing a quantitative research methodology, the study explored two sets of research hypotheses. The research design incorporates the targeted population and sample of the study, data collection, reliability and validity of instruments, and analytical strategy. A discussion of objectivity and practical ethics is presented.

Research Questions and Hypotheses

Stemming from the problem statement were two specific questions which guided the present study. The research questions were both researchable and measurable and crafted to determine the correlation between the variables of academic success, resilience, and persistence. To achieve the goal of the study, the following research questions directed the study.

Research Question 1: Is there a statistically significant relationship between resilience and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia?

Research Question 2: Is there a statistically significant relationship between persistence and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia?

The quantitative correlational study proposes the following research hypotheses to determine the relationship between resilience, persistence, and success:

H₀: No significant correlation exists between resilience and the academic success of nontraditional community college students in rural Appalachia.

H₁: A significant correlation exists between resilience and the academic success of nontraditional community college students in rural Appalachia.

H₀: No significant correlation exists between persistence and academic success of nontraditional community college students in rural Appalachia.

H₂: A significant correlation exists between persistence and academic success of nontraditional community college students in rural Appalachia.

Research Design and Rationale

The study utilized a correlational research methodology to determine the association between academic success and resilience or college persistence. In the study, academic success is a variable represented as the overall grade point average (GPA), measured on a 4.00 scale, and identified as Variable #1. Variable #2, resilience, was measured as a summative score using a reliable and valid instrument. Variable # 3, persistence, was calculated as the sum of self-reported favorability values, divided by the number of answered questions (Davidson et al., 2009). A correlational design was used to statistically measure the degree of association between resilience, college persistence, and academic success. The correlational study, a form of non-experimental research, was not designed to interpret any statistically significant relationship as definitive evidence of a causal association between nontraditional community college students' resilience, persistence, and academic success in rural Appalachia.

A correlational research design is one in which two or more variables are measured and statistically analyzed for any relationship (Creswell & Creswell, 2018). Quantitative correlational methods align most effectively with the research questions determining an association between variables and confirming the hypotheses (Price et al., 2013) and gains insight into community college students' resilience and persistence. A Pearson correlation was applied to ascertain the relationship between Variable #2, resilience, and academic success, Variable #1. A second Pearson correlation was used to determine the strength of a linear relationship between Variable #3, persistence, and academic success, Variable #1. As no control of the variables exists, the correlational research design excludes cause-effect inferences (Gravetter et al., 2020).

Quantitative methodology was appropriate to assess objectively the statistically significant associations between the study's variables of interest. The correlational research design was essential to establish a relationship between the variables without biasing the participants and to allow for generalized predictions (Creswell & Creswell, 2018). A correlational design was relevant for the study, which involved identifying variables for relationships or comparisons, selecting the relevant samples, and measuring or assessing data for a statistical relationship without implying cause and effect. Reyes et al. (2015) conducted a correlational study evaluating nursing students' resilience and concluded resilience functions as a buffer to promote academic success. Davidson et al. (2009) completed a correlational research study on college students' persistence and found persistence correlated with success. The goal was to explore whether a statistical relationship exists between (1) resilience and academic success and (2) persistence and academic success. Variable #1 was academic success, measured as an overall grade point average (GPA) on a 4.00 scale. Variable #2 represented resilience, measured as a summative score of six items from a reliable and valid instrument. Variable # 3,

persistence, was calculated from a reliable instrument as the sum of self-reported favorability values, divided by the number of answered questions (Davidson et al., 2009). Relationships between the variables in the study were analyzed using a Pearson product-moment correlation coefficient (r_{XY}) to ascertain whether there were statistically significant relationships between resilience or persistence, and academic success (Gravetter et al., 2020).

Research Procedures

A quantitative correlational design allowed for the examination of non-traditional community college student resilience and persistence and associations with academic success. The theoretical framework focused on the Model of Adaptation and Resilience and Resilience Theory to understand how college students, when faced with challenges, rebound and persist toward a positive outcome (Ungar, 2016). A correlational design was chosen as the best option to explore associations between variables (Creswell & Creswell, 2018). Numerous studies in educational research have been conducted measuring the strength of relationships between academic success and factors, such as academic integration or commitment (Davidson et al., 2009) and resilience (Reyes et al., 2015). Two Pearson correlations were applied to assess the strength of linear relationships between the study's variables for resilience, persistence, and academic success.

After approval was granted by the American College of Education's Institutional Review Board (IRB) and permission was granted to conduct the study and to collect data, a formal letter of request was sent to each community and technical college (CTC) within the community and technical college system (CTCS) of a state in Appalachia. The letter requested permission to conduct the study within the sites of eight community and technical colleges (see Appendix A), excluding the ninth college at which the researcher is employed to limit any conflict of interest.

The study relied on two sampling strategies. *Firstly*, with permission granted to conduct the study, a formal invitational letter containing an attachment of the IRB approval of the American College of Education was sent to each community college with the request to distribute to college students through the departments of student affairs, academic affairs, and student success on the campuses of the community colleges. The invitation (see Appendix B), which explains the purpose of the study and participants' rights, conveniently recruited a cross-section sample of students through community colleges which granted site permission (see Appendix A). Gatekeepers at participating sites emailed the invitation to community college students; there was no direct solicitation of participation. The invitation contained a link to a secure and anonymous SurveyMonkey (<https://www.surveymonkey.com>) survey that allowed for the collection of informed consent before the collection of data. The survey stated participants' completion and submission of the survey indicated consent.

Secondly, a general social media recruitment strategy was used to recruit community college students within the state of Appalachia to participate in the study. An informational flyer with details from the recruitment letter (see Appendix B) was posted on social media and directed participants to the SurveyMonkey survey. The initial page of the survey included an introduction, purpose of the research, research methodology, participant selection, voluntary participation, procedures, duration, risks and benefits, reimbursement, confidentiality, and the right to withdraw or exit survey contained information about the study and the statement of consent. Completing the survey and selecting "yes" to the consent indicated participants' agreement to take part in the study.

The study abided by the American College of Education's IRB requirements. The purpose of the IRB is to protect human subjects to ensure minimal risk for participants (Creswell

& Creswell, 2018). Federal government regulations, implemented after the Belmont Report of 1978, provide the foundation for Institutional Review Board oversight requirements and the Common Rule for educational institutions (Lynch, 2018). Following approval from the American College of Education's IRB and any participating sites, the research procedure for the non-experimental quantitative correlational study is discussed, including population and sample selection, instrumentation, data collection and preparation, and data analysis.

Population and Sample Selection

The targeted accessible population of community college students in a state in Appalachia was approximately 25,000 students. From the target population, 136 randomly sampled community college students in Appalachia participated in the survey. Consideration of response rates to surveys and the statistical method influenced the targeted sample size.

A power analysis was applied to determine a targeted sample size before enrolling participants, and survey response rates were considered. G*Power software (Faul et al., 2009; Kretzschmar & Gignac, 2019) determined the estimated sample size (see Appendix G). The software evaluated an estimated sample size required to determine whether a correlation significantly differed from zero.

To determine sample size, an a priori correlation statistical test was selected, using a Correlation $\rho = .25$ with two tails and a commonly accepted alpha value of .05, indicating a 5% probability of committing a Type 1 error. A commonly accepted beta value of .20 was used, balancing the risk of committing a Type I versus a Type II error (Creswell & Creswell, 2018) and estimating the power of the test as .80 (see Appendix G). The estimated targeted sample size for statistical analysis was 136 community college students ($n = 136$), utilizing G*Power software (Faul et al., 2009) to detect significant associations between the variables in the study.

Sheehan (2001) indicated the average initial response for surveys is 31%. To achieve a minimal sample of 136 participants, the study randomly targeted community college students throughout participating institutions. The sampling of 136 students surpassed the minimal estimated size to determine whether correlations significantly differ from zero (Creswell & Creswell, 2018). Since the study's goal was to determine the correlation between the variables of resilience and persistence and academic success, two separate Pearson correlations were used for analysis. The study focused on determining a significant result ($p < 0.05$) (Gravetter et al., 2020).

Participants were recruited through centers for student or academic success, which provide academic support, such as tutoring, and student support services, such as career counseling, on the community colleges' campuses which granted site permission, or through general social media. Participating community colleges forwarded the invitation and recruitment letter to students. There was no direct solicitation of participation.

SurveyMonkey is a web-based tool designed to implement surveys to gather data (Abd Halim et al., 2018). Beauvais et al. (2014) used SurveyMonkey for participants in a research study determining factors to support academic success in nursing students. Strengths of using an online survey include convenience, flexibility, speed, timeliness, and controlled sampling. A drawback of online surveys could be low response rates because of perceptions of spam email (Evans & Mathur, 2018). The survey, which was self-administered, included the reason and purpose for the study, items or questions, and clear directions to participants. Participants could exit the survey without completion or submission (Evans & Mathur, 2018).

SurveyMonkey was the data collection tool. Participating community colleges sent the recruitment letter and a link to SurveyMonkey to students. SurveyMonkey's logic application allows the participants to ensure inclusion criteria based on age and complete the informed

consent agreement or disagreement before entering the survey. Participants used the logic application feature of SurveyMonkey to acknowledge understanding of the participation in the survey as entirely voluntary and the protection of individual rights and confidentiality. After reviewing essential information and before entering the survey, participants were asked to provide a “yes/no” response to the consent statement to participate (see Appendix C). A response of “yes” and the completion and submission of the survey indicated consent.

The logic application and privacy features of SurveyMonkey ensured inclusion criteria based on age, informed consent, and confidentiality. SurveyMonkey dissociated and excluded participants' personally identifiable information from the results, such as name and email address. The company's anonymous response feature disables the Internet protocol (IP) address. These features caused the respondents' data in the survey to be randomly generated as Respondent #1, Respondent #2, and so forth, based on the timestamp of the submission. A generic identification allowed the identification of data without using personally identifiable information or without using actual names. After a potential participant declared 18 years of age or older and consented through the logic application of SurveyMonkey, the participant advanced to a secure online survey. The participants then answered a series of minimally relevant demographic questions, such as age and enrollment status (see Appendix E). The demographic data provided general characteristics of the sampled population of community college students.

After answering six basic demographic questions, respondents were directed to respond to six Likert-scaled questions on resilience, five items on college persistence, and one item on academic success (see Appendix E). The survey required no more than 20 minutes to complete, and participants were given ample time to finish the survey, which remained open and available to participants for four weeks. Participants were reminded of the voluntary nature of participation

in the survey and retained rights of refusal or withdrawal to refuse or withdraw from the study. Participants received information on the option to exit anytime if discomforted by the questions (see Appendix C). The logic application of SurveyMonkey exited participants who neither indicated 18 years of age nor consented to participation. Participants agreed results of the study could be published without participants' names or institutional affiliations. Respondents exited the study when the survey was completed and submitted.

Instrumentation

The survey instrument collected demographic data and college students' responses to questions on resilience and persistence. Participants reported overall grade point average (GPA) on a continuum within 0.00 to 4.00, representing Variable #1, academic success. SurveyMonkey compiled the results based on responses to Likert scale questions. Questions from the two inventories were used to construct resilience and persistence (see Appendix E), treated as approximations of continuous variables (Norman, 2010). The Brief Resilience Scale (BRS) was assessed resilience, Variable #2, conceptualized as adaptation to stress and recovery (Smith et al., 2008), and measured as a summed total score of responses. The College Persistence Questionnaire (CPQ) assessed students' persistence toward completion (Davidson et al., 2009), Variable #3, measured as a summed score of responses.

Academic Success

Consistent throughout the literature on academic achievement, overall grade point average (GPA) was used as the variable for academic success (David et al., 2013; Yu, 2017). Participants reported overall grade point average (GPA) on a continuum within 0.00 to 4.00. Participants' self-reported overall academic grade point average (GPA) represented academic

success in the quantitative correlational study. York et al. (2015) reported the consistent use and validity of GPA on a 4.00 scale to measure academic success.

Brief Resilience Scale

The Brief Resilience Scale (BRS), developed by Smith et al. (2008), consists of six close-ended items and creates a score to assess individuals' ability to recover from stressful circumstances. Participants were asked to indicate the degree of agreement with six statements. Responses range on a five-point Likert scale (from 1=*strongly disagree* to 5=*strongly agree*) (Develos-Sacdalan & Bozkus, 2018). Three items are reverse coded based on the wording of the statement. Smith et al. (2008) documented the reliability ($\alpha=.85$) and the scale's convergent and discriminant predictive validity. Resilience was calculated as a summed total score of responses and identified as Variable #2. Higher scores indicate greater resilience.

College Persistence Questionnaire

The College Persistence Questionnaire (CPQ), developed by Davidson et al. (2009), consisted initially of 50 close-ended items across six subcategories: *academic integration*, *social integration*, *social support satisfaction*, *degree commitment*, *institutional commitment*, and *academic conscientiousness*. The instrument's developer identified the minimal number of valid questions across all the subcategories, which have demonstrated reliability and validity across multiple studies, to establish the predictive validity of persistence. Davidson et al. (2015) reported the minimal use of three to five items to predict persistence and identified the five items on the scale which should be used to measure persistence.

The research study used the five questions identified by Dr. Davidson to create a variable for college persistence, identified as Variable #3 in the study. Participants indicated degrees of agreement with statements using a six-point Likert scale. A score for persistence was calculated

in line with the developer's scoring instructions. To calculate an overall score for college persistence, the sum of self-reported favorability values was divided by the number of answered questions (Davidson et al., 2009), constituting the variable persistence. The scale has demonstrated construct validity with a Cronbach's alpha of 0.88 and convergent and discriminant predictive validity in multiple studies (Davidson et al., 2009; Garcia-Rios et al., 2019).

Permission for Use

The Brief Resilience Scale (BRS) with documented reliability and validity was in the public domain and can be used for research in education with proper citation and acknowledgment of the developers (Smith et al., 2008). Though the College Persistence Questionnaire (CPQ) was available in peer-reviewed literature, permission to use the College Persistence Questionnaire from the owner of the copyright, Dr. William Davidson, Professor Emeritus at Angelo State University, was obtained (see Appendix D). Granting permission, Dr. Davidson provided scoring instructions for the five items with six choices along a Likert scale continuum. With the omission of the "not applicable" choice from data analysis, other choices are converted to a five-point favorability score, based on whether the response indicates a positive or negative attribute related to the college students' experience (+2 = *very favorable*, +1 = *somewhat favorable*, 0 = *neutral*, -1 = *somewhat unfavorable*, -2 = *very unfavorable*).

Since the study's design was to determine the correlation between resilience, persistence, and academic success, two Pearson correlations were used for analysis. While Pearson correlations require continuous data (Jamieson, 2004), Variables for resilience and persistence in the study were created from Likert scales yielding ordinal data. Scores from the scales represented approximations of continuous data (De Winter & Dodou, 2010; Sullivan & Artino,

2013; Zumbo & Zimmerman, 1993). Norman (2010) and De Winter and Dodou (2010) contended the use of ordinal data in Pearson correlations neither violates the basic assumptions of the statistic nor diminishes the power of the statistic. In the study, a Pearson correlation was utilized to assess the strength of a correlation between academic success and the resilience variable, treated as an approximation of a continuous variable. A second Pearson correlation was applied to ascertain the association between persistence, treated as an approximation of a continuous variable, and academic success.

Data Collection

Once the logic application of SurveyMonkey advanced participants, quantitative and descriptive data used for the quantitative correlational study were drawn all at once from participants' self-reported responses to the online survey. Basic demographic data were collected. Participants were presented with a series of statements or questions (see Appendix E) in an online survey. Questions from reliable and validated scales were used for the construction of variables for resilience and persistence. Participants self-reported the overall grade point average (GPA) on a continuum of 0.00 to 4.00, representing Variable #1, academic success. Consistent throughout the literature on academic achievement, overall grade point average (GPA), reported on a 4.00 scale, is a continuous variable for academic success (David et al., 2013; York et al., 2015; Yu, 2017).

Data from the online survey instrument were exported to Excel. With anonymized data from SurveyMonkey, the first column of data indicated Respondent #1, Respondent #2, and so forth. All responses and variables were systematically documented on the Excel spreadsheet. The study did not identify subjects directly (Electronic Code of Federal Regulations, 2018). No personally identifiable data were included in the spreadsheet. The Excel data file was stored in a

password-protected and secure storage device, accessible only to the researcher, and will be deleted ten years of the completion of research per federal regulations (Electronic Code of Federal Regulations, 2018).

Data on the secure Excel spreadsheet were screened for missing data and cleaned with listwise deletion. Screened and cleaned data from the Excel data file was imported or entered from the Excel spreadsheet to the latest Statistical Package for Social Sciences (SPSS), version 26.0. SPSS was used for descriptive and correlational analyses. Electronic data containing SPSS data files were stored in a password-protected external storage device accessible only to the researcher and deleted ten years of completion of research per federal regulations (Electronic Code of Federal Regulations, 2018).

Data Preparation

Data management is a significant step in the data analysis process (Creswell & Creswell, 2018). Missing data present challenges for research and poses a threat to validity and reliability. Missing data could occur because a participant refuses or forgets to answer a question or when the instrument demonstrates skip patterns for certain types of questions (Kwak & Kim, 2017). Efforts to determine why the data were missing were asserted, and patterns of missing values were reported. Missing data were screened, and decisions about how to best handle the missing values were carefully decided. Listwise deletion was employed to minimize the effect on estimation and parameters of statistical analysis. Missing data and outliers compromise statistical power and influence the reliability of results, and listwise deletion was used (Kwak & Kim, 2017).

Listwise deletion was the ad hoc method to deal with missing data before any analyses. A straightforward method of dealing with missing data, listwise deletion, or complete-case analysis

removed incomplete records with missing data on any variable (Kwak & Kim, 2017).

Determination of the use of listwise deletion of records with incomplete data was based on sample size and response rate to limit any effect on statistical power and risk of bias if there was a pattern of missing data.

Construction of the Variables

After screening and cleaning the data, variables for the study were constructed. The study proposes three variables: (1) academic success, (2) resilience, and (3) persistence. Variable #2 represented resilience, measured as a summative score of six items. Variable # 3 for persistence was calculated as the sum of self-reported favorability values divided by the number of answered questions (Davidson et al., 2009) to create a college persistence score. Variables were constructed from Likert-type questions from two inventories and treated as approximations of continuous variables (De Winter & Dodou, 2010) and measured as summative scores.

Academic Success (Variable #1)

Established in the literature on college persistence was the operationalization of academic success as a cumulative or overall GPA (David et al., 2013; Saunders-Scott et al., 2018; Van Rooij et al., 2018). In the analysis, Variable #1 reflected community college students' self-reported cumulative or overall GPA. Participants self-reported GPA on a continuum within a range of 0.00 to 4.00, constituting a continuous variable, indicating a measure of academic success (York et al., 2015). While there may be bias associated with self-reported GPA, York et al. (2015) reported the consistent use and validity of GPA as a measure of academic success. In the study, self-reported overall grade point average on a 4.00 scale constituted a proxy variable for academic success.

Resilience (Variable #2)

Before the creation of Variable #2 for resilience, three items were reverse-coded. The Brief Resilience Scale (BRS) contains six items, three positively and three negatively worded items. Three items were reverse coded in the dataset before analysis (Smith et al., 2008). Calculation of a summative score to represent resilience was performed following the instructions of the instrument's developers.

Each statement is scored from 1 (*strongly disagree*) to 5 (*strongly agree*), and responses vary across all six items. The total sum of the six responses ranged from six to 30. In line with the instrument's instructions, the total sum was divided by the number of questions answered, producing a score for resilience. The mean score was used in the creation of an overall score presenting the variable for resilience. The six items of the BRS and the items which require reverse coding (Smith et al., 2008) are presented in Table 1 in Appendix F.

Persistence (Variable #3)

In the study, persistence was Variable #3. A variable for persistence was created in accord with the instructions of the developers of the instrument. The study used five identified close-ended items to create the variable for college persistence. Setting the minimum number of items as three to five improves the reliability of the score (Davidson et al., 2015). Similar to the content of the questions, answer choices differed across the five items. All the questions were ordered along a Likert scale continuum. Participants were asked to indicate the degree of agreement with statements on a six-point Likert scale, where the sixth option represented "Not Applicable," and was considered missing data and omitted from the calculation.

Other responses were converted to a five-point favorability score, based on whether the response indicated something positive or negative about students' experience. Items were scored

from -2 (*least favorable answer*) to 2 (*most favorable answer*). Two of the five items were reverse worded and were converted to the appropriate favorability value.

To calculate an overall score for college persistence, the sum of self-reported favorability values was divided by the number of answered questions (Davidson et al., 2009), constituting the variable persistence. The range of mean values was between +2 and -2. Items for the calculation of a persistence score are displayed in Table 2 (see Appendix F). Pearson bivariate correlations were performed to determine the degree of relationship or association between the variables of resilience and persistence and academic success, termed success (Creswell & Creswell, 2018).

Data Analysis

The purpose of the data analyses in the quantitative correlational study was to examine statistically significant relationships and determine the degree to which resilience or persistence correlated with academic success. In the study, academic success was a self-reported continuous variable. Quantitative data from two instruments constructed the variables for resilience and persistence. Following the cleaning or removal of missing data to verify no missing values and to minimize harm to the output, the Pearson correlation coefficient examined the relationship between the two sets of variables: (a) resilience and academic success and (b) persistence and academic success (Gravetter et al., 2020). The results were used to address the hypotheses for the two research questions guiding the study.

Descriptive Analyses

Descriptive statistical analyses were performed on the sample to attain a clear understanding of the population. Minimally relevant demographic information was collected in the survey. Participants were asked to self-report gender, employment, and enrollment status, such as full-time or part-time. Measures of central tendencies, such as means, standard deviations, and percentiles, were computed, descriptively summarized, and presented to describe the sample population of community college students. Mean scores for the variables were descriptively presented to describe the sample population in the study.

Assumptions of Pearson Correlations

The quantitative study utilized the Pearson correlation, which requires no violations of basic assumptions for the statistical test. Parametric data make certain assumptions about the population for inferences to be made confidently (Gravetter et al., 2020). Pearson correlations are no different. Schober et al. (2018) qualified inferences about the strength of association between pairs of data in the population from which the data were sampled. Data came from a random or representative sample, targeting community college students. The study employed a sampling strategy to collect data from a minimum of 136 community college students in Appalachia, promoting representativeness and generalizability.

Other assumptions for the Pearson product-moment correlations were (1) level of measurement, (2) related pairs or data points, (3) absence of outliers, (4) normality, and (5) linearity (Laerd Statistics, 2020; Schober et al., 2018). The level of measurement refers to the nature of the variables. Pearson correlations require the use of continuous variables. In the study, ordinal data from Likert-type scales were used as approximations of continuous data. The use of ordinal data as continuous data in parametric analyses is well documented in the literature

(Norman, 2010). For Pearson correlations, participants possessed related pairs of values. The present study addressed missing data to address related pairs of values for each participant.

Pearson correlations assume the absence of outliers in the data (Schober et al., 2018). Outliers increase variability in the data (Gravetter et al., 2020). In the study, ordinal items were calculated as summative scales, creating a continuous variable, following the data screening. The use of a scale minimized univariate outliers, as responses were limited to the ordered categories. A calculated score for the approximation of a continuous variable was created. In the study, the use of scatterplots, demonstrating linearity and homoscedasticity, supported a Pearson correlation for the related pairs.

While the assumptions of data for parametric statistics were a concern, Havlicek and Peterson (1976) found Pearson r is insensitive to extreme violations of the basic assumptions of normality and the type of measurement scale, such as ordinal Likert scales. Failure to meet the basic assumptions of the parametric statistic, individually or in a combination of assumptions, yielded a negligible effect on the distribution of r (Havlicek & Peterson, 1976). Norman (2010) characterized the assumptions of parametric analyses as heroic and yielding insignificant impact when violated. Citing Pearson (1931), Norman (2010) concluded parametric tests were robust for highly skewed non-normal distributions and small sample sizes. The study sampled a minimum of 136 community college students and constructed the variables with summative scores across all Likert items in the Likert scale. A Shapiro-Wilk statistic was performed using SPSS to assess the normal distribution and bivariate normality in the study. The Shapiro-Wilk statistic, appropriate for smaller sample sizes, served as a numerical means to assess normality (Laerd Statistics, 2020). Skewness and kurtosis were assessed to determine normal distribution (Laerd Statistics, 2020).

Concern for Use of Ordinal Likert Scales

Scholars disagree about using Likert data for parametric statistical analyses, such as bivariate correlational analyses (De Winter & Dodou, 2010). Debate exists on whether Likert-type data violates basic assumptions about the data. Likert-type data are ordinal because the scales consist of a series of ordered categories. Opponents to the use of ordinal data from Likert-type scales cite concerns about discrete ordinal levels with anchored ranges (Jamieson, 2004) and the effects of the use of ordinal data on analysis. Norman (2010) characterized the use of ordinal data in parametric statistical analyses as errant because of violations of the assumptions of normality in the sample. When participants' responses swayed toward the higher or lower anchors in ordinal scales, there could be issues with the normal distribution of the data (Jamieson, 2004; Norman, 2010; Schober et al., 2018) and non-linearity. Jamieson (2004) contended any correlation methods with ordinal data would be invalid because of violations of normality assumptions based on distortions in the distribution.

Another concern with the use of ordinal data in the parametric analysis is the power of the parametric test. Parametric tests are more powerful, exhibiting lower Type II errors (De Winter & Dodou, 2010), leading to a misinterpretation of the significance of the findings (Creswell & Creswell, 2018) in parametric tests like Pearson correlations. Erroneous conclusions and robustness are concerns when unknown is the value between intervals of response categories of the Likert-type scale (Norman, 2010).

Justification for Use of Ordinal Data as Continuous Data

Despite concerns associated with the use of ordinal data in the construction of continuous variables, well-documented in the literature were justifications for using Likert-type data (De Winter & Dodou, 2010; Norman, 2010). Although Likert-type scales were technically ordinal

and consisted of a series of ordered categories, Likert-type data can be used in parametric statistical analyses, such as Pearson correlations. Responding to Jamieson (2004), Carifio and Perla (2008), as referenced in Norman (2010), challenged the logical prohibition of the use of ordinal data in parametric statistics. While Likert-type questions or items are ordinal, which could be individually extreme, Likert scales consist of a sum of a series of items (Zumbo & Zimmerman, 1993), yielding interval data, as some researchers described as the approximation of continuous data (Sullivan & Artino, 2013). The study relied on a summative calculation of responses to items with reliable and valid scales. A resulting value was an approximate continuous variable (Norman, 2010).

The study used a reliable and valid scale for college persistence with six Likert categories and a reliable and valid scale for resilience with five Likert categories. While scholars in support of the use of ordinal data for parametric analyses advocate for Likert-data with a minimum of seven points (Norman, 2010), De Winter and Dodou (2010) concluded parametric and nonparametric statistical analysis yielded similar power with five-point Likert items and detected significant differences at the $\alpha = .05$ level in small sample sizes. Norman (2010) compared data analyses with parametric and non-parametric statistics and found a virtually identical correlation, irrespective of the statistic used, in non-normal and skewed data. De Winter and Dodou (2010) determined the discussion between parametric and nonparametric analyses with ordinal data unnecessary.

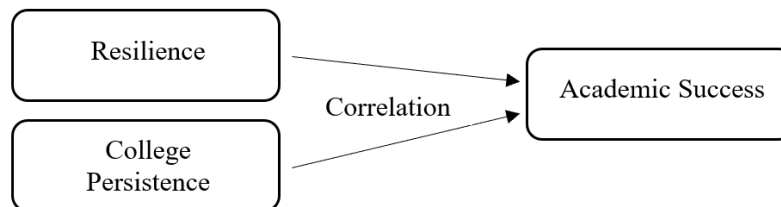
Analytical Strategy

A Pearson product-moment correlation (PPMC) coefficient was calculated to determine the strength of a statistically significant relationship between Variable #2, resilience, and Variable #1, academic success. Another Pearson correlation coefficient was calculated to

determine the strength of a statistically significant relationship between Variable #3, college persistence, and Variable #1, academic success. Two Pearson correlations indicated the relationship, if any, between the variables, resilience and persistence, and academic success. The hypothesized relationships between Variable #1, Variable #2, and Variable #3 are depicted in Figure 2.

Figure 2

Depiction of the Relationship between Resilience, College Persistence, and Academic Success, measured as Overall GPA



The dataset for the quantitative correlational study consisted of three variables: (a) resilience, (b) persistence, and (c) academic success. Two separate bivariate correlations were performed to calculate the Pearson correlation coefficients and determine any statistically significant correlations between the variables. The Pearson correlations were completed in SPSS by selecting the bivariate correlations dialog box and selecting Analyze, Correlate, and Bivariate in sequential order.

Variables were inputted and analyzed using the Pearson correlation with a two-tailed test of significance. A standard alpha level was used ($\alpha = 0.05$) for all statistical testing with a 95% statistical chance of demonstrating the relationship between resilience, college persistence, and academic success. Data analysis was completed using the data output demonstrating the Pearson correlation coefficient and *p*-value. To determine statistical significance, the *p*-value is compared

to the alpha level of .05, and when the p -value is less than the alpha level, the relationship would be significant (Gravetter et al., 2020). The value associated with Pearson r can range from +1 to -

1. Relationships between variables are stronger as the coefficient value approaches ± 1 . A coefficient value of 0 indicates no linear relationship between the two variables (Salkind & Shaw, 2019).

Resilience and Academic Success

In the dialog box of SPSS, the variables resilience and success were added to the list of variables for analysis. A Pearson correlation coefficient was selected with a two-tailed test of significance. The output for the computation included a Pearson correlation coefficient, $r_{(\text{resilience, success})}$, and a p -value. A p -value of less than or equal to the alpha value of .05 indicated a statistically significant association between resilience and academic success (Creswell & Creswell, 2018). While a statistically significant linear relationship between resilience and academic success may be indicated, a causal relationship was not inferred (Laerd Statistics, 2020; Price et al., 2013).

Persistence and Academic Success

A second Pearson correlation analysis was performed to assess an association between persistence and success. In the dialog box of SPSS, the variables persistence and success were added to the list of variables for analysis. A Pearson correlation coefficient was selected with a two-tailed test of significance. The output for the computation included a Pearson correlation coefficient, $r_{(\text{persistence, success})}$, and a p -value. A p -value of less than or equal to the alpha value of .05 indicated a statistically significant relationship between persistence and academic success (Creswell & Creswell, 2018). While a statistically significant linear relationship between

persistence and academic success may be indicated, a causal relationship was not inferred (Laerd Statistics, 2020; Price et al., 2013).

Although the *p*-value does not provide certainty, the value describes probability and a measure of confidence (Gravetter et al., 2020). The correlation coefficients reflected any statistically significant linear relationship between the variables of (1) resilience and academic success and (2) persistence and academic success. The correlational study was not designed to interpret any statistically significant relationship as a definitive causal association between resilience or persistence and academic success (Creswell & Creswell, 2018).

Reliability and Validity

Reliability and validity in a quantitative study rely on consistency and the degree to which a concept is measured (Creswell & Creswell, 2018; Gravetter et al., 2020). The quantitative correlational study sampled students to report on resilience, persistence, and success. Self-selection to participate determined the sample population. Participants completed an online survey delivered through SurveyMonkey within an open period of 4 weeks.

The solicitation of permission from colleges within the Community and Technical College System (CTCS) promotes objectivity. A ninth community college within the system, at which the researcher is employed, was not solicited for site permission to limit undue influence and bias, remove any conflicts of interest, and minimize threats to objectivity. Participants and higher education leaders within the CTCS had access to the results of the study, promoting transparency and minimizing any threats to objectivity. Participants, surveyed through a secure SurveyMonkey survey, self-selected and provided anonymous data, maintained and secured to safeguard participants' confidence and protect privacy (Creswell & Creswell, 2018). Self-

selection promotes randomization and minimizes predisposition, so characteristics have the probability of distribution throughout the sample (Sharma, 2017).

Content validity and construct validity are well documented in previous studies. The Brief Resilience Scale (BRS) was used to assess the factor of resilience (Smith et al., 2008). With a Cronbach's alpha of 0.95, the scale has demonstrated internal consistency and reliability. The scale has demonstrated convergent and discriminant predictive validity, assessing the ability to recover or adapt to stress, and demonstrates a test-retest of $r=.87$ (Smith et al., 2008). The College Persistence Questionnaire (CPQ) has demonstrated construct validity with a Cronbach's alpha of 0.88 and convergent and discriminant predictive validity in multiple studies (Garcia-Rios et al., 2019). The test-retest for the CPQ is well documented with a score of $r=.87$ (Davidson et al., 2009).

The reliability and validity of data depended on careful attention and analysis. Verification of data exports to Excel and imports to SPSS were carefully reviewed. After analysis in SPSS, re-analysis was performed in SPSS and Excel to verify and confirm data output for reliability and consistency. The use of SPSS supported the data analysis of the present research study (Bala, 2016; Creswell & Creswell, 2018).

External Validity

Generalized conclusions affect external validity (Creswell & Creswell, 2018; Laerd Statistics, 2020). The sample size of rural community college students referred to the self-selected participants among the target population. Results of the sample population were generalized if related to the overall population (Creswell & Creswell, 2018).

Internal Validity

Threats to internal validity occur when there is a manipulation of the variables. Internal validity focuses on the causal relationship between the independent and dependent variables (Creswell & Creswell, 2018). The present study was a correlational design to explore statistically significant associations between variables and not infer causality. There was no influence or control over self-reported data in the present study. In contrast, to mean imputation, listwise deletion was used for missing data not to influence the variables (Gravetter et al., 2020).

Ethical Procedures

The Code of Federal Regulations from the Department of Health and Human Services, concerning the Protection of Human Subjects, regulated and guided the study (U.S. Department of Health and Human Services [DHHS], 2009). All human subjects who participated in the study were treated equitably and with attention to the basic principles of ethics: beneficence, justice, respect, and autonomy (U.S. DHHS, 2009). Before the commencement of data collection, approval for the study was obtained from the Institutional Review Board (IRB) of the American College of Education (ACE) and was presented in the Appendices.

Requests to collect data on community college students in Appalachia were forwarded to colleges within the Community and Technical College System (CTCS) in Appalachia to solicit site permission (see Appendix A). The IRB approval from ACE with a disclosure of the study's purpose was provided in a formal letter to the community colleges. The researcher's role in community college administration excluded the college of employment from the sampling strategy to remove potential conflicts of interest or bias and promote objectivity. Once IRB approval was granted by the American College of Education and any sites, participants were recruited with a recruitment letter (see Appendix B) for participation in the study and notified of

the benefits of the research. The benefits of the study to examine associations between resilience or persistence and academic success were discussed in the recruitment letter (see Appendix B).

Potential participants in the sampled population were provided an informed consent outlining the study's purpose, research questions, brief descriptions of the research design and procedures, selection process for participants, statements on voluntary withdrawal and confidentiality, and summaries of possible risks and benefits for participants and higher education leaders (see Appendix C). Participation and completion of the online survey designated consent and agreement to publish results without using participants' names or institution of enrollment. Maintenance of confidentiality and anonymity were maintained throughout the research study.

To protect the participants, identifiable information which neither allowed for the identification of participants nor the participants' home institution was not gathered in the survey. Personal identifiers were left out of the data collection process. SurveyMonkey contains a logic application, which enables the exclusion of participants' personal information, such as names, email addresses, and internet protocol (IP) addresses. SurveyMonkey automatically and randomly identified participants as Respondent #1 and so forth, enabling a generic respondent identifier without using personally identifying information, such as name. The logic application of SurveyMonkey maintained the anonymity of participants and responses.

Before voluntarily participating in the study and collecting any data, each respondent reviewed and completed an informed consent agreement or disagreement (see Appendix C). The logic application within SurveyMonkey supported participants' acknowledgment of participation in the survey as entirely voluntary and guaranteed the respondent's autonomy and right to

privacy or anonymity. Participants were reminded participation in the survey was wholly voluntary and retained refusal and withdrawal rights.

Data were collected in a secure web-based survey. At the end of the survey window of 4 weeks, the data were downloaded to an Excel spreadsheet and secured on a password-protected laptop computer. Data uploaded to SPSS, including the SPSS datasets, were secured on a password-protected storage platform, such as a cloud-based or encrypted external storage device, only accessible to the principal researcher. All data files were stored securely for 10 years from the conclusion of the research study and were deleted per federal regulations (Electronic Code of Federal Regulations, 2018). Data disposal protected any identities and maintained confidentiality.

Chapter Summary

Nationally, less than one in three college students persist and complete higher education (Fong et al., 2018). In Appalachia, community college students, presented with academic, social, and economic challenges, are faced with even higher rates of non-completion (Hlinka, 2017). Despite these lower rates, some college students adapt or persist, supporting academic success. Chapter 3 details the study's methodology to explore associations between students' resilience, persistence, and academic success within rural Appalachia.

The correlational study's purpose was to determine the correlations between resilience, persistence, and success in a conveniently sampled population of community college students in rural Appalachia. Resilience, conceptualized as the ability to adapt to stress, was measured with six items (Smith et al., 2008). College persistence was measured with five items (Davidson et al., 2015). Academic success, measured as self-reported GPA on a 4.00 scale, was a third variable, identified as Variable #1. The results of the analysis either supported or rejected the null

hypotheses, using a significance level of 0.05. The focus was to obtain a significant result ($p < 0.05$). Two Pearson correlations were performed to determine statistically significant relationships between (a) resilience and academic success and (b) persistence and academic success.

Outlined were the methods by which the study was conducted, including the rationale and appropriateness of the selected quantitative correlational design, the target population and the sampling frame and strategy, the method of data collection, and the analytical strategy to determine the degree of relationship between the variables. The study intended to contribute to the research literature on persistence, focusing on non-traditional aged community college students in rural Appalachia to explore the associations between resilience, persistence, and academic success. In Chapter 4, the findings of the data analysis are presented and discussed.

Chapter 4: Research Findings and Data Analysis Results

Community college students' retention is a priority for higher education institutions. While completion rates fall below the national average in rural Appalachia (Appalachian Regional Commission, 2020), some community college students persist and academically succeed. The purpose of the nonexperimental, quantitative correlational study was to determine the relationship between the resilience and college persistence of nontraditional aged community college students in rural Appalachia and academic success.

The study examined the relationship between the resilience, persistence, and academic success of nontraditional aged community college students in rural Appalachia. Concern for the completion and academic success of rural community college students, faced with economic and academic challenges, prompted the research study. The exploration of nontraditional students' promotive factors like resilience and persistence yielded implications for higher education leaders. Two research questions guided the study: (1) What is the significant relationship between resilience and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia and (2) What is the significant relationship between persistence and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia. In the study, Variable #1 represented academic success. Variable #2 and Variable #3 constituted resilience and persistence, respectively. The relevance and assumptions of a Pearson product-moment correlation to determine the significance of relationships between variables are detailed below.

Within Chapter 4, the findings of data collection and analysis are presented. The statistical analysis addressed the two research questions. Major sections reviewed in the chapter

are the results of the research and the analysis of the findings. The chapter concludes with a summary of the key findings of the study.

Data Collection

Upon IRB approval on February 26, 2021, the process to determine the target population to obtain a sample population of community college students in rural Appalachia commenced. All requirements for the study from the American College of Education's Institutional Review Board (IRB) were abided by throughout the research process. The purpose of the IRB is to protect human subjects to ensure minimal risk for participants (Creswell & Creswell, 2018). Protocol to protect human subjects was strictly followed.

Site permission was obtained from the gatekeepers at community colleges in rural Appalachia (see Appendix A). With IRB approval for the study, a copy of the approval letter (see Appendix H) and the recruitment letter (see Appendix B) was sent to each community college, which granted permission to collect data. A ninth community college was not targeted because of a potential conflict of interest. The sites, which required only the IRB approval of the American College of Education, forwarded the recruitment letter and flyer to enrolled community college students.

Participating sites emailed the invitation with a link to the survey to students; no direct solicitation of participation or involvement at the sites occurred. A second sampling strategy was used to recruit community college students within the state of Appalachia to participate in the study. A recruitment flyer with information (see Appendix B) was posted on social media, such as Facebook and LinkedIn, boosted within regions of the eight community colleges within the state, and directed participants to the SurveyMonkey survey. The survey remained available for the IRB-approved 4-week data collection window.

Target Population

The target population for the study consisted of community college students enrolled in rural Appalachia. A higher education council for the state within Appalachia reported 24,843 enrolled community college students, representing the potential target population (West Virginia Community and Technical College System, 2020). In the state within Appalachia, community college students aged 24 years or older comprised a potential pool of 11,089 students (44.6%) across eight community colleges. The ninth college was not targeted because of a potential conflict of interest.

Sample Population

Obtaining the sample population occurred within the participating community colleges, which granted permission to conduct the study. After obtaining IRB approval, a follow-up email was sent to the gatekeepers of each site (see Appendix J). The email contained attachments of the IRB approval letter (see Appendix H), the recruitment flyer (see Appendix B), and a copy of the informed consent, outlining the benefits of the research study (see Appendix C). Sites were respectfully asked to distribute the recruitment letter to enrolled community college students with a four-week window to collect data (see Appendix J). After 2 weeks, sites were gently reminded with an email prompt for distribution. The community colleges distributed the recruitment flyer to enrolled students. There was neither interaction with participants nor the solicitation of email or IP addresses in collecting data. A general social media post with the recruitment flyer, boosted in regions of community colleges in Appalachia, remained open for the IRB-approved timeframe for sampling.

At the close of 4 weeks, a sample size of 212 community college students was achieved. The generation of an initial email invitation to students by the participating institutions, a gentle

reminder at the two-week mark (see Appendix J), and a social media post for 4 weeks were sufficient to achieve the minimal sample size of $n > 123$ (see Appendix G). The survey reached an 86.8% total completion rate ($n = 184$).

Informed Consent

After reviewing important information and before entering the survey, participants were asked to respond to the consent statement to participate: "By clicking yes, I acknowledge I am at least 18 years of age, enrolled in a community college, and consent to participate voluntarily in the study." A response of "yes" and the completion and submission of the survey indicated consent. The survey was designed to document the participants' consent to participate in the study. The informed consent and recruitment flyer indicated participation was voluntary. The column labeled CONSENT reflected participants' consent in the dataset, verified by the dissertation committee chair (see Appendix I).

Participants who did not consent were advanced to the exit page of the survey. The logic application of SurveyMonkey exited participants who did not consent. Documentation of consent or non-consent appeared in the dataset column labeled CONSENT. There were zero "no" responses. Of the 212 participants, 11 consented to participate but failed to complete and submit the survey. No information about the 11 respondents was available because participants could exit or withdraw from the survey at any time.

Exclusion Criterion and Missing Data

Following the IRB-approved four-week window for data collection, the sample size obtained from the target population of community college students within the state in rural Appalachia was 212. Since the purpose of the study was to explore the relationship between resilience, persistence, and academic success of nontraditional aged community college students

in rural Appalachia, participants less than 24 years of age ($n = 61$) were sorted and deleted from the dataset.

Participants with missing data were excluded. Four participants partially completed the survey and submitted it, resulting in missing data and the listwise deletion of cases. Following the application of exclusion criteria and the listwise deletion of cases with missing data, the sample size obtained from the target population for the study was 136 participants ($n = 136$), surpassing the minimal sample size of 123, as determined with G*Power software (see Appendix G). 136 nontraditional aged community college students ($n = 136$) constituted the final dataset. Statistically, for a good correlational study, a sample size of 20 or more ($n > 20$) is needed (Gravetter et al., 2020).

Construction of Variables

The dataset consisted of six demographic questions with columns labeled AGE, GENDER, GPA, ENROLL, CREDITS, and EMPLOY. The dataset included six items on resilience, labeled RES1 to RES6. On the six items, respondents were asked to indicate the degree of agreement with the statements. Responses ranged from 1 = *strongly disagree* to 5 = *strongly agree*. RES2, RES4, and RES6 were reverse coded based on the wording of the statements (see Appendix F). For analysis, another column, labeled RESILIENCE_V2, was created to represent the calculated, summed total score for resilience, Variable #2. Generally, higher scores represented greater resilience.

The dataset included five items on college persistence, labeled PERSIST1 to PERSIST5 (see Appendix F). A persistence score was calculated according to the developers' scoring instructions (Davidson et al., 2009). An additional column was added to create a score, labeled PERSISTENCE_V3, to represent Variable #3. For participants, a sum of favorability values,

ranging from +2 to -2, was divided by the number of questions to create the variable for persistence, Variable #3. The last column in the dataset represented self-reported GPA, reported on a scale of 0.00 to 4.00, creating a continuous variable for academic success, Variable #1.

Once data were collected and organized in the Excel spreadsheet, data analysis was initiated. In the study, the variables of interest were resilience, Variable #2, persistence, Variable #3, and academic success, Variable #1. The Excel spreadsheet, stored securely on an external hard drive, was used for data analysis in the Statistical Package for Social Sciences (SPSS), version 26.0.

Demographic Characteristics of Sample

Descriptive statistics of the sample and variables for resilience, persistence, and academic success were analyzed. The sample size for the study consisted of 136 nontraditional aged community college students in rural Appalachia, randomly sampled from community colleges within a state in Appalachia. Excluding participants aged less than 24 years of age, the sample size was comprised of students aged: 27.2% ($n = 37$) 24 to 27 years, 38.7% ($n = 39$), 30 to 39 years, 32.4% ($n = 44$), 40 to 49 years, and 11.8% ($n = 16$) over 50 years. Females in the sample represented 59.6% ($n = 81$) of the participants and males represented 40.4% ($n = 55$) of the participants.

Full-time enrolled community college students represented 74.3% ($n = 101$) of the sampled population. When asked about employment status, 36% ($n = 49$) of respondents reported full-time employment, and 36.8% ($n = 50$) of students indicated part-time employment. Respondents who completed more than 33 credit hours of coursework, marking the halfway point of a two-year degree of 60 credit hours, represented 40.4% ($n = 55$) of participants.

Frequency demographics, which represented the sample and were collected from the basic demographic questions in the survey, are displayed in Table 1.

Table 1

Frequency Data Describing the Sample

		N	%
Age			
	24-27 years	37	27.2
	30-39 years	39	28.7
	40-49 years	44	32.4
	≥ 50 years	16	11.8
Gender			
	Female	81	59.6
	Male	55	40.4
GPA			
	1.5 to 2.4 (C) or mostly Cs	9	6.6
	2.5 to 3.4 (B) or mostly Bs	46	33.8
	3.5 to 4.0 (A) or mostly As	81	59.6
Enrollment Status			
	Full-time (12 or more credit hours)	101	74.3
	Less than full-time (1-11 credit hours)	35	25.7
Credit Hour Completion			
	0 to 8 credit hours (up to 2 classes)	8	5.9
	9 to 15 credit hours (3 to 5 classes)	10	7.4
	16 to 24 credit hours (6 to 8 classes)	30	22.1
	25 to 33 credit hours (9 to 10 classes)	33	24.3
	More than 33 credit hours (more than 10 classes)	55	40.4
Employment Status			
	Full-time	49	36.0
	Part-time	50	36.8
	I am not presently employed	37	27.2

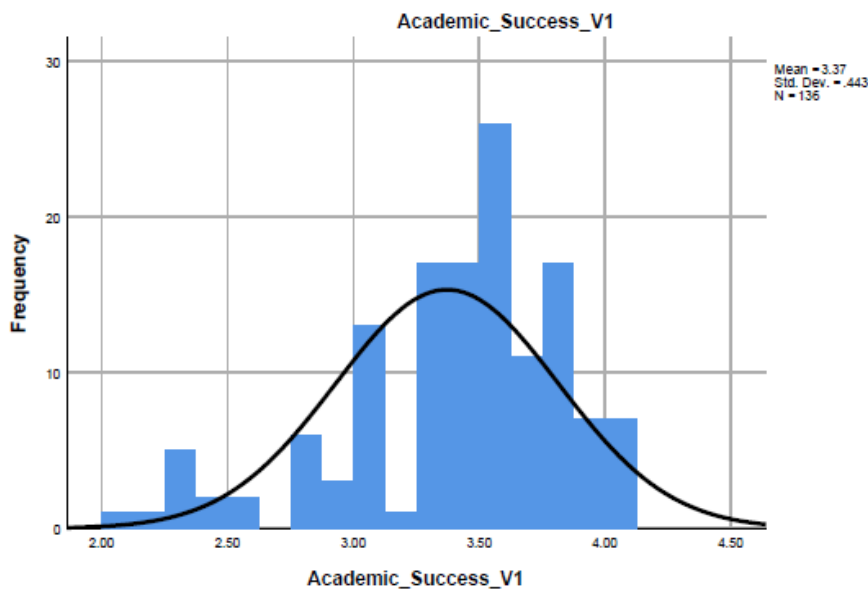
Descriptive Statistics of the Variables

The descriptive statistics for Variable #1, Variable #2, and Variable #3 were analyzed. A review of the descriptive data and data visualizations demonstrated approximate normal distributions of data for Variable #2, resilience, and Variable #3, persistence. For Variable #1, academic success, 11 outliers appeared in the dataset, $n = 136$. The histogram (Figure 3) and box plot visualization for academic success (Figure 4) revealed the presence of the outliers on the

variable for self-reported GPA. Outliers were within the range of 2.00 to 2.50, skewing the distribution of the data.

Figure 3

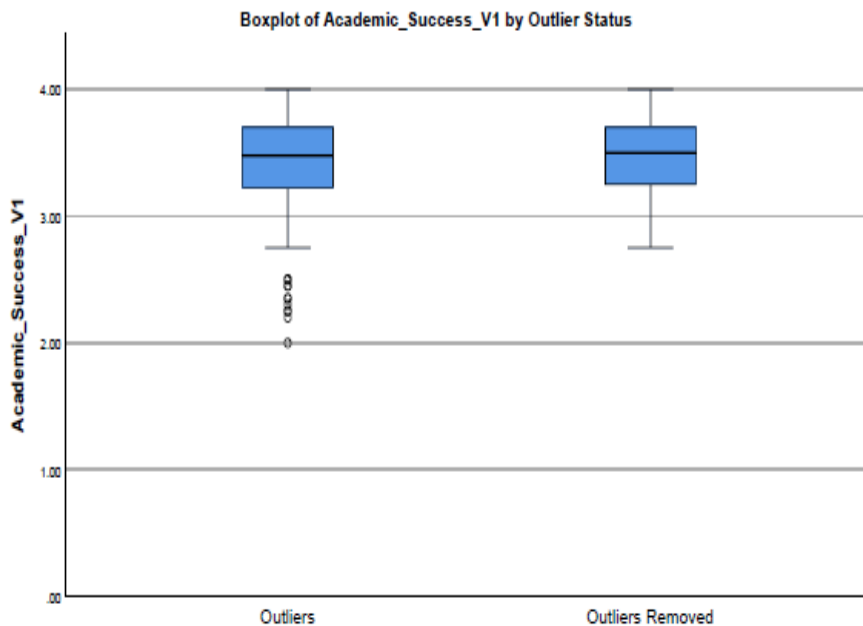
Histogram for the Academic Success of Nontraditional Aged Community College Students in Rural Appalachia with Outliers



Further review of the box plot visualization (Figure 4) demonstrated 11 outliers beyond the lower 25-percentile of the data distribution. A review of demographic data for participants, specifically the demographic question for grade point average, validated the self-reported GPAs as legitimate values, representing participants' self-reported grade point averages. Self-reported scores for academic success matched the demographic question, and the outliers were considered legitimate values (Ghosh & Vogt, 2012; Mishra et al., 2019). A decision was made to present data side-by-side, displaying datasets with and without outliers for the variable of academic success.

Figure 4

Box Plot for the Academic Success of Nontraditional Aged Community College Students in Rural Appalachia with Indicated Outliers and without Outliers



Justification for Inclusion of Outliers

In the assessment of normality, academic success presented a non-normal distribution. A review of visual representations of the data, namely the box plot and histogram, revealed the presence of 11 outliers (Figure 4). A decision not to remove outliers on academic success was considered and made for two reasons: (1) sample size and (2) insensitivity of the statistic to violations of normality (Ghosh & Vogt, 2012; Mishra et al., 2019; Norman, 2010).

Assumptions of normality are less critical in samples of $n > 25$ (Mishra et al., 2019). In the study, the sample size was greater than 25 participants, $n = 136$. Violations of normality do not significantly impact Pearson correlations (Havlicek & Peterson, 1976; Norman, 2010). Havlicek and Peterson (1976) found Pearson r was insensitive to extreme violations of the basic assumptions of normality, yielding little effect on the distribution of r . Challenging the deletion

of cases which contained outliers, Ghosh and Vogt (2012) suggested the trimming or elimination of outliers counters the basic principle of random sampling.

Ghosh and Vogt (2012) contended there is no justification for eliminating legitimate values as outliers. In the study, which yielded a medium sample size ($n = 136$), outliers for the academic success variable, Variable #1, measured as self-reported GPA, were compared to respondents' demographic questions. One demographic question prompted participants to select a category of current grade point average. Responses on Variable #1 were consistent with the demographic question, "My overall or cumulative GPA is about...". Self-reported GPA ranged between 0.00 and 4.00, skewing the upper limit of grade point average ($M = 3.37$, $SD = .44$). In the study, no eliminations or estimations for population parameters or other methods like winsorizing data were used to eliminate or replace data (Norman, 2010).

Norman (2010) characterized the assumptions of parametric analysis as heroic and yielding little impact when violated, concluding parametric analyses like Pearson product-moment correlations were robust for non-normal distributions and insensitive to extreme violations of normality. Based on sample size, insensitivity to violations of normality, and the maintenance of the representativeness (Mishra et al., 2019) of community college student's GPA, the decision to retain outliers in the study was made.

Though a decision was made to keep the outliers, based on the legitimacy of the participants' responses, there was a consideration of removing outliers. The normality of Variable #1, academic success, was presented without the outliers ($n = 125$). Testing Norman's (2010) assertion of little effect from outliers and non-normal data distributions on parametric analysis, Pearson bivariate correlational analyses on the dataset without outliers ($n = 125$) was performed after the correlational analyses on the dataset with outliers ($n = 136$).

The descriptive statistics for the variables in the study, which include the datasets with and without outliers, are presented in Table 2. Variable #1 represented academic success. Variable #2 was a score for resilience. Variable #3 constituted persistence. Mean scores (with standard deviation) for self-reported GPA were 3.37 ($SD = .44$) when outliers were included. When outliers were excluded, mean scores for academic success, measured as self-reported GPA, were 3.46 ($SD = .36$).

Mean scores for the summed scores across six items for resilience were 21.85 ($SD = 3.48$) when outliers were included. With outliers excluded, mean scores for resilience were 22.26 ($SD = 3.26$). The scores for Variable #3, persistence, were averaged across the five items ($M = 1.18$, $SD = .46$). When outliers were excluded, the mean scores for persistence were 1.20 ($SD = .44$). The descriptive statistics for academic success, resilience, and persistence are displayed in Table 2. Results for the dataset with outliers ($n = 136$) and the results for the dataset without outliers ($n = 125$) are presented.

Table 2

Descriptive Statistics of Academic Success, Resilience, and Persistence with Outliers and without Outliers for Academic Success

			With Outliers N = 136		No Outliers N = 125	
			Statistic	SE	Statistic	SE
Academic Success	Mean		3.3719	.0379	3.4638	.0291
	95% CI for Mean	Lower Bound	3.2969		3.4062	
		Upper Bound	3.4470		3.5215	
	5% Trimmed Mean		3.3999		3.4725	
	Median		3.4750		3.5000	
	Variance		.196		.1060	
	Std. Deviation		.4426		.3257	
	Minimum		2.00		2.75	
	Maximum		4.00		4.00	
	Interquartile Range		.49		.48	
	Skewness		-.969	.208	-.386	.217
	Kurtosis		-.566	.413	-.511	.430
Resilience	Mean		21.85	.298	22.26	
	95% CI for Mean	Lower Bound	21.26		21.68	
		Upper Bound	22.44		22.83	
	5% Trimmed Mean		21.85		22.28	
	Median		22.00		22.00	
	Variance		12.097		10.644	
	Std. Deviation		3.478		3.262	
	Minimum		14		14	
	Maximum		30		30	
	Interquartile Range		5		5	
	Skewness		-.098	.208	-.122	.217
	Kurtosis		-.566	.413	-.302	.430
Persistence	Mean		1.175	.0374	1.195	.0396
	95% CI for Mean	Lower Bound	1.101		1.117	
		Upper Bound	1.249		1.274	
	5% Trimmed Mean		1.172		1.195	
	Median		1.200		1.200	
	Variance		.190		.196	
	Std. Deviation		.4358		.4425	
	Minimum		.4		.4	
	Maximum		2.0		2.0	
	Interquartile Range		.8		.8	
	Skewness		.049	.208	-.028	.217
	Kurtosis		-.844	.413	-.873	.430

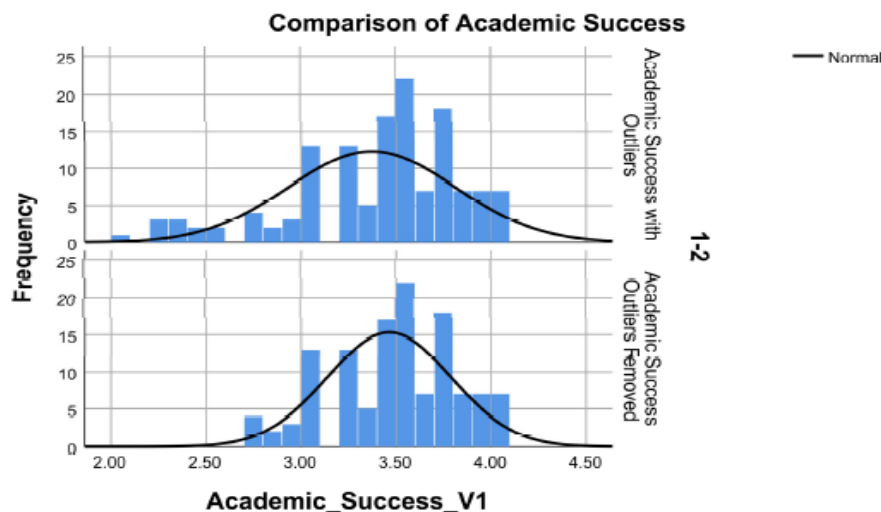
Data Visualization Comparisons

Histograms and box plots were created for the variables for academic success, resilience, and persistence. Box plots are essential for evaluating the dispersion of data across the median (Laerd Statistics, 2020). The side-by-side visualization for academic success contained data with and without outliers, as demonstrated in Figure 4. The outliers were considered legitimate and not anomalies as participants' self-reported data for Variable #1 fell within the continuum reported for overall GPA in the survey's demographic section.

The median score of 3.48 ($M = 3.37$, $SD = .44$) for academic success is reported with outliers. In the upper 25-percentile, the highest self-reported GPA was 4.00. The lower 25-percentile contained the outliers for Variable #1, academic success. When outliers were excluded ($n = 11$), the median score was 3.50 ($M = 3.46$, $SD = .33$). When outliers were included and excluded, the means fell within the 50-percentile. The histograms for academic success compared data distribution, including and excluding the outliers (Figure 5).

Figure 5

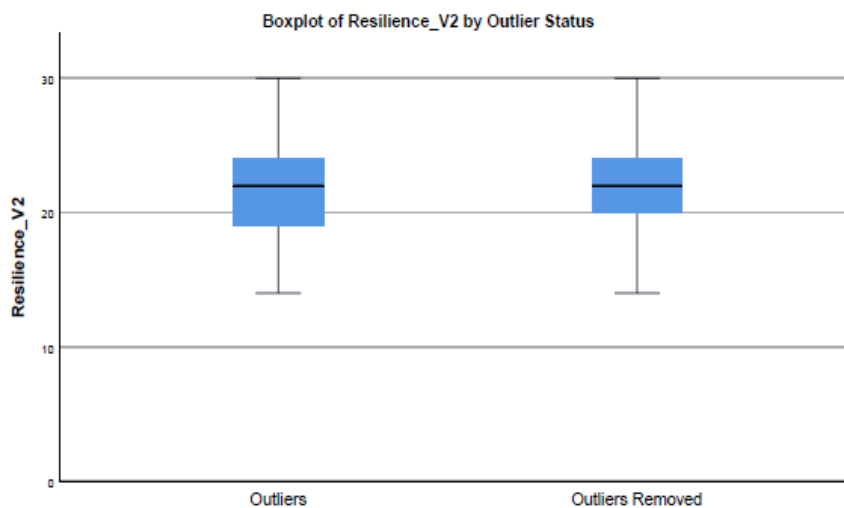
Comparison Histogram for the Academic Success of Nontraditional Aged Community College Students in Rural Appalachia with and without Outliers



Box plots were created for Variable #2, resilience. A side-by-side comparison of the box plots for the resilience of nontraditional aged community college students in rural Appalachia with and without outliers is demonstrated in Figure 6. When outliers were omitted from the analysis, the median line fell more centrally within the box plot.

Figure 6

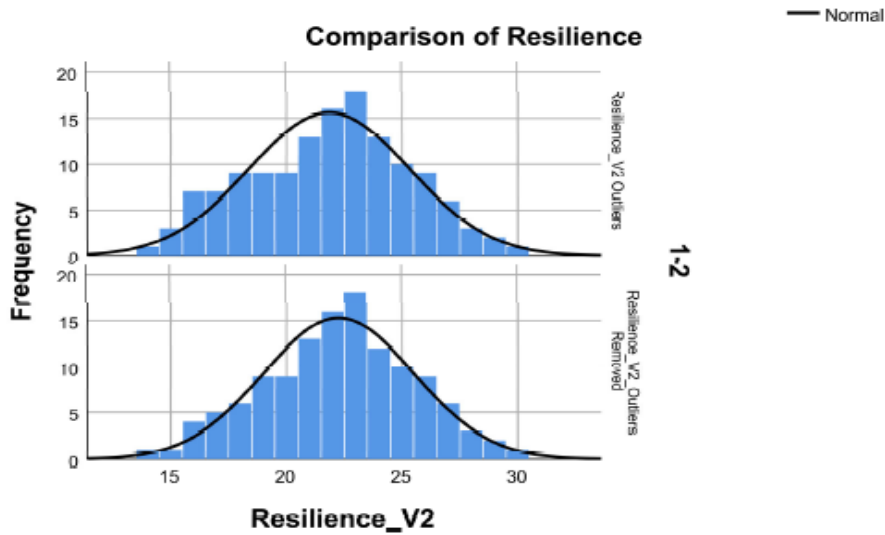
Comparison Box Plot for the Resilience of Nontraditional Aged Community College Students in Rural Appalachia with Indicated Outliers and without Outliers



Histograms were created for Variable #2, resilience. A comparison of the histograms with a normal distribution line for resilience when outliers are included and excluded is displayed in Figure 7. A comparison of the boxplots demonstrated the median fell more centrally within the 50-percentile when outlier data were excluded.

Figure 7

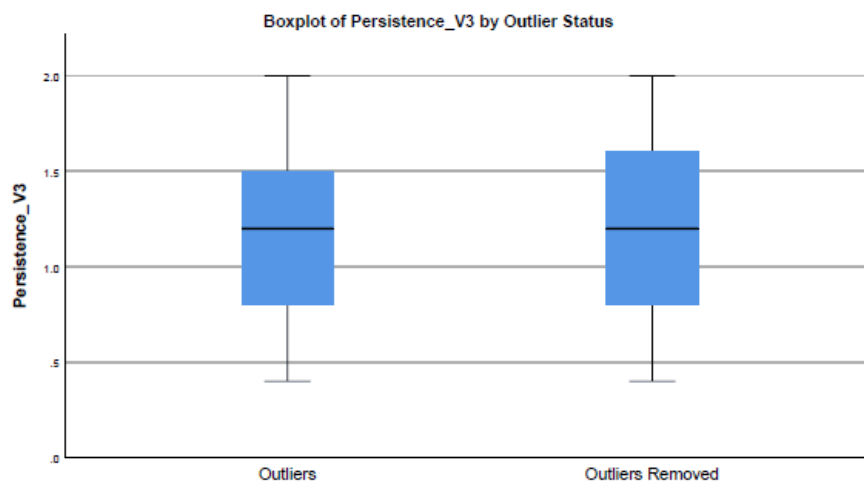
Comparison Histogram for the Resilience of Nontraditional Aged Community College Students in Rural Appalachia with and without Outliers



Box plots were created for Variable #3, persistence. Demonstrated in Figure 8 is a comparison visualization of the box plots for persistence. Comparison of the boxplots revealed an equivalent distribution of data across the median when outliers were included and excluded.

Figure 8

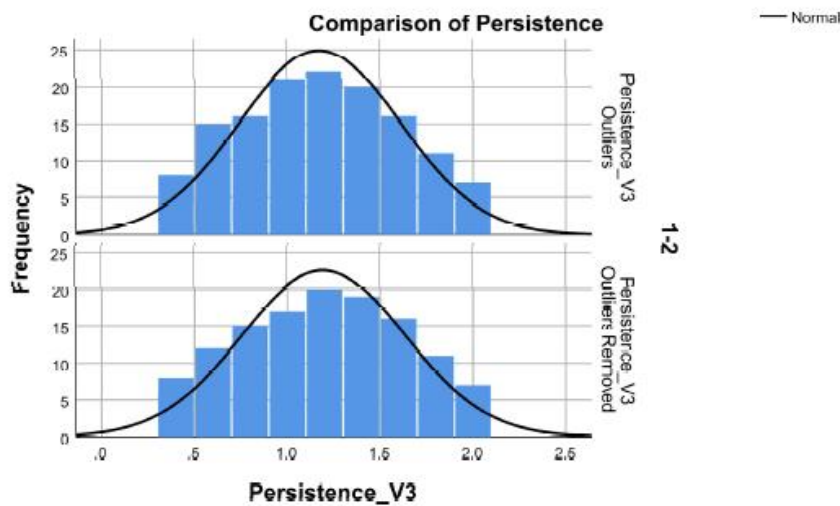
Comparison Box Plot for the Persistence of Nontraditional Aged Community College Students in Rural Appalachia with Indicated Outliers and without Outliers



Histograms were created for Variable #3, persistence. A side-by-side histogram for Variable #3, persistence, is presented in Figure 9. The comparison of the histograms, when outliers were included and excluded, demonstrated similar normal distributions of data around the mean.

Figure 9

Comparison Histogram for the Persistence of Nontraditional Aged Community College Students in Rural Appalachia with and without Outliers



Data Analysis and Results

Following the descriptive analysis of the sample population, data were examined to determine any violations of assumptions for the parametric statistical analysis. Variables were analyzed and assessed for normality. Assumptions focused on data collection and the nature of data.

Assumptions of Data and Parametric Test

Several assumptions were appropriate when determining the application of Pearson product-moment correlation (Gravetter et al., 2020; Laerd Statistics, 2020). The *first* assumption is related to the representativeness of the data. Data in the study were randomly collected from

212 community college students enrolled in rural Appalachia, leading to no violations of the assumption.

Nature of the Data

The *second* assumption concerned the nature of the variables. Variable #1, academic success, measured as self-reported GPA on a continuum of 0.00 to 4.00, constituted a continuous variable in the study. Variable #2, resilience, and Variable #3, persistence, were constructed as ordinal data from Likert-type scales and treated as approximations of continuous data. The use of ordinal data as continuous data is well documented and justified in correlational studies (De Winter & Dodou, 2010; Norman, 2010).

In the study, the scales for Variable #2, resilience, and Variable #3, persistence, relied on a summative calculation of responses to items, creating approximate continuous variables. Pearson product-moment correlations (PPMC) were deemed the appropriate tests to determine whether a relationship existed between the paired observations of the three variables (Laerd Statistics, 2020; Price et al., 2013). There was no violation of the assumption.

The *third* assumption assumed the presence of paired variable data for respondents. In the study, each community college student self-reported GPA, a continuous variable representing academic success. Paired with Variable #1, academic success, were resilience, Variable #2, and persistence, Variable #3, respectively. The variables were paired, meaning each respondent had a set of variable values. Each participant in the study presented data for the three variables of interest, creating no violations of the assumption (Price et al., 2013).

Other assumptions in the study were related to the nature of data in Pearson product-moment correlations. The *fourth* assumption assumed the absence of significant outliers in the variables. For the ordinal data, Variables #2 and #3, treated as approximations of continuous

data, scales minimized the presence of univariate outliers (De Winter & Dodou, 2010; Sullivan & Artino, 2013; Zumbo & Zimmerman, 1993). Responses were limited to ordered categories, and a calculated score for the approximation of a continuous variable was created. There were no violations of the assumption for Variable #2 and Variable #3.

For Variable #1, academic success, outliers were justified and retained in the study. In the assessment of normality, academic success presented a non-normal distribution. A decision not to remove outliers on academic success was considered and made for two reasons: (1) sample size and (2) insensitivity of the statistic to violations of normality. Justification for the use of outliers addressed the assumption (Havlicek & Peterson, 1976; Schober et al., 2018).

Outliers for the academic success variable, Variable #1, measured as self-reported GPA, were compared to respondents' demographic questions. One demographic question prompted participants to select a category of current grade point average. Responses on Variable #1 were consistent with the demographic question, "My overall or cumulative GPA is about...". Self-reported GPAs were deemed legitimate representations of participants' GPAs. The decision to retain outliers in the study was made based on sample size, insensitivity to violations of normality, and the maintenance of the representativeness of community college student's GPA.

Normality of Data

The *fifth* assumption was related to normality. Measurement of normality was a prerequisite for statistical tests because normal data are an underlying assumption (Mishra et al., 2019; Schober et al., 2018). In the study, normality was evaluated statistically with the Shapiro-Wilk test and graphically with histograms and box plots. When selecting tests for normality in SPSS, the software generated output statistics for both the Shapiro-Wilk and Kolmogorov-Smirnov tests for normality.

Shapiro-Wilk Test for Normality. The null hypothesis of a Shapiro-Wilk test, appropriate for small sample sizes ($n < 50$), states data are taken from a normal population (Laerd Statistics, 2020). When $p > .05$, the null hypothesis is accepted, and data are termed normally distributed (Gravetter et al., 2020). In the study, a Shapiro-Wilk test determined normal distribution for one variable, resilience ($p > .05$). Resilience was normally distributed, .008(136), $p = .082$. Academic success and persistence were not normally distributed, as assessed by the Shapiro-Wilk (SW) test ($p < .05$).

Kolmogorov-Smirnov Test for Normality. When conducting the Shapiro-Wilk test for normality, SPSS generated the Kolmogorov-Smirnov statistic. The null hypothesis of the Kolmogorov-Smirnov tests states data is taken from normally distributed populations. When $p > .05$, the null hypothesis is accepted, and the data are normally distributed. In the study, the Kolmogorov-Smirnov test demonstrated $p < .05$, leading to the rejection of the null hypothesis and an assumption the data did not follow a normal distribution within the population (Gravetter et al., 2020; Laerd Statistics, 2020). Results for the Kolmogorov-Smirnov and Shapiro-Wilk tests for normality are displayed in Table 3.

Table 3

Shapiro-Wilk Test for Normality Displays $p < .05$ for Variables #1 and #3 Depicting the Assumption of Normality is Violated and $p > .05$ for Variable #2 Depicting Normality

	Tests of Normality					
	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Academic Success	.150	136	.000	.922	136	.000
Resilience	.090	136	.008	.008	136	.082
Persistence	.097	136	.003	.961	136	.001

Skewness and Kurtosis. Another analysis to determine normal distribution is the evaluation of skewness and kurtosis. Skewness and kurtosis were assessed to determine normal distribution by examining the descriptive statistics for the three variables. The skewness and kurtosis statistics demonstrated a normal distribution of data for Variable #1, academic success, and Variable #3, persistence, as demonstrated in Table 4. The skewness and kurtosis statistics for academic success were -.969 and .603, respectively. The skewness and kurtosis statistics for persistence were .049 and -.844, respectively. Generally, for each variable, the statistics for skewness and kurtosis were less than ± 1.0 , indicating the distribution is not outside the range of normality (Gravetter et al., 2020; Mishra et al., 2019). The data for Variable #2, resilience, were normally distributed based on the Shapiro-Wilk test (Table 3).

z-values for Skewness and Kurtosis. In addition to general observations of the statistics for skewness and kurtosis, a z-value for each was calculated (Table 4). The calculation of the z-value demonstrated the normal distribution of data (Laerd Statistics, 2020; Mishra et al., 2019). The z-value was determined by dividing the skewness by the standard error. Kurtosis was divided by the standard error. When data is normally distributed, the z-value should be ± 1.96 in small sample sizes and ± 3.29 in medium sample sizes (Mishra et al., 2019). The calculation of z-values was performed on the three variables. The skewness z-values for resilience ($z = -.047$) and persistence ($z = .236$) and the kurtosis z-values for resilience ($z = 1.37$) and persistence ($z = 2.04$) demonstrated data were approximately normal distributions, when applying ± 1.96 in small sample sizes and ± 3.29 in medium sample sizes. The kurtosis z-value for academic success was ($z = 1.46$). The skewness z-value for academic success ($z = -4.66$) was beyond the ± 1.96 for small samples and ± 3.29 for medium samples ($n > 50$), indicating skewness (Mishra et al., 2019).

Despite the skewed data distribution for academic success, outliers were retrained as legitimate representations of respondents' self-reported GPAs.

Table 4

Skewness and Kurtosis Statistics and z-Values for Academic Success, Resilience, and Persistence with Outliers

	Descriptive Statistics for Skewness and Kurtosis					
	Skewness			Kurtosis		
	Statistic	Std. Error	z-value	Statistic	Std. Error	z-value
Academic Success	-.969	.208	-4.660	.603	.413	1.46
Resilience	-.098	.208	-.047	-.566	.413	1.37
Persistence	.049	.208	.236	-.844	.413	2.04

Pearson Product-Moment Correlations

Two Pearson product-moment correlations were performed on the three variables in the dataset, which contained outliers, to test the research hypotheses in the study. Results can be found in Table 5. In the study, the first research question asked, "Is there a statistically significant relationship between resilience and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia?" A first Pearson correlation was calculated to determine the strength of an association relationship between Variable #2, resilience, and Variable #1, academic success. The Pearson correlation, $r(134) = .453, p < .001$, demonstrated a significant positive correlation between resilience and academic success (Table 5).

Table 5

Pearson Correlations for Resilience, Persistence, and Academic Success in a Sample of Rural Nontraditional Aged Community College Students with Outliers

		Resilience	Persistence	Academic Success
Resilience	Pearson correlation	1	.560**	.453**
	Sig. (2-tailed)		.000	.004
	N	136	136	136
Persistence	Pearson correlation	.560**	1	.245**
	Sig. (2-tailed)	.000		.000
	N	136	136	136
Academic Success	Pearson correlation	.453**	.245**	1
	Sig. (2-tailed)	.004	.000	
	N	136	136	136

** $p < .001$

With outliers excluded from the dataset, the Pearson correlation between resilience and academic success remained significant, $r(123) = .274, p < .001$ (Table 6). The $r_{(\text{resilience, success})}$ indicated strength in a linear relationship between the two variables (Laerd Statistics, 2020). Schober et al. (2018) designated correlation coefficients larger than 0.10 were significant correlations.

In the study, the second research question asked, “Is there a statistically significant relationship between persistence and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia?” A second Pearson product-moment correlation was performed to determine the strength of a statistically significant relationship between Variable #3, persistence, and Variable #1, academic success. The Pearson correlation, $r(134) = .245, p < .001$, demonstrated a significant, positive relationship between persistence and academic success, as reflected in Table 5.

With outliers excluded from the dataset, the Pearson correlation between persistence and academic success remained significant but at a lower p -value, $r(123) = .189$, $p < .05$ (Table 6).

The $r_{(\text{persistence, success})}$ indicated an association between the two variables (Laerd Statistics, 2020).

Schober et al. (2018) designated correlation coefficients larger than 0.10 were significant correlations.

Table 6

Pearson Correlations for Resilience, Persistence, and Academic Success in a Sample of Rural Nontraditional Aged Community College Students with No Outliers

		Resilience	Persistence	Academic Success
Resilience	Pearson correlation	1	.555**	.274**
	Sig. (2-tailed)		.000	.004
	N	125	125	125
Persistence	Pearson correlation	.555**	1	.189*
	Sig. (2-tailed)	.000		.000
	N	125	125	125
Academic Success	Pearson correlation	.274**	.189*	1
	Sig. (2-tailed)	.004	.000	
	N	125	125	125

** $p < .001$, * $p < .05$

Not hypothesized in the study was the significance of any relationship between resilience and persistence. Entering all three variables into one SPSS dialog box and conducting a Pearson correlation between all variables at once revealed a statistically significant relationship between resilience and persistence, $r(134) = .560$, $p < .001$. When outliers were excluded, the relationship between resilience and persistence remained consistent and significant, $r(123) = .555$, $p < .001$. Future studies could explore the nature of the relationship between resilience and persistence.

Evaluation of Findings

A Pearson correlation was determined to be an appropriate test to determine the strength of a statistically significant relationship between the variables of interest in the study (Gravetter et al., 2020). Two Pearson correlations were conducted. One analysis was performed, exploring the relationship between resilience and academic success. A second Pearson correlational analysis was conducted to examine the relationship between persistence and academic success. Academic success in the study was a continuous variable, measured as self-reported grade point average (GPA) on a 4.00 scale. Variable #2, resilience, and Variable #3, persistence, were created as approximations of continuous variables from ordinal Likert-type scales. The use of ordinal data as approximations of continuous data is well-documented and poses little consequence on violations of assumptions (Norman, 2010; Sullivan & Artino, 2013).

The results of the analyses addressed the two research hypotheses research questions and determined statistically significant relationships between resilience, persistence, and academic success. A Pearson product-moment correlation analyzed the association between resilience and academic success. There was a significant correlation between resilience, $M = 21.85$ ($SD = 3.48$) and academic success, $M = 3.37$ ($SD = .44$). The $r = .453$, $p < .001$, indicated a statistically significant relationship between resilience and academic success. Even with outliers excluded, the statistical correlation between variable sets remained, supporting Norman's (2010) assertion of the insensitivity of Pearson r to violations of normality, such as skewness from outliers observed in the data for academic success.

A second Pearson correlation assessed the association between persistence and academic success. A significant relationship between persistence, $M = 1.18$ ($SD = .44$) and academic success, $M = 3.37$ ($SD = .44$) existed. The $r = .245$, $p < .001$, indicated a statistically significant

relationship between persistence and academic success. Even with outliers excluded, the statistical correlation between variable sets remained, supporting Norman's (2010) assertion of the insensitivity of Pearson r to violations of normality, such as skewness from outliers observed in the data for academic success.

The purpose of the quantitative correlational study was to examine statistically significant relationships and determine the degree to which resilience and persistence correlated with the academic success of nontraditional aged community college students in Appalachia. Guiding the research study were two research questions:

Research Question 1: Is there a statistically significant relationship between resilience and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia?

Research Question 2: Is there a statistically significant relationship between persistence and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia?

The two research questions informed the hypotheses for the study:

H_0 : No significant correlation exists between resilience and the academic success of nontraditional community college students in rural Appalachia.

H_1 : A significant correlation exists between resilience and the academic success of nontraditional community college students in rural Appalachia.

H_0 : No significant correlation exists between persistence and academic success of nontraditional community college students in rural Appalachia.

H_2 : A significant correlation exists between persistence and academic success of nontraditional community college students in rural Appalachia.

The findings of the analyses revealed two significant correlations between (1) resilience and academic success and (2) persistence and academic success. Based on the study's findings, the determination was to reject the null hypotheses, accepting the alternative hypotheses. Specifically, a correlation existed between resilience and the academic success of nontraditional community college students in rural Appalachia. In a sample of community college students, aged 24 years or older, a correlation, $r(134) = .453, p < .001$, existed between resilience, $M = 21.85 (SD = 3.48)$, and academic success, $M = 3.37 (SD = .44)$.

The second alternative hypothesis was accepted. A correlation existed between persistence and academic success of nontraditional community college students in rural Appalachia. The Pearson correlation, $r(134) = .245, p < .001$, demonstrated a significant positive relationship between persistence, $M = 1.18 (SD = .44)$, and academic success, $M = 3.37 (SD = .44)$. Even when outliers were excluded, the statistical correlations between paired variables remained, rejecting the null hypotheses.

Reliability and Validity

Data for the study were reliable and valid. *First*, data were collected to maximize representativeness and minimize threats to objectivity using a secure, anonymous, and confidential SurveyMonkey survey. The quantitative correlational study focused on the random sampling of community college students to report on resilience, persistence, and academic success. A process of self-selection to participate within an open period of four weeks determined the sample population. The solicitation of permission from colleges within the Community and Technical College System (CTCS) promoted objectivity in the study, reinforced when one community college in the system was excluded because of employment, removing any conflict of interest or undue influence.

Participants were surveyed through a secure SurveyMonkey survey. The logic application of the survey anonymized participants and promoted confidence and privacy. Participants had the opportunity to exit the survey at any time. Self-selection and the ability to withdraw from the study promoted randomization and representativeness (Creswell & Creswell, 2018). The target sample consisted of 212 community college students, aged at least 18 years old and who consented to participate. From the target sample, the listwise deletion of cases with missing data and the exclusion criterion of age yielded a final sample of 136 nontraditional aged community college students in rural Appalachia, surpassing the minimal sample size of 123 for the study, determined by the G*Power test (see Appendix G) (Faul et al., 2009).

Second, data were measured with reliable and valid instruments. Variables for analyses were constructed according to developers' instructions. For Variable #2, resilience, respondents were asked to indicate the degree of agreement with statements across six items. After reverse-coding three responses, a summed total score for resilience was created. Content validity and construct validity for the Brief Resilience Scale (BRS) scale are well documented in previous studies with a Cronbach's alpha of .95, demonstrating internal consistency and reliability discriminant predictive validity of $r = .87$ (Smith et al., 2008; Van Agteren et al., 2019).

For Variable #3, persistence, a score was calculated according to the developers' scoring instructions (Davidson et al., 2009). The sum of favorability values, ranging from +2 to -2, were divided by the number of questions to create the variable for persistence, Variable #3. The instrument's developer granted permission to use the scale and identified the five items with the greatest construct and predictive validity, $r = .87$ (Davidson et al., 2009; Garcia-Rios et al., 2019). The scale is reliable with a Cronbach's alpha of 0.88 (Davidson et al., 2009).

Based on sample size, insensitivity to violations of normality, and the maintenance of the representativeness of community college students' self-reported GPA, as verified with a demographic question, the decision to retain outliers in the study was made. The decision supported the validity of the nature of Variable #1 for academic success. Though a decision was made to keep the outliers, consideration of the removal of outliers was made. The normality of Variable #1, academic success, without the outliers, and the analysis with Pearson correlations were presented. There were no threats to reliability and validity.

Chapter Summary

The purpose of the quantitative correlational research study was to explore and determine the relationship between the resilience and persistence of nontraditional community college students in rural Appalachia and academic success. The sample for the study consisted of 136 nontraditional aged community college students in rural Appalachia. Pearson product-moment correlations analyzed data associated with resilience, persistence, and academic success. Two research questions guided the study: (1) What is the relationship between resilience and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia and (2) What is the relationship between persistence and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia.

Descriptive statistics for resilience, persistence, and academic success demonstrated mean scores. Two Pearson product-moment correlations determined statistically significant relationships between resilience and academic success and a statistically significant relationship between persistence and academic success. Findings indicated statistically significant correlations, $p < .001$ and $p < .05$. When outliers were excluded from the dataset, correlations

among resilience or persistence and academic success remained statistically significant.

Correlation coefficients corresponded to small and medium associations. Based on findings, a determination was the rejection of both null hypotheses. Alternative hypotheses were accepted.

The study's findings, interpretations, implications, and conclusions are proffered and discussed in Chapter 5.

Chapter 5: Discussion and Conclusions

Program completion and college students' academic success are essential priorities for community colleges and universities, which are required to report graduation and retention rates annually (National Center for Education Statistics [NCES], 2020). Completing higher education and attaining a college degree promote opportunities for gainful employment and increased earnings (Dunn & Kalleberg, 2017). Unfortunately, community college students are not persisting toward completing degrees or academic success despite the numerable benefits of academic success. Nationally, less than one-third of students persist and complete degrees (Fong et al., 2018). In rural areas like Appalachia, community college students face higher non-completion rates, perpetuating academic challenges and economic barriers for students (Hlinka, 2017). The problem is nontraditional aged community college students in rural Appalachia are not persisting toward academic success (Hlinka, 2017; Hollifield-Hoyle & Hammons, 2015).

While traditional studies focused on the relationships between community students' barriers (Bauer et al., 2019), deficits (Stewart et al., 2015), or low academic preparedness (Kennel & Ward-Smith, 2017), evidence suggested some college students persisted and achieved academic success (Curtin et al., 2016). Despite the inevitability of challenges or risks, college students harness and utilize compensatory strategies or resources to cope and adapt (Ungar, 2016). Personal and social resources, such as resilience and persistence, promote balance and theoretically foster community college students' adaptation to stress and promote positive outcomes (Argyros & Johnson, 2019; Gruttner, 2019; Pidgeon & Pickett, 2017). Exploring promotive or protective factors like resilience or college persistence helps community college leaders discover established practices which promote student-centered persistence to academic success (Herrero et al., 2019). Capacity-building programs to foster students' resilience could

positively influence college persistence and academic success (Shatkin et al., 2016; Tinto, 2017a).

The purpose of the quantitative correlational research study was to explore and determine the significant statistical relationships between the resilience or persistence of 136 nontraditional aged community college students in rural Appalachia and academic success. Most studies on retention focus on traditional aged-university students' success (Chung et al., 2017) and explore issues of non-completion from perspectives of academic unpreparedness (Bauer et al., 2019), behaviors (Tinto, 2017a), risk factors (Morton et al., 2018), or demographic characteristics (Howard et al., 2019). The present research study centered on positive promotive factors associated with nontraditional aged community college students' academic success.

A quantitative correlational research design was valid to address the research questions and hypothesis. The selected design offered the opportunity to explore and determine whether a correlation existed between the continuous variable of academic success and the approximately continuous variables of resilience and persistence. Findings from the present study were conclusive on whether significant associations exist between academic success, resilience, and persistence. The study's results could assist in providing information on the role of resources and promotive factors or college students' academic success.

The research methodology discussed in Chapter 3 addressed the research questions and hypothesis for the study. Research questions centered on the statistical significance of associations between the variables of academic success, resilience, and persistence. Variable #1 represented academic success in the study, measured as self-reported grade point average (GPA) on a 4.00 scale. Variable #2 was resilience, and Variable #3 constituted persistence. Two Pearson

product-moment correlations were performed to measure the degree and significance of correlations between academic success resilience and persistence.

The sample for the research study included 136 nontraditional aged community college students in rural Appalachia, randomly sampled from a cross-section of enrolled students in the 2020-2021 academic year. The research questions in Chapter 4 summarized the key findings on whether a correlation exists between (a) academic success and resilience and (b) academic success and persistence. Results indicated statistically significant relationships between the academic success, resilience, and persistence of nontraditional aged community college students in rural Appalachia.

The research study's findings, including data interpretations and conclusions based on the results, are discussed in Chapter 5. The information proffered in the former chapters addressed the study's research questions, research hypothesis, literature review, methodology, and data analysis. A review of the research study and the theoretical frameworks of adaptation and resilience are presented. Limitations of the present research study and future studies are discussed. Finally, the resulting recommendations for future research and practical implications for leadership are discussed.

Findings, Interpretations, and Conclusion

Data collected and analyzed in Chapter 4 from 136 nontraditional aged community college students in rural Appalachia constituted the sample and provided sufficient evidence to address the two research questions and hypotheses. Further interpretations may be contextualized within the theoretical framework for the study. Participants for the study were randomly sampled college students enrolled in community colleges in rural Appalachia and aged 24 years or older. Demographic characteristics of the sample in the study mirrored the demographic characteristics

of most community colleges (NCES, 2020), lending to the generalizability of findings to other community college populations.

Two research questions guided the study to achieve the purpose. The two research questions were as follows:

Research Question 1: Is there a relationship between resilience and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia?

Research Question 2: Is there a relationship between persistence and academic success, measured on a 4.00 GPA scale, for nontraditional aged community college students, aged 24 or more years, in rural Appalachia?

The study proposed three variables. Variable #1, a continuous variable, measured as self-reported GPA on a 4.00 scale, represented academic success. Variable #2, resilience, and Variable #3, persistence, were treated as approximations of continuous variables, measured with reliable and valid Likert-type scales, discussed in Chapter 3. The use of ordinal data from Likert-type scales as approximations of continuous data is well documented in the research literature, justified in correlational studies (Norman, 2010), and discussed in Chapters 3 and 4.

Data analysis in Chapter 4 provided descriptive statistics for Variable #1, academic success, Variable #2, resilience, and Variable #3, persistence. The two research questions informed the hypotheses for the study:

H₀: No significant correlation exists between resilience and the academic success of nontraditional community college students in rural Appalachia.

H₁: A significant correlation exists between resilience and the academic success of nontraditional community college students in rural Appalachia.

H₀: No significant correlation exists between persistence and academic success of nontraditional community college students in rural Appalachia.

H₂: A significant correlation exists between persistence and academic success of nontraditional community college students in rural Appalachia.

The hypothesis appropriately addressed the research questions which shaped and guided the study, exploring the relationships between the sets of variables.

Pearson product-moment correlations were deemed the appropriate test to address and explore the hypotheses and were administered following the procedures outlined in Chapter 3 to explore the hypotheses and answer the research questions. Two separate Pearson product-moment correlations were performed to determine the strength of a statistically significant relationship between (a) academic success and resilience and (b) academic success and persistence.

Several assumptions of the data and the parametric test were essential to determine the application of a Pearson product-moment correlation. The assumptions considered appropriate when determining and selecting a Pearson correlation were (a) representativeness of data (the data were randomly sampled); (b) the continuous nature of the variables (the variables were continuous or approximations of continuous variables); (c) the presence of paired data points (each participant had paired variables); (d) the absence of significant outliers (outliers were justified); and (e) the normality of the data (the data were approximately normal). Discussed in Chapter 4 were the assumptions of the data and the Pearson correlation statistic.

Two Pearson product-moment correlations were performed on the three variables in the dataset, which contained outliers. The first Pearson correlation determined the strength of a statistically significant relationship between resilience and academic success, $p < .001$,

demonstrating a positive correlation between academic success and resilience and a medium degree of strength in the positive association between academic success and resilience (Gravetter et al., 2020; Laerd Statistics, 2020). A second Pearson correlation determined the strength of a statistically significant relationship between college persistence and academic success, $p < .001$, revealing a positive correlation and small degree of strength (Gravetter et al., 2020; Laerd Statistics, 2020) between academic success and persistence.

Two additional Pearson correlations were performed in the data analysis to assess the outliers' effect on the strength or significance of the relationships between the variable sets when the 11 outliers for academic success were excluded. Associations between academic success and resilience remained significant when outliers were excluded $p < .001$, and the association between academic success and persistence remained significant, $p < .05$, but at a less significant p -value. The presence of outliers yielded no significant effect on the outcome of the two Pearson product-moment correlations. With and without outliers, Pearson correlational analyses indicated associations between (a) academic success and resilience and (b) academic success and persistence.

Interpretation of Findings

The results of the Pearson product-moment correlations for the present study demonstrated statistically significant associations between the sets of variables. There was a significant positive correlation between academic success and resilience. Additionally, there was a significant positive correlation between academic success and persistence. The sample size of 136 nontraditional aged community college students aged 24 years or older in rural Appalachia yielded sufficient participants for the study. Statistically, for a good correlational study, a sample size of 20 or more ($n > 20$) (Gravetter et al., 2020; Laerd Statistics, 2020) and correlations larger

than 0.10 (Schober et al., 2018) are needed for interpreting the significance of correlational analyses.

Implications from Literature

The results of the present study were consistent with the literature review in Chapter 2. The present study's results demonstrated resilient college students were more likely to persist and succeed academically, reinforcing findings from previous research studies on resilience and persistence (Luthar & Eisenberg, 2017; Reynoso, 2017). In the present study, resilience was an essential factor for community college student persistence and academic success. As demonstrated in the literature, resilient students tended to understand the potential to learn, improve, become engaged learners, and progress beyond situations or circumstances to succeed (Goncalves et al., 2017; Moke et al., 2018).

The data from the study analyses demonstrated a significant relationship between academic success and resilience and a significant relationship between academic success and persistence. With outliers ($n = 11$) in the variable for academic success, two Pearson correlations were performed, excluding the outliers. The dataset with excluded outliers continued to show significant associations between academic success and resilience or persistence. The strength of the correlation found between academic success and resilience was considered a medium degree of association (Gravetter et al., 2020; Laerd Statistics, 2020), $r = .453$, $p < .001$, and small for academic success and persistence (Laerd Statistics, 2020), $r = .245$, $p < .001$. The research study supported the findings of Moke et al. (2018), who found resilience fostered academic success, and the findings of Kimbark et al. (2017), who concluded persistence motivated college students toward academic success.

Theoretical Implications

The theoretical frameworks in the literature review in Chapter 2 included adaptation and resilience theories. Adaptation and resilience theories are helpful frameworks to understand the processes through which at-risk individuals, when faced with challenges or stresses, adapt to, overcome, and achieve positive outcomes (Masten & Monn, 2015; Ungar, 2016). Applying the shared dimensions of adaptation and resilience theories in the present study supported the positive relationship between resources and outcome.

Demonstrated in the literature on persistence was the frequency of non-completion of higher education for community college students, especially rural community college students in Appalachia (Hlinka, 2017). When faced with academic or educational and economic risk factors, common in Appalachia, community college students with more personal resources like resilience or persistence were more likely to succeed academically (Hlinka, 2017). Masten and Monn (2015) concluded resilience was an essential resource for individuals to cope with and adapt to stresses or challenges. Adaptation and personal resources like coping skills allow individuals to respond to challenges (Masten & Monn, 2015). In the present study, nontraditional community college students' resilience, which functioned as a personal, promotive resource, was positively associated with academic success. The present study's findings suggested resilient students, or those who could bounce back, cope, or adapt, were more likely to succeed academically.

The present study's findings reinforced the theoretical framework, which suggested positive adaptation to challenges or stress demonstrates the individual's resilience and promotes positive responses to stress and successful outcomes (Argyros & Johnson, 2019; Masten & Monn, 2015). Resilience is the ability of the person, such as the community college student, to adjust, adapt, and overcome (Walsh, 2016). Moving away from a narrow focus on limitations or

barriers which inhibit positive outcomes, resilience theory focuses on the resources individuals employ, such as personal or social resources, to promote positive adaptation and success (Heinen et al., 2017; Moke et al., 2018). In the present study, nontraditional community college students' resilience was positively associated with academic success, suggesting students' promotive resources like the capacity to bounce back, adapt, or cope facilitated positive outcomes.

In the context of higher education, adaptation and resources could mitigate stressors, risk factors, and barriers, which inhibit academic success and achievement. Through personal resources like resilience and skills for coping, college students could overcome limitations or barriers, establish and maintain a state of balance, and persist toward the educational goal of academic success (Goncalves et al., 2017). Luthar and Eisenberg (2017) highlighted how students from disadvantaged backgrounds, such as those who are poor or at-risk, harness resilience as a resource to overcome disadvantages. Reynoso (2017) demonstrated the ability of academically underprepared adult learners to persist toward academic success by employing key resilience strategies like developing strategies and building supportive relationships.

Personal resources extend beyond adaptational coping skills. For example, Kimbark et al. (2017) conceptualized college persistence as a motivational factor which ensures the completion of academic tasks to pursue academic success. In higher education, college persistence describes students' abilities to achieve academic goals (Kennel & Ward-Smith, 2017), focusing on student-centered characteristics like commitment, academic or social integration (Davidson et al., 2009), and motivation (Bickerstaff et al., 2017), which promote college students progress toward success (Stewart et al., 2015). Persistence then represents the college students' personal qualities and reflects the potential dynamic role of social support and social interaction.

The present study's findings demonstrated a significant association between college persistence and academic success for nontraditional aged community college students. Represented within the college persistence construct were academic and social integration, social resources which promote success. Findings suggested social support, engagement, and integration were associated with improved retention and academic success, measured as grade point average (GPA). Not only were the present study's findings consistent with other studies on college persistence and academic success (Morton et al., 2018; Shaw & Chin-Newman, 2017), but the study's findings supported the theoretical framework, which suggested social resources influenced success. In a similar sample of nontraditional-aged college students as the present research study, Johnson et al. (2016) discovered social engagement and support predicted nontraditional students' academic success. Within rural communities like Appalachia, where social ties or close-knit communities exist, social support influences academic success by buffering stress and anxiety associated with college. The present study's findings supported the notion social or academic integration, social components of college persistence, supplanted academic success.

Conclusion

In the research study, adaptation and resilience theory were helpful to understand the dynamic between barriers or stressors and outcomes. The research study focused on nontraditional aged community college students in rural Appalachia, contributing to the body of research exploring the relationship between college students' promotive resources like resilience and persistence factors like social support and academic success. The concluding results from data revealed college students who were more resilient or demonstrated more qualities of college persistence achieved appreciable academic success.

In rural Appalachia, characterized as economically depressed, at-risk college students strive to persist toward academic success or completion to gain employment or improve socioeconomic status. The relationship between resilience, persistence, and positive outcomes like academic success highlight college students' resources to succeed. Although the study's research questions and hypothesis were based on a theoretical framework where resilience and persistence were resources which foster college students' academic success, data in the present study affirmed the positive associations between resilience or persistence and the outcome of academic success.

Limitations

The research study was limited to generalizing the results to nontraditional community college students within rural Appalachia. The sample size consisted of 136 nontraditional aged community college students enrolled in community colleges in rural Appalachia. Restricting the study to a narrowly defined sampling frame of rural community colleges limits the external validity of findings to other postsecondary students in non-community college settings. Like the limitation of targeted higher education settings, focusing on rural contexts could have limited the study. With the context of community colleges in rural Appalachia, the generalizability of research findings to non-rural and urban areas is unlikely. Threats to external ability could arise when studies infer and apply conclusions to other persons, contexts, and different situations (Creswell & Creswell, 2018). The characteristics of the participants or setting limited the generalizability of findings to other individuals in other settings.

A *second* limitation was the cross-sectional study design, which collected data at one point and represented college students' responses at the time of collection. Cross-sectional designs provided a snapshot of the variables within the sample and failed to capture effects or

changes across time (Creswell & Creswell, 2018; Reyes et al., 2015). Participants in the study self-reported or responded to statements about resilience and persistence.

Participants' present situations could have limited the study. Resilience and persistence could develop across time (Chadwick, 2019; Yeager & Dweck, 2012), resulting in a limitation of a cross-sectional design to capture a process-oriented developmental outcome. College students who have adapted to barriers or recovered from challenges could have progressed and failed to reflect the perceived roles of resilience and persistence retrospectively. The study's design or the nature of the questions could have failed to capture the dynamism or process orientation of the variables. A reliance on participants' recall and response could influence the reliability of resilience and persistence.

A *third* limitation could have been the operationalization of academic success. Variable #1, academic success, relied solely on college students' self-reported grade point average (GPA) to represent the academic success variable. The study was limited to one method of measuring academic success. Participants' bias, associated with self-reporting, could have inflated the academic success data obtained for the study. The validity and reliability of scales utilized to create variables for resilience and persistence were discussed in Chapter 3. While the instruments were generally reliable and valid in the literature, self-reporting could have introduced bias in the data (Davidson et al., 2015; Smith et al., 2008).

The study's *final* limitation was a lack of attention on confounding factors which could influence resilience or college persistence. For example, age and gender have documented effects on resilience and college persistence scores (Van Agteren et al., 2019). In addition, studies have shown employment status and family or work obligations influence resilience and persistence

(Howard et al., 2019). The choice not to examine the effects of contributing factors to resilience and persistence created a limitation of the present study.

Recommendations

The research study demonstrated the academic success of nontraditional aged community college students was associated with students' resilience and college persistence. Stemming from an assessment of the limitations of the present study are recommendations for future studies. As the research study focused on nontraditional aged college students in rural Appalachia, future research should expand the sampling frame to target traditional-aged community college students in Appalachia. While the present study expanded the body of knowledge to focus on community college students, the study was limited by focusing on nontraditional aged students, delineated by age. Nontraditional students represented students aged 24 years or older (Chung et al., 2017). Future research is needed to explore the relationships between resilience, persistence, success, and other demographic variables, providing information on the intersection of employment, gender, and family or work obligations with resilience, persistence, and academic success (Sanchez & Smith, 2017).

The present study targeted community colleges in rural Appalachia. A need for studies on the associations between promotive factors or persistence and academic success for nontraditional aged college students in rural Appalachia was demonstrated in the literature review in Chapter 2. Further research is needed to determine whether associations discovered in the data are prevalent in other community college settings, such as metropolitan or urban areas. Additional research is recommended to expand the sampling strategies and sampling sites to replicate the findings in other higher education institutions (HEI), promoting the findings'

generalizability to other college or university student populations (Creswell & Creswell, 2018; Garza et al., 2014).

A recommendation for future studies relates to the operationalization or measurement of academic success. In the present study, self-reported GPA constituted academic success. A limitation of the present study may have been respondent bias associated with self-reported outcomes for academic success. Future research is needed to explore the associations between resilience or persistence and academic success when operationalized or constructed with additional valid achievement measures. As York et al. (2015) conceptualized, the constellation of academic success could consist of academic achievements like GPA, workforce attainment, satisfaction, achievement of learning outcomes, or skills acquirement. The replication of the study with a differently constructed academic success variable may provide valuable information on the relationship between resilience or persistence and other successful outcomes (Alyahyan & Dustegor, 2020).

Future studies should implement different research designs. First, the process-orientation of resilience and persistence, meaning the constructs could develop over time, may be overlooked with static cross-sectional data. Second, future researchers may consider different methods to explore the relationship between the variables since correlational studies are not designed to interpret definitive causal relationships (Gravetter et al., 2020; Price et al., 2013). The implementation of different research designs could address the limitation and explore causality. Future research is needed to examine if resilience or college persistence predicts or leads to academic success.

The present study's focus was on examining quantitative data collected with a survey. Future researchers may desire to incorporate qualitative data to explore the depth of community

college students' experiences with adversity and stress and the extent to which students employ strategies to cope and adapt. Including these data in either a qualitative or mixed methods study may offer valuable insight into practical interventions organizations could develop or implement to promote academic success. Additionally, qualitative data may provide insight into how community colleges perceive and measure academic success or idealize academic goals (Villarreal & Garcia, 2016).

Stemming from the interpretation of findings are recommendations for educational practice or policy within higher education institutions like community colleges. Conventionally, retention for higher education institutions represents the number of students returning or retained from academic year to academic year (NCES, 2020). Globally, the concept of retention reflects the organization's ability to retain students. Conversely, persistence represents a student-focused perspective, wherein organizations explore the student-centric traits or qualities which promote students' progress toward success or completion. Attention to resilience and persistence could capture data on the factors which promote students' adaptation and progress, informing institutional practices and potentially guiding the development of resilience- or persistence-based educational programs. Future research is necessary to determine programs' effects on building students' capacity in resilience or persistence.

Future research is indispensable for evaluating associations among familial support, resilience, and community college students' persistence. Family or social support is essential for academic success (Albright et al., 2017). Beale et al. (2019) explored the relationship between family support and college retention in a sample of African American male students and concluded family support with supplemental institutional support promoted students' motivation, retention, and success. In a sample of Latino males, Saenz et al. (2017) found the multiple roles

Latino males hold within family units posed no limitations on academic achievement. Zolkoski et al. (2016) theorized family dynamics or conditions, such as family cohesion, could be a protective barrier to challenges or stress, providing family support for the college student.

While positive family influences, such as family support, influence academic success (Albright et al., 2017; Beale et al., 2019), family problems or negative family life experiences could negatively influence college students (Zolkoski et al., 2016). Family obligations could influence academic achievement. In a qualitative study of nontraditional students, Marrero and Milacci (2018) reported nontraditional aged college students struggled with balancing family or work obligations with academic studies. Hlinka (2017) described family obligations as the *pull* students perceive when balancing family influences with academic endeavors. Future studies are necessary to determine whether promotive or inhibitive family influences correlate with academic success.

Implications for Leadership

The research study is significant for college students, educational leaders, and higher education institutions (HEI) and could impact change at individual and organizational levels. The research study showed the significant associations between personal resources like resilience and academic success. The study's findings further demonstrated the significant correlation between college persistence and academic success.

The significance of the study was the potential to yield information which college students and educational leaders could use to foster and promote success. Demonstrated in the present study were the associations between resilience, persistence, and academic success. Incorporating and developing skills to enhance resilience could promote college students' growth potential and adaptation to challenges. Persistence and academic success are significantly

associated (Fong et al., 2018). Knowledge of the dimensions of persistence could form individualized approaches to help students persist toward the academic goal. Through coaching and mentoring models, higher education leaders could empower college students to process, overcome, and surpass situations to achieve more positive or successful outcomes (Develos-Sacdalan & Bozkus, 2018; Stoffel & Cain, 2018).

As a student-centric approach, the capacity-building of community college students could influence persistence to academic goal achievement or success. Community college students with practical skills for adaptation and coping are more resilient to challenges and demonstrate more successful outcomes, such as academic achievement or gainful employment. Reyes et al. (2015) and Stoffel and Cain (2018) noted the similar success of resilience-based training for students, which improved skills leading to academic success. A practical recommendation and implication for leaders should be heightened focus on student-oriented characteristics which promote pathways to academic success.

Educational leaders' shift from a deficit or risk-based model to promotive factors like resilience could impact organizational change. When students or leaders predicate success on student-centric factors which build success, attention on risk factors and barriers to academic success shifts to capacity-building or growth-oriented perspectives. In collaboration with the K12 public education system, community college leaders could establish programs to promote resilience education to promote success.

In addition to fostering capacity-building skills for college students, educational leaders could springboard from the association between persistence factors, such as academic or social integration, and academic success. Bonet and Walters (2016) highlighted the positive association between the social integration factor of college persistence and academic success, and the present

study reinforced the findings of a significant relationship. Educational leaders' innovation, development of social learning communities, and incorporating flexible, adaptive, or alternative course schedules could promote overall college persistence toward academic success or achievement. College students' social integration into an educational setting promotes persistence and success (Bonet & Walters, 2016; Hatch, 2017; Williams et al., 2017).

Finally, the present study's findings could yield implications for higher education organizational policies and practices. The focus on measures of persistence which influence achievement or success could transform conventional interpretations of retention, which assess the re-enrollment of students (from year to year and provide institutional-level data) (Kennel & Ward-Smith, 2017; Kimbark et al., 2017). Implementing student-oriented factors which promote growth and positive outcomes could shift higher education's organizational culture away from a focus on institutional-level data outcomes to student-centered endeavors which promote the persistence of college students. For instance, community colleges could endeavor upon co-curricular learning, fostering education through non-academic ways, such as community service, fostering a sense of belonging within the broader college community (Vetter et al., 2019).

Conclusion

An overview of the previous chapters was presented in Chapter 5. The present study's findings, interpretations, conclusions, limitations, and implications for leadership were discussed. The research design and methods were highlighted and addressed the research questions and hypotheses.

The study's sample included 136 nontraditional aged community college students in rural Appalachia, which provided a sufficient sample size for a Pearson product-moment correlation. A justification for including academic success outliers was offered, and a discussion of

assumptions of data and the parametric statistic was provided. Pearson product-moment correlations were determined to be the appropriate statistic to assess associations between resilience or persistence and academic success. One Pearson correlation determined a statistically significant association between resilience and academic success, measured as grade point average (GPA) on a 4.00 scale. A second Pearson correlation determined a statistically significant correlation between persistence and academic success measured as GPA on a 4.00 scale. Additional Pearson correlations were replicated to evaluate the effect of outliers on the significance of the association between the variables when outliers were excluded.

Based on the theoretical framework of adaptation and resilience for the study, nontraditional community college students' resources, such as resilience, and social resources like the social integration factor of college persistence positively correlate with academic achievement or success (Herrero et al., 2019; Marrero & Milacci, 2018). The findings were consistent with other studies discussed in the literature review in Chapter 2. In addition, research demonstrates the development of resilience for community college students, and the integration of community college students into communities of learning edify persistence and potentially promotes positive outcomes (Brewer et al., 2019).

The study's limitations were discussed in the context of the sampling strategy, detailed in Chapter 3, and the study's external validity. Despite the limitations, the present study expanded upon conventional studies on retention and persistence to target under-studied and under-represented populations like nontraditional aged community college students in rural Appalachia. Generalizability of results was restricted to nontraditional aged community college students in rural Appalachia.

Demonstrable gaps in the literature on college persistence and success exist, as outlined

in Chapter 2. The present study expanded the body of knowledge on college persistence by focusing on the promotive factors which influence the academic success of nontraditional aged community college students in rural Appalachia. There were significant associations between individual and social resources and academic success for a population of community college students considered at-risk and who face challenges or obstacles to educational attainment. With the study's findings and interpretation, the research study helps to empower college students and higher education leaders to develop and implement resilience-building programs or foster social integration within learning communities. The synergy between personal and social resources could positively influence community college students' academic success.

References

- Abd Halim, M., Foozy, C. F. M., Rahmi, I., & Mustapha, A. (2018). A review of live survey application: SurveyMonkey and SurveyGizmo. *JOIV: International Journal on Informatics Visualization*, 2(4-2), 309-312.
<https://joiv.org/index.php/joiv/article/viewFile/170/162>
- Albica, E., & Martinez, E. (2016). Strategies for navigating financial challenges among Latino male community college students: Centralizing race, gender, and immigrant generation. *Journal of Applied Research in the Community College*, 23(2), 59-72.
<https://digitalcommons.unl.edu/cehsedadfacpub/95>
- Albright, J. N., Hurd, N. M., & Hussain, S. B. (2017). Applying a social justice lens to youth mentoring: A review of the literature and recommendations for practice. *American Journal of Community Psychology*, 59(3-4), 363-381. <https://doi.org/10.1002/ajcp.12143>
- Alyahyan, E., & Dustegor, D. (2020). Predicting academic success in higher education: Literature review and best practices. *International Journal of Educational Technology in Higher Education*, 17(3), 1-21. <https://doi.org/10.1186/s41236-020-0177-7>
- American Association of Community Colleges. (2020, March). 2020 Fact sheet.
<http://www.aacc.nche.edu/research-trends/fast-facts>
- Appalachian Regional Commission (ARC). (2020, June). The Appalachian region.
https://arc.gov/appalachian_region/TheAppalachianRegion.asp
- Argyros, G., & Johnson, C. (2019). Psychological resilience in higher education students: A systematic investigation of predictive factors. *Journal of Psychology*, 9(1-2), 18-28.
<https://doi.org/10.31901/24566292.2019/09.1-2.194>

- Ayers, D. F. (2017). Three functions of the community college statement. *New Directions for Community Colleges*, 2017(180), 9-17. <https://doi.org/10.1002/cc/20276>
- Azmitia, M., Sumabat-Estrada, G., Cheong, Y., & Covarrubias, R. (2018). "Dropping Out is Not an Option": How educationally resilient first-generation students see the future. *New Directions for Child and Adolescent Development*, 2018(160), 89-100. <https://doi.org/10.1002/cad.20240>
- Bala, J. (2016). Contribution of SPSS in social sciences research. *International Journal of Advanced Research in Computer Science*, 7(6), 250-254. <https://doi.org/10.23956/ijarccse.v7i6>
- Bauer, H. H., Anderson, C. B., Hirko, K., & Wendling, A. (2019). Barriers to college and health careers among U.S. students from a rural community. *PRiMER*, 3(10), 1-9. <https://doi.org/10.22454/PRiMER.2019.828405>
- Beale, T., Charleston, L., & Hilton, A. A. (2019). Black male college persistence: A phenomenological collective of familial and social motivators. *Journal of Research Initiatives*, 4(3), 1-18. <https://digitalcommons.uncfsu.edu/jri/vol4/iss3/1>
- Beauvais, A. M., Stewart, J. G., DeNisco, S., & Beauvais, J. E. (2014). Factors related to academic success among nursing students: A descriptive correlational research study. *Nurse Education Today*, 34(6), 918-923. <https://doi.org/10.1016/j.nedt.2013.12.005>

- Bell, D. A., Hackett, C. D., & Hoffman, J. L. (2016). Student satisfaction and success in a low-income community college environment. *Journal of Applied Research in the Community College*, 23(1), 1-16.
<https://www.ingentaconnect.com/contentone/montezuma/jarcc/2016/00000023/00000001/art00002>
- Bernardo, A., Esteban, M., Fernández, E., Cervero, A., Tuero, E., & Solano, P. (2016). Comparison of personal, social and academic variables related to university dropout and persistence. *Frontiers in Psychology*, 7(1610), 1-9.
<https://doi.org/10.3389/fpsyg.2016.01610>
- Betts, K. J., Shirley, J. A., & Kennedy, R. (2017). Identifying academic & social risk factors of baccalaureate nursing students using the College Persistence Questionnaire. *Journal of Education and Practice*, 8(12), 159-167. <https://core.ac.uk/download/pdf/234640179.pdf>
- Bickerstaff, S., Barragan, M., & Rucks-Ahidiana, Z. (2017). Experiences of earned success: community college students' shifts in college confidence. *International Journal of Teaching and Learning in Higher Education*, 29(3), 501-510.
[https://www.isetl.org/ijtlhe/pdf/IJTLHE29\(3\).pdf](https://www.isetl.org/ijtlhe/pdf/IJTLHE29(3).pdf)
- Bonet, G., & Walters, B. (2016). High impact practices: Student engagement and retention. *College Student Journal*, 50(2), 224-235. https://academicworks.cuny.edu/kb_pubs/102
- Brewer, M. L., van Kessel, G., Sanderson, B., Naumann, F., Lane, M., Reubenson, A., & Carter, A. (2019). Resilience in higher education students: a scoping review. *Higher Education Research & Development*, 38(6), 1105-1120.
<https://doi.org/10.1080/07294360.2019.1626810>

- Buzzanell, P. M., & Houston, J. B. (2018). Communication and resilience: Multilevel applications and insights—A *Journal of Applied Communication Research* forum. *Journal of Applied Communication Research*, 46(1), 1-4.
<https://doi.org/10.1080/00909882.2.2017.1412086>
- Byun, S., Irvin, M. J., & Meece, J. L. (2015). Rural–nonrural differences in college attendance patterns. *Peabody Journal of Education*, 90(2), 263-279.
<https://doi.org/10.1080/0161956X.2015.1022384>
- Carifio, J., & Perla, R. (2008). Resolving the 50 year debate around using and misusing Likert scales. *Medical Education*, 42, 1150-1152. <https://doi.org/10.1111/j.1365-2923.2008.03172.x>
- Causey, S. T., Livingston, J., & High, B. (2015). Family structure, racial socialization, perceived parental involvement, and social support as predictors of self-esteem in African American college students. *Journal of Black Studies*, 46(7), 655–677.
<https://doi.org/10.1177/021934715592601>
- Chadwick, M. (2019). A reflection on harnessing learned optimism, resilience and team growth behaviour in order to support student groups. *Student Success*, 10(3), 104-111.
<https://doi.org/10.5204/ssj.v10i3.1410>
- Chung, E., Turnbull, D., & Chur-Hansen, A. (2017). Differences in resilience between ‘traditional’ and ‘nontraditional’ university students. *Active Learning in Higher Education*, 18(1), 77-87. <https://doi.org/10.1177/1469787417693493>
- Clement, L. (2016). External and internal barriers to studying can affect student success and retention in a diverse classroom. *Journal of Microbiology & Biology Education*, 17(3), 351-359. <https://doi.org/10.1128/jmbe/v13i3.1077>

- Cotton, D. R., Nash, T., & Kneale, P. (2017). Supporting the retention of non-traditional students in Higher Education using a resilience framework. *European Educational Research Journal*, 16(1), 62–79. <https://doi.org/10.1177/1474904116652629>
- Crede, M., Tynan, M. C., & Harms, P. D. (2017). Much ado about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality and Social Psychology*, 113(3), 492–511. <https://doi.org/10.1037/pspp0000102>
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Los Angeles, CA: Sage.
- Cummings-Lilly, K. T., & Forrest-Bank, S. S. (2019). Understanding Appalachian microaggression from the perspective of community college students in southern West Virginia. *Journal of Sociology & Social Welfare*, 46(2), 125-153. <https://heinonline.org/HOL/P?h=hein.journals/jrlsasw46&i=279>
- Curtin, K. A., Schweitzer, A., Tuxbury, K., & D'Aoust, J. A. (2016). Investigating the factors of resiliency among exceptional youth living in rural underserved communities. *Rural Special Education Quarterly*, 35(2), 3-9. <https://doi.org/10.1177/875687051603500202>
- David, K. M., Lee, M. E., Bruce, J. D., Coppedge, B. R., Dickens, D., Friske, J., Hall, A., Singleton, M., Swicegood, J., & Thorman, J. (2013). Barriers to success predict fall-to-fall persistence and overall GPA among community college students. *Journal of Applied Research in the Community College*, 21(1), 1-9. <https://www.ingentaconnect.com/content/montezuma/jarcc>

- Davidson, W. B., Beck, H. P., & Grisaffe, D. B. (2015). Increasing the institutional commitment of college students: Enhanced measurement and test of a nomological model. *Journal of College Student Retention: Research, Theory & Practice*, 17(2), 162-185.
<https://doi.org/10.1177/1521025115578230>
- Davidson, W. B., Beck, H. P., & Milligan, M. (2009). The college persistence questionnaire: Development and validation of an instrument that predicts student attrition. *Journal of College Student Development*, 50(4), 373-390. <https://doi.org/10.1353/csd.0.0079>
- Davis, A., Kimball, W., & Gould, E. (2015). *The class of 2015: Despite an improving economy, young grads still face an uphill climb*. Economic Policy Institute. Briefing Paper # 401.
<https://www.epi.org/publication/the-class-of-2015/>
- Deterding, N. M. (2015). Instrumental and expressive education: College planning in the face of poverty. *Sociology of Education*, 88(4), 284-301.
<https://doi.org/10.1177/0038040715603428>
- Develos-Sacdalan, K., & Bozkus, K. (2018). The mediator role of resilience between self-determination and self-efficacy. *Education Sciences & Psychology*, 50(4), 49–60.
<https://files.eric.ed.gov/fulltext/ED592762.pdf>
- De Winter, J. F. C., & Dodou, D. (2010). Five-point Likert items: t-test versus Mann-Whitney-Wilcoxon. *Practical Assessment, Research, and Evaluation*, 15(11), 1-16.
<https://doi.org/10.7275/bj1p-ts64>
- Dika, S. L., & D'Amico, M. M. (2016). Early experiences and integration in the persistence of first-generation college students in STEM and non-STEM majors. *Journal of Research in Science Teaching*, 53(3), 368-383. <https://doi.org/10.1002/tea.21301>

- Dixson, D. D., Roberson, C. C. B., & Worrell, F. C. (2017). Psychosocial keys to African American achievement? Examining the relationship between achievement and psychosocial variables in high achieving African Americans. *Journal of Advanced Academics*, 28(2), 120-140. <https://doi.org/10.1177/1932202X17701734>
- Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the Short Grit Scale (Grit-S). *Journal of Personality Assessment*, 91(2), 166-174. <https://doi.org/10.1080/00223890802634290>
- Dunn, M., & Kalleberg, A. (2017). Does college focus matter? Explaining differences in labor market outcomes among community colleges. *Journal of Educational Issues*, 3(1), 189-213. <https://doi.org/10.5296/jei.v3i1.11093>
- Electronic Code of Federal Regulations. (2018). Protection of human subjects, 45 C.F.R. § 46. <https://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=83cd09e1c0f5c6937cd9d7513160fc3f&pitd=20180719&n=pt45.1.46&r=PART&ty=HTML#se45.1.461101>
- Ellis, H. (2019). A nontraditional conundrum: The dilemma of nontraditional student attrition in higher education. *College Student Journal*, 53(1), 24-32. <https://www.ingentaconnect.com/content/prin/csj/2019/00000053/00000001/art00004>
- Esteban, M., Bernardo, A., & Rodríguez-Muñiz, L. J. (2016). Permanencia en la universidad: la importancia de un buen comienzo. *Aula Abierta* 44, 1-6. <https://doi.org/10.1016/j.aula.2015.04.001>
- Evans, J. R., & Mathur, A. (2018). The value of online surveys: A look back and a look ahead. *Internet Research*, 28(4), 854-887. <https://doi.org/10.1108/IntR-03-2018-0089>

- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analysis using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149-1160. <https://doi.org/10.3758/BRM.41.4.1149>
- Fong, C. J., Acee, T. W., & Weinstein, C. E. (2018). A person-centered investigation of achievement motivation goals and correlates of community college student achievement and persistence. *Journal of College Student Retention: Research, Theory & Practice*, 20(3), 369-387. <https://doi.org/10.1177/1521025116673374>
- Fong, C. J., Krause, J., Acee, T., & Weinstein, C. E. (2015). Motivation for staying in college: Differences between LEP (limited English proficiency) and non-LEP Hispanic community college students. *Journal of Hispanic Higher Education*, 15(4), 340-357. <https://doi.org/10.1177/1538192715607332>
- Galante, J., Dufour, G., Vainre, M., Wagner, A. P., Stochl, J., Benton, A., Lathian, N., Howarth, A., & Jones, P. B. (2018). A mindfulness-based intervention to increase resilience to stress in university students (the Mindful Student Study): A pragmatic randomised controlled trial. *The Lancet Public Health*, 3(2), e72–e81. [https://doi.org/10.1016/s2468-2667\(17\)30231-1](https://doi.org/10.1016/s2468-2667(17)30231-1)
- Ganss, K. M. (2016). The college transition for first-year students from rural Oregon communities. *Journal of Student Affairs Research and Practice*, 53(3), 269-280. <https://doi.org/10.1080/19496591.2016.1157487>
- Garcia-Rios, R., Perez-Gonzalez, F., Castillo Fuentes, M., & Cavas-Martinez, F. (2019). Predicting first-year college student retention: Validation of the College Persistence Questionnaire in a Spanish speaking sample. *Sustainability*, 11(16), 4425-4432. <https://doi.org/10.3390/su11164425>

- Garnezy, N. (1991). Resilience in children's adaptation to negative life events and stressed environments. *Pediatric Annals*, 20(9), 459-466. <https://doi.org/10.3928/0090-4481-19910901-05>
- Garza, K. K., Bain, S. F., & Kupczynski, L. (2014). Resiliency, self-efficacy, and persistence of college seniors in higher education. *Research in Higher Education Journal*, 26(1), 1-19. <https://files.eric.ed.gov/fulltext/EJ1055323.pdf>
- Ghosh, D., & Vogt, A. (2012, July). Outlier: An evaluation of methodologies. In *Joint statistical meetings* (Vol. 2012). 3455-3460. https://www.amstat.org/sections/srms/Proceedings/y2012/files/304068_72402.pdf
- Goncalves, A. M., Cabral, L. D. R., Ferreira, M. D. C., Martins, M. D. C., & Duarte, J. C. (2017). Negative life events and resilience in higher education students. *The European Journal of Social and Behavioural Sciences*, 19(2), 2381-2392. <https://doi.org/10.15405/ejsbs.211>
- Gravetter, F. J., Wallnau, L. B., Forzano, L. A. B., & Witnauer, J. E. (2020). *Essentials of statistics for the behavioral sciences*. Belmont, CA: Cengage Learning.
- Gruttner, M. (2019). Belonging as a resource of resilience: Psychological wellbeing of international and refugee students in study preparation at German higher education institutions. *Student Success*, 10(3), 36-44. <https://doi.org/10.5204/ssj.v10i3.1275>
- Gupton, J. T. (2017). Campus of Opportunity: A qualitative analysis of homeless students in community college. *Community College Review*, 45(3), 190-214. <https://doi.org/10.1177/0091552117700475>

- Hagedorn, R., & Olfert, M. (2018). Food insecurity and behavioral characteristics for academic success in young adults attending an Appalachian university. *Nutrients*, 10(361), 1-12.
<https://doi.org/10.3390/nu10030361>
- Haktanir, A., Watson, J. C., Ermis-Demirtas, H., Karaman, M. A., Freeman, P. D., Kumaran, A., & Streeter, A. (2018). Resilience, academic self-concept, and college adjustment among first-year students. *Journal of College Student Retention: Research, Theory & Practice*, 17(2), 186-203. <https://doi.org/10.1177/1521025118810666>
- Hand, C., & Payne, E. M. (2008). First-generation college students: A study of Appalachian student success. *Journal of Developmental Education*, 32(1), 4-15.
<https://www.ncde.appstate.edu/jde>
- Hatch, D. K. (2017). The structure of student engagement in community college student success programs: A quantitative activity systems analysis. *AERA Open*, 3(4), 1-14.
<https://doi.org/10.1177/2332858417732744>
- Hatch, D. K., & Garcia, C. E. (2017). Academic advising and the persistence intentions of community college students in their first weeks in college. *The Review of Higher Education*, 40(3), 353-390. <https://doi.org/10.1353/rhe.2017.0012>
- Havlicek, L. L., & Peterson, N. L. (1976). Robustness of the Pearson correlation against violations of assumptions. *Perceptual and Motor Skills*, 43(3), 1319 -1334.
<https://doi.org/10.2466/pms.1976.43.3f.1319>
- Heinen, I., Bullinger, M., & Kocalevent, R. D. (2017). Perceived stress in first year medical student associations with personal resources and emotional distress. *BMC Medical Education*, 17(1), 4-17. <https://doi.org/10.1186/s12909-016-0841-8>

Hensley, L., Shaulskiy, S., Zircher, A., & Sanders, M. (2015). Overcoming barriers to engaging in college academics. *Journal of Student Affairs Research and Practice*, 52(2), 176-189.

<https://doi.org/10.1080/19496591.2015.1020246>

Herbert, H. S., & Manjula, M. (2017). Stress-coping and factors contributing to resilience in college students: An exploratory study from India. *Indian Journal of Clinical Psychology*, 44(1), 26-34. <http://iacp.in/downloads/ijcp/2017fa.pdf#page=34>

Herrero, R., Mira, A., Cormo, G., Etchemendy, E., Baños, R., García-Palacios, A., Ebert, D. D., Franke, M., Berger, T., Schaub, M. P., Görlich, D., Jacobi, C., & Botella, C. (2019). An Internet based intervention for improving resilience and coping strategies in university students: Study protocol for a randomized controlled trial. *Internet Interventions*, 16, 43-51. <https://doi.org/10.1016/j.invent.2018.03.005>

Hlinka, K. R. (2017). Tailoring retention theories to meet the needs of rural Appalachian community college students. *Community College Review*, 45(2), 144-164.

<https://doi.org/10.1177/0091552116686403>

Hlinka, K. R., Mobelini, D. C., & Giltner, T. (2015). Tensions impacting student success in a rural community college. *Journal of Research in Rural Education*, 30(5), 1-16.

<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1089.7039&rep=rep1&type=pdf>

Hochanadel, A., & Finamore, D. (2015). Fixed and growth mindset in education and how grit helps students persist in the face of adversity. *Journal of International Education Research (JIER)*, 11(1), 47-50. <https://doi.org/10.19030/jier.v11i1.9099>

- Hollifield-Hoyle, H., & Hammons, J. (2015). The neglected minority: Interviews with successful community college students from poverty. *Community College Enterprise*, 21(2), 29-61.
<https://home.schoolcraft.edu/cce/21.2.29-61.pdf>
- Holmes, D. L., & Slate, J. R. (2017). Differences in GPA by gender and ethnicity/race as a function of first-generation status for community college students. *Global Journal of Human-Social Science Research*, 17(3), 1-5. <https://globaljournals.org/journals/human-social-science-journal>
- Howard, J. M., Nicholson, B. C., & Chesnut, S. R. (2019). Relationships between positive parenting, overparenting, grit, and academic success. *Journal of College Student Development*, 60(2), 189-202. <https://doi.org/10.1353/csd.2019.0018>
- Hu, T., Zhang, D., & Wang, J. (2015). A meta-analysis of the trait resilience and mental health. *Personality and Individual Differences*, 76, 18-27.
<https://doi.org/10.1016/j.paid.2014.11.039>
- Jamieson, S. (2004). Likert scales: How to (ab)use them. *Medical Education*, 38(12), 1212-1218.
<https://doi.org/10.1111/j.1365-2929.2004.02014.x>
- Johnson, M. L., Taasobshirazi, G., Clark, L., Howell, L., & Breen, M. (2016). Motivations of traditional and nontraditional college students: From self-determination and attributions to expectancy and values. *The Journal of Continuing Higher Education*, 64(1), 3-15.
<https://doi.org/10.1080/07377363.2016.1132880>
- Kannangara, C. S., Allen, R. E., Waugh, G., Nahar, N., Khan, S. Z. N., Rogerson, S., & Carson, J. (2018). All that glitters is not grit: Three studies of grit in university students. *Frontiers in Psychology*, 9 (1539), 1-15. <https://doi.org/10.3389/fpsyg.2018.01539>

- Kennel, K. D., & Ward-Smith, P. (2017). Academic persistence among nursing students: A concept analysis. *Journal of Nursing Education and Practice*, 7(11), 62-68.
<https://doi.org/10.5430/jnep.v7n11p62>
- Khallad, Y., & Jabr, F. (2015). Effects of perceived social support and family demands on college students' mental wellbeing: A cross-cultural investigation. *International Journal of Psychology*, 50(5), 1-8. <https://doi.org/10.1002/ijop.12177>
- Kimbark, K., Peters, M., & Richardson, T. (2017). Effectiveness of the student success course on persistence, retention, academic achievement, and student engagement. *Community College Journal of Research and Practice*, 41(2), 124-138.
<https://doi.org/10.1080/10668926.2016.1166352>
- Kohler, C. W. (2017). Persistence in STEM majors: Investigating whether and when high-performing students leave STEM during undergraduate studies. *Journal of Research in STEM Education*, 3(1/2), 17-33. <https://jstem.net/index.php/jstem/article/download/27/25>
- Koricich, A., Chen, X., & Hughes, R. P. (2018). Understanding the effects of rurality and socioeconomic status on college attendance and institutional choice in the United States. *The Review of Higher Education*, 41(2), 281-305.
<https://doi.org/10.1353/rhe.2018.0004>
- Kretzschmar, A., & Gignac, G. E. (2019). At what sample size do latent variable correlations stabilize? *Journal of Research in Personality*, 80, 17-22.
<https://doi.org/10.1016/j.jrp.2019.03.007>

Kwak, S. K., & Kim, J. H. (2017). Statistical data preparation: Management of missing values and outliers. *Korean Journal of Anesthesiology*, 70(4), 407-411.

<https://doi.org/10.4097/kjae.2017.70.4.407>

Laerd Statistics. (2020). *Pearson's product-moment correlation using SPSS statistics*.

<https://statistics.laerd.com/spss-tutorials/pearsons-product-moment-correlation-using-spss-statistics.php>

Ledesma, J. (2014). Conceptual frameworks and research models on resilience in leadership.

Sage Open, 4(3). <https://doi.org/10.1177/2158244014545464>

Lee, W. W. S. (2017). Relationships among grit, academic performance, perceived academic failure, and stress in associate degree students. *Journal of Adolescence*, 60, 148-152.

<https://doi.org/10.1016/j.adolescence.2017.08.006>

Lent, R. W., Miller, M. J., Smith, P. E., Watford, B. A., Lim, R. H., & Hui, K. (2016). Social cognitive predictors of academic persistence and performance in engineering:

Applicability across gender and race/ethnicity. *Journal of Vocational Behavior*, 94, 79-

88. <https://doi.org/10.1016/j.jvb.2016.02.012>

Lock, S., Rees, C. S., & Heritage, B. (2020). Development and validation of a brief measure of psychological resilience: The state-trait assessment of resilience scale. *Australian*

Psychologist, 55(1), 10-25. <https://doi.org/10.1111/ap.12434>

Lukianoff, G., & Haidt, J. (2015). The coddling of the American mind. *The Atlantic*, 316(2), 42-

52. <https://www.theatlantic.com/magazine/archive/2015/09/the-coddling-of-the-american-mind/399356>

- Lumontod, R. Z. (2019). How grit, college adjustment, and happiness predict freshmen students' academic performance?. *International Journal of Research*, 8(2), 37-50.
<https://doi.org/10.5861/ijrsp.2019.4010>
- Luthar, S. S., & Eisenberg, N. (2017). Resilient adaptation among at-risk children: Harnessing science toward maximizing salutary environments. *Child Development*, 88(2), 337-349.
<https://doi.org/10.1111/cdev.12737>
- Lynch, H. F. (2018). Opening closed doors: Promoting IRB transparency. *The Journal of Law, Medicine & Ethics*, 46(1), 145-158. <https://doi.org/10.1177/1073110518766028>
- Mansfield, C. F., Beltman, S., Broadley, T., & Weatherby-Fell, N. (2016). Building resilience in teacher education: An evidenced informed framework. *Teaching and Teacher Education*, 54, 77-87.
https://espace.curtin.edu.au/bitstream/handle/20.500.11937/13652/237227_237227.pdf
- Marcus, J., & Krupnick, M. (2017, September). The rural higher-education crisis. *The Atlantic*.
<https://www.theatlantic.com/education/archive/2017/09/the-rural-higher-education-crisis/541188/>
- Marre, A. (2017). *Rural education at a glance* (No. 1476-2017-3899).
<https://www.ers.usda.gov/publications/pub-details/?pubid=83077>
- Marrero, F. A., & Milacci, F. (2018). Voices from the academic trenches: Academic persistence among nontraditional undergraduate Hispanic students at Hispanic serving institutions. *Journal of Ethnographic & Qualitative Research*, 12(3), 219-232.
<https://www.cedarville.edu/academics/education/>

- Martin, K., Galentino, R., & Townsend, L. (2014). Community college student success: The role of motivation and self-empowerment. *Community College Review*, 42(3), 221-241.
<https://doi.org/10.1177/0091552114528972>
- Masten, A. S., & Monn, A. R. (2015). Child and family resilience: A call for integrated science, practice, and professional training. *Family Relations*, 64(1), 5-21.
<https://doi.org/10.1111/fare.12103>
- Means, D. R., Clayton, A. B., Conzelmann, J. G., Baynes, P., & Umbach, P. D. (2016). Bounded aspirations: Rural, African American high school students and college access. *The Review of Higher Education*, 39(4), 543-569. <https://doi.org/10.1353/rhe.2016.0035>
- Mellor, D. T., Brooks, W. R., Gray, S. A., & Jordan, R. C. (2015). Troubled transitions into college and the effects of a small intervention course. *Journal of College Student Retention: Research, Theory & Practice*, 17(1), 44-63.
<https://doi.org/10.1177/1521025115571102>
- Mertes, S. J., & Jankoviak, M. W. (2016). Creating a college-wide retention program: A mixed methods approach. *The Community College Enterprise*, 22(1), 9-27.
<https://home.schoolcraft.edu/cce/22.1.9-27.pdf>
- Mishra, P., Pandey, C., Singh, U., & Gupta, A. (2019). Descriptive statistics and normality tests for statistical data. *Annals of Cardiac Anaesthesia*, 22(1), 67-72.
https://doi.org/10.4103/aca.ACA_157_18
- Moke, K. K. F., Chang, C. K. W., Prihadi, K., & Goh, C. L. (2018). Mediation effect of resilience on the relationship between self-efficacy and competitiveness among university students. *International Journal of Evaluation and Research in Education*, 7(4), 279-284.
<https://doi.org/10.11591/ijere.v7.i4.pp279-284>

- Moore, M., Culpepper, S., Phan, K. L., Strauman, T. J., Dolcos, F., & Dolcos, S. (2018). Neurobehavioral mechanisms of resilience against emotional distress: An integrative brain-personality-symptom approach using structural equation modeling. *Personality Neuroscience*, 1(8). <https://doi.org/10.1017/pen.2018.11>
- Morton, T. R., Ramirez, N. A., Meece, J. L., Demetriou, C., & Panter, A. T. (2018). Perceived barriers, anxieties, and fears in prospective college students from rural high schools. *High School Journal*, 101(3), 155-176. <https://doi.org/10.2307/90024241>
- Moschetti, R. V., & Hudley, C. (2015). Social capital and academic motivation among first-generation community college students. *Community College Journal of Research and Practice*, 39(3), 235-251. <https://doi.org/10.8080/10668926.2013.819304>
- Nadasen, D., & List, A. (2016). Using community college prior Academic performance to predict re-enrollment at a four-year online university. *Online Learning*, 20(2), 120-133. <https://olj.onlinelearningconsortium.org/index.php/olj/article/view/800>
- National Center for Education Statistics (NCES). (2020). *Digest of Education Statistics, 2020*. U.S. Department of Education. <http://nces.ed.gov>
- Nelson, I. A. (2019). Starting over on campus or sustaining existing ties? Social capital during college among rural and non-rural graduates. *Qualitative Sociology*, 42(4), 93-116. <https://doi.org/10.1007/s11133-018-9399-6>
- Nichols, L., & Islas, A. (2016). Pushing and pulling emerging adults through college: College generational status and the influence of parents and others in the first year. *Journal of Adolescent Research*, 31(1), 59-95. <https://doi.org/10.1177/0743558415586255>
- Norman, G. (2010). Likert scales, levels of measurement, and the “laws” of statistics. *Advances in Health Science Education*, 15(5), 625-632. <https://doi.org/10.1007/s10459-010-9222-y>

NSC Research Center. (2019, December 5). Persistence & Retention - 2019.

<https://nscresearchcenter.org/snapshotreport35-first-year-persistence-and-retention/>

Olszewski-Kubilius, P., & Corwith, S. (2018). Poverty, academic achievement, and giftedness: A literature review. *Gifted Child Quarterly*, 62(1), 37-55.

<https://doi.org/10.1177/0016986217738015>

Oz, H. (2016). Metacognitive awareness and academic motivation: A cross-sectional study in teacher education context of Turkey. *Procedia - Social and Behavioral Sciences*, 232, 109–121. <https://doi.org/10.1016/j.sbspro.2016.10.035>

Parsons, S., Kruijt, A.-W., & Fox, E. (2016). A cognitive model of psychological resilience. *Journal of Experimental Psychopathology*, 7(3), 296–310.

<https://doi.org/10.5127/jep.053415>

Paskett, E., Young, G., Bernardo, B., Washington, C., DeGraffinreid, C., Fisher, J., & Huerta, T. (2019). Correlates of rural, Appalachian, and community identity in the CITIES cohort. *Journal of Rural Health*, 35(2), 167-175. <https://doi.org/10.1111/jrh.13647>

Pearson, E. S. (1931). The analysis of variance in cases on non-normal variation. *Biometrika*, 23(1/2), 114-133. <https://doi.org/10.2307/2333631>

Peer, J. W., Hillman, S. B., & Van Hoet, E. (2015). The effects of stress on the lives of emerging adult college students: An exploratory analysis. *Adultspan Journal*, 14(2), 90–99. <https://doi.org/10.1002/adsp.12007>

Peterson, S. (2016). Community college student-parents: Priorities for persistence. *Community College Journal of Research and Practice*, 40(5), 370-384. <https://doi.org/10.1080/10668926.2015.1065210>

Pidgeon, A. M., & Pickett, L. (2017). Examining the differences between university students' levels of resilience on mindfulness, psychological distress and coping strategies.

European Scientific Journal, 13, 103-113.

http://epublications.bond.edu.au/fsd_papers/506

Potter, D., Jayne, D., & Britt, S. (2020). Financial anxiety among college students: The role of generational status. *Journal of Financial Counseling and Planning*, 31(2), 284-295.

<https://doi.org/10.1897/JFCP-17-00033>

Price, P. C., Jhangiani, R. S., & Chiang, I. C. (2013). *Research methods in psychology*.

<https://opentextbc.ca/researchmethods/chapter/correlational-research/>

Rahat, E., & Ilhan, T. (2016). Coping styles, social support, relational self-construal, and resilience in predicting students' adjustment to university life. (2016). *Educational*

Sciences: Theory & Practice, 16(1), 187-208. <https://doi.org/10.12738/estp.2016.1.0058>

Reason, R. D. (2009). An examination of persistence research through the lens of a comprehensive conceptual framework. *Journal of College Student Development*, 50(6),

659-682. <https://doi.org/10.1353/csd.0.0098>

Reraki, M., Celik, İ., & Sarıcam, H. (2015). Grit as a mediator of the relationship between motivation and academic achievement. *Ozean Journal of Social Science*, 8(1), 19-32.

<https://doi.org/10.13140/RG.2.2.15063.78240>

Reyes, A. T., Andrusyszyn, M. A., Iwasiw, C., Forchuk, C., & Babenko-Mould, Y. (2015).

Resilience in nursing education: An integrative review. *Journal of Nursing*

Education, 54(8), 438-444. <https://doi.org/10.3928/01484834-20150717-03>

Reynoso, N. A. (2008). Academic resiliency among Dominican English language learners

Community College Journal of Research and Practice, 32(4-6), 391-434.

<https://doi.org/10.1080/10668920701884364>

Reynoso, N. A. (2017). Flourishing in a new country: Resiliency among Dominican English language learners at a Bronx community college. *HETS Online Journal*, 8, 91-125.

<https://hets.org/ejournal/2017/11/14/flourishing-in-a-new-country-resiliency-among-dominican-english-language-learners-at-bronx-community-college/>

Rodriguez, M. S., Tinajero, C., & Paramo, M. F. (2017). Pre-entry characteristics, perceived social support, adjustment and academic achievement in first-year Spanish university students: A path model. *The Journal of Psychology*, 151(8), 722–738.

<https://doi.org/10.1080/00223980.2017.1372351>

Roksa, J., Silver, B. R., Deutschlander, D., & Whitley, S. E. (2020). Navigating the first year of college: Siblings, parents, and first-generation students' experiences. *Sociological Forum*, 35(3), 565-586. <https://doi.org/10.1111/socf.12617>

Rutter, M. (2006). Implications of resilience concepts for scientific understanding. *Annals of the New York Academy of Sciences*, 1094(1), 1-12. <https://doi.org/10.1196/annals.1376.002>

Saenz, V., Garcia-Louis, C., Drake, A. P., & Guida, T. (2017). Leveraging their family capital: how Latino males successfully navigate the community college. *Community College Review*, 46(1), 40-61. <https://doi.org/10.1177/0091552117743567>

Salkind, N. J., & Shaw, L. A. (2019). *Statistics for people who (think they) hate statistics using R*. Thousand Oaks, CA: Sage publications.

- Sanchez, J. E., & Smith, J. (2017). Non-US citizen, community college students: Their Federal Student Aid status, gender, achievement, and persistence at an emerging HSI. *Journal of Student Financial Aid*, 47(3), Article 3. <https://ir.library.louisville.edu/jsfa/vol47/iss3/3>
- Saunders-Scott, D., Braley, M. B., & Stennes-Spidahl, N. (2018). Traditional and psychological factors associated with academic success: Investigating best predictors of college retention. *Motivation and Emotion*, 42(4), 459-465. <https://doi.org/10.1007/s11031-017-9660-4>
- Schiess, J., & Rotherham, A. J. (2015). *Big country: How variations in high school graduation plans impact rural students*. <http://www.rociidaho.org/big-country-how-variations-in-high-school-graduation-plans-impact-rural-students>
- Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: Appropriate use and interpretation. *Anesthesia & Analgesia*, 126(5), 1763-1768. <https://doi.org/10.1213/ANE.0000000000002864>
- Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research*, 3(7), 749-752. <http://dcac.du.ac.in/documents/E-Resource/2020/Metrial/409ShraddhaNand1.pdf>
- Shatkin, J., Diamond, U., Zhao, Y., DiMeglio, J., Chodaczek, M., & Bruzzese, J. (2016). Effects of risk and resilience course on stress, coping skills, and cognitive strategies in college students. *Teaching of Psychology*, 43(3), 204-210. <https://doi.org/10.1177/009862831664957>

- Shaw, S. T., & Chin-Newman, C. S. (2017). "You can do it!" Social support for transfer students during the transition from community college to a four-year university. *Journal of First-Year Experience & Students in Transition*, 29(2), 65-78.
https://sc.edu/about/offices_and_divisions/national_resource_center/publications/journal/
- Shean, M. (2015). Current theories relating to resilience and young people: A literature review, Current theories relating to resilience and young people: a literature review, (2015).
<https://evidenceforlearning.org.au/assets/Grant-Round-II-Resilience/Current-theories-relating-to-resilience-and-young-people.pdf>
- Shebuski, K., Bowie, J., & Ashby, J. S. (2020). Self-compassion, trait resilience, and trauma exposure in undergraduate students. *Journal of College Counseling*, 23(1), 2–14.
<https://doi.org/10.1002/jocc.12145>
- Sheehan, K. (2001). Email survey response rates: A review. *Journal of Computer-Mediated Communication*, 6(2). <http://dx.doi.org/10.1111/j.1083-6101.2001.tb00117.x>
- Simon, M. (2011). *Dissertation and scholarly research: Recipes for success*. Seattle, WA: Dissertation Success LLC.
- Skilbred, D. T., Iversen, A. C., & Moldestad, B. (2016). Successful academic achievement among foster children: What did the foster parents do? *Child Care in Practice*, 23(4), 356–371. <https://doi.org/10.1080/13575279.2016.1188764>
- Smith, B. W., Dalen, J., Wiggins, K., Tooley, E., Christopher, P., & Bernard, J. (2008). The brief resilience scale: Assessing the ability to bounce back. *International Journal of Behavioral Medicine*, 15(3), 194-200. <https://doi.org/10.1080/10705500802222972>

Southwick, S. M., Bonanno, G. A., Masten, A. S., Panter-Brick, C., & Yehuda, R. (2014).

Resilience definitions, theory, and challenges: Interdisciplinary perspectives. *European Journal of Psychotraumatology*, 5(1), 1-14. <https://doi.org/10.10.3402/ejpt.v5.25338>

Stanley, S., & Bhuvaneswari, G. M. (2015). Stress, anxiety, resilience and coping in social work students (a study from India). *Social Work Education*, 35(1), 78-88.

<https://doi.org/10.1080/02615479.2015.1118451>

Stewart, S., Lim, D. H., & Kim, J. (2015). Factors influencing college persistence for first-time students. *Journal of Developmental Education*, 38(3), 12-20.

<https://files.eric.ed.gov/fulltext/EJ1092649.pdf>

Stoffel, J. M., & Cain, J. (2018). Review of grit and resilience literature within health professions education. *American Journal of Pharmaceutical Education*, 82(2), 124-134.

<https://doi.org/5688/ajpe6150>

Sullivan, G. M., & Artino, A. R., Jr. (2013). Analyzing and interpreting data from Likert-type scales. *Journal of Graduate Medical Education*. 5(4), 541-542.

<https://doi.org/10.4300/JGME-5-4-18>

Tang, X., Wang, M. T., Guo, J., & Salmela-Aro, K. (2019). Building grit: The longitudinal pathways between mindset, commitment, grit, and academic outcomes. *Journal of Youth and Adolescence*, 48(5), 850-863. <https://doi.org/10.1007/s10964-019-00998-0>

Thomas, L. J., & Asselin, M. (2018). Promoting resilience among nursing students in clinical education. *Nurse Education in Practice*, 28, 231-234.

<https://doi.org/10.1016/j.nepr.2017.10.001>

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research.

Review of Educational Research, 45(1), 89-125. <https://www.jstor.org/stable/1170024>

- Tinto, V. (2017a). Reflections on student persistence. *Student Success*, 8(2), 1-8.
<https://doi.org/10.5204/ssj.vi2.376>
- Tinto, V. (2017b). Through the eyes of students. *Journal of College Student Retention: Research, Theory & Practice*, 19(3), 254-269. <https://doi.org/10.1177/1521025115621917>
- Troester-Trate, K. E. (2019). Food insecurity, inadequate childcare, & transportation disadvantage: Student retention and persistence of community college students. *Community College Journal of Research and Practice*, 44(8), 1-15.
<https://doi.org/10.1080/10668926.2019.1627956>
- Trolan, T. L., Jach, E. A., Hanson, J. M., & Pascarella, E. T. (2016). Influencing academic motivation: The effects of student-faculty interaction. *Journal of College Student Development*, 57(7), 810–826. <https://doi.org/10.1353/csd.2016.0080>
- Turner, J. S., & Juntune, J. (2018). Perceptions of the home environments of graduate students raised in poverty. *Journal of Advanced Academics*, 29(2), 91-115.
<https://doi.org/10.1177/1932202X18758259>
- Ungar, M. (2016). Varied patterns of family resilience in challenging contexts. *Journal of Marital and Family Therapy*, 42(1), 19-31. <https://doi.org/10.1111/jmft.12124>
- U.S. Department of Health and Human Services. (2009). *Basic HHS policy for protection of human research subjects*.
<https://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html>
- Van Agteren, J., Woodyatt, L., Iasiello, M., Rayner, J., & Kyrios, M. (2019). Make it measurable: Assessing psychological distress, wellbeing and resilience at scale in higher education. *Student Success*, 10(3), 1–13. <https://doi.org/10.5204/ssj.v10i3.1411>

- Van Rooij, E. C., Jansen, E. P., & van de Grift, W. J. (2018). First-year university students' academic success: The importance of academic adjustment. *European Journal of Psychology of Education*, 33(4), 749-767. <https://doi.org/10.1007/s10212-017-0364-7>
- Vega, D., Moore, J. L., & Miranda, A. H. (2015). In their own words: Perceived barriers to achievement by African American and Latino high school students. *American Secondary Education*, 43(3), 36-59. <https://www.jstor.org/stable/43694217>
- Vetter, M. K., Schreiner, L. A., McIntosh, E. J., & Dugan, J. P. (2019). Leveraging the quantity and quality of co-curricular involvement experiences to promote student thriving. *The Journal of Campus Activities Practice & Scholarship*, 1(1), 39-51. https://www.naca.org/JCAPS/Documents/Vetter_Article_JCAPS_Issue_1.pdf
- Villarreal, M., & Garcia, H. (2016). Self-determination and goal aspirations: African American and Latino males' perceptions of their persistence in community college basic and transfer-level writing courses. *Community College Journal of Research and Practice*, 40(10), 838-853. <https://doi.org/10.1080/10668926.2015.1125314>
- Wachen, J., Pretlow, J., & Dixon, K. G. (2018). Building college readiness: Exploring the effectiveness of the UNC academic summer bridge program. *Journal of College Student Retention: Research, Theory & Practice*, 20(1), 116-138. <https://doi.org/10.1177/1521025116649739>
- Walsh, F. (2016). Family resilience: A developmental systems framework. *European Journal of Developmental Psychology*, 13(3), 313-324. <https://doi.org/10.1080/17405629.2016.1154035>

- Warden, D. N., & Myers, C. A. (2017). Nonintellective variables and nontraditional college students: A domain-based investigation of academic achievement. *College Student Journal*, 51(3), 380-390. <https://www.ingentaconnect.com/content/prin/csji/>
- Werner, E., & Smith, R. (1982). *Vulnerable but invincible: A longitudinal study of resilient children and youth*. New York, NY: McGraw-Hill.
- Werner, E., & Smith, R. (1992). *Overcoming the odds: High risk children from birth to adulthood*. Ithaca, NY: Cornell University Press.
- Werner, K. M., Milyavskaya, M., Klimo, R., & Levine, S. L. (2019). Examining the unique and combined effects of grit, trait self-control, and conscientiousness in predicting motivation for academic goals: A commonality analysis. *Journal of Research in Personality*, 81, 168-175. <https://doi.org/10.31364/osf.io/wbgs8>
- West Virginia Community and Technical College System. (2020). *West Virginia Higher Education: Almanac 2020*. West Virginia Higher Education Policy Commission. <https://wvhepc.edu/resources/data-and-publications-center>
- White, V. M., Alexander, J. H., Prince, D., & Verdell, A. (2018). The impact of student engagement, institutional environment, college preparation, and financial support on the persistence of underrepresented minority students in engineering at a predominately White institution: A perspective from students. *Journal of Higher Education Theory and Practice*, 18(2), 1-15. <https://doi.org/10.33423/jhetp.v18i2.544>
- Wilbur, T., & Roscigno, V. (2016). First-generation disadvantage and college enrollment/completion. *Sociological Research for a Dynamic World*, 2, 1-11. <https://doi.org/10.1177/2378023116664351>

- Williams, J. M., Bryan, J., Morrison, S., & Scott, T. R. (2017). Protective factors and processes contributing to the academic success of students living in poverty: Implications for counselors. *Journal of Multicultural Counseling and Development, 45*(3), 183-200.
<https://doi.org/10.1002/jmcd.12073>
- Williams, J. M., Steen, S., Albert, T., Dely, B., Jacobs, B., Nagel, C., & Irick, A. (2015). Academically resilient, low-income students' perspectives of how school counselors can meet their academic needs. *Professional School Counseling, 19*(1), 155-165.
<https://doi.org/10.5330/1096-2409-19.1.155>
- Witkow, M. R., Huynh, V., & Fuligni, A. J. (2015). Understanding differences in college persistence: A longitudinal examination of financial circumstances, family obligations, and discrimination in an ethnically diverse sample. *Applied Developmental Science, 19*(1), 4-18. <https://doi.org/10.1080/10888691.2014.946030>
- Wolf, D. A. P. S., Perkins, J., Butler-Barnes, S. T., & Walker, T. A., Jr. (2017). Social belonging and college retention: Results from a quasi-experimental pilot study. *Journal of College Student Development, 58*(5), 777-782. <https://doi.org/10.1353/csd.2017.0060>
- Wood, J. L., & Shumaker, R. (2016). Understanding first-generation community college students: An analysis of covariance examining use of, access to, and efficacy regarding institutionally offered services. *Community College Enterprise, 22*(2), 9-17.
https://works.bepress.com/jluke_wood/90/
- Wu, L., Zhang, D., Cheng, G., & Hu, T. (2018). Bullying and social anxiety in Chinese children: Moderating roles of trait resilience and psychological suzhi. *Child Abuse & Neglect, 76*, 204–215. <https://doi.org/10.1016/j.chiabu.2017.10.021>

- Yeager, D. S., & Dweck, C. S. (2012). Mindsets that promote resilience: When students believe that personal characteristics can be developed. *Educational Psychologist*, 47(4), 302-314. <https://doi.org/10.1080/00461520.2012.722805>
- York, T. T., Gibson, C., & Rankin, S. (2015). Defining and measuring academic success. *Practical Assessment, Research, and Evaluation*, 20(5), 1-20. <https://doi.org/10.7275/hz5x-tx03>
- Yu, H. (2017). Factors associated with student academic achievement at community colleges. *Journal of College Student Retention: Research, Theory & Practice*, 19(2), 224-239. <https://doi.org/10.1177/1521025115612484>
- Yun, S., Hiver, P., & Al-Hoorie, A. H. (2018). Academic buoyancy: Exploring learners' everyday resilience in the language classroom. *Studies in Second Language Acquisition*, 40(4), 805-830. <https://doi.org/10.1017/S0272263118000037>
- Zang, Y., Gallagher, T., McLean, C. P., Tannahill, H. S., Yarvis, J. S., & Foa, E. B. (2017). The impact of social support, unit cohesion, and trait resilience on PTSD in treatment-seeking military personnel with PTSD: The role of posttraumatic cognitions. *Journal of Psychiatric Research*, 86, 18-25. <https://doi.org/10.1016/j.jpsychires.2016.11.005>
- Zolkoski, S. M., Bullock, L. M., & Gable, R. A. (2016). Factors associated with student resilience: Perspectives of graduates of alternative education programs. *Preventing School Failure: Alternative Education for Children and Youth*, 60(3), 231-243. <https://doi.org/10.45988X.2015.1101677>
- Zumbo, B. D., & Zimmerman, D. W. (1993). Is the selection of statistical methods governed by level of measurement? *Canadian Psychology*, 34(4), 390-400. <https://doi.org/10.1037/h0078865>

Appendix A

Site Permission to Collect Data

Michael Waide <

>

HELP: Request for site permission for dissertation

1 message

Michael Waide ·

Mon, Jul 27, 2020 at 12:56 PM

To:

Good afternoon, colleagues in academic and student affairs in !

I hope this email finds you well.

Please see below a request for the eventual collection of survey data of students enrolled in one-year and two-year degrees within your respective institutions. This is pre-IRB for the institution in which I am enrolled for my doctoral degree and is to identify potential sites for data collection. At the time of any survey, I would most assuredly provide a copy of the IRB approval (and letter from the American College of Education) for the study. **At this moment, I am graciously asking about the possibility to survey your students when it comes time to collect data. If you grant permission to include your college as a site, I will gladly provide your IRB an approval letter from the American College of Education to engage in doctoral research.**

I reached out to HEPC, and Pam Woods at HEPC encouraged me to reach out to the individual schools.

If you allow doctoral candidates to collect data, please reply and offer a simple acknowledgment or permission. When approved by my IRB, I will submit copies of the IRB approval to your institution. Thank you to contributing to research on the resilience and persistence of college students in rural Appalachia.

Thank you.

~~~~~

My name is Michael Paul Waide and I am a doctoral candidate at American College of Education (ACE) writing to request permission to use an online instrument to survey community college students enrolled in your respective member college of the Community & Technical College System. This information will be used for my dissertation research related to *This information will be used for my dissertation research related to The Resilience of Community College Students in Rural Appalachia: A Correlational Study.*

The purpose of this correlational quantitative study will be to explore and determine the relationship between factors of resilience and factors of college persistence of community college students in rural Appalachia and the academic success.

From the population of community college students, the study would conveniently sample a cross-section of 200 community college students enrolled within the Community & Technical College System.

In the study, I will attempt to answer the following questions:

- What is the relationship between resilience and academic success for non-traditional aged community college students, aged 24 or more years, in rural Appalachia?
- What is the relationship between persistence and academic success for non-traditional aged community college students, aged 24 or more years, in rural Appalachia?

Important Contacts for this study include:

Principal Investigator: Michael Paul Waide  
E-mail:

Phone:

Dissertation Chair: Dr. Sherry Ayala

E-mail:

At the time of survey, I would most assuredly provide a copy of the IRB approval of the study.

**At this moment, I am graciously asking about the possibility to submit an IRB request and or survey your students when it comes time to collect data.**

Thank you for your attention to this issue and prompt response. I appreciate your time and consideration of my request.

Regards,

**Michael Paul Waide**

---

**Request for Dissertation Help**

---

Wed, Jul 29, 2020 at 10:45 AM

To: Michael Waide ·

Hello, Michael,

Congratulations for getting to this advanced stage of your work. The work itself sounds very meaningful. You may count us in at ' he might designate will serve as your point of contact. Best wishes with the work.

---

**HELP: Request for site permission for dissertation**

---

Mon, Jul 27, 2020 at 11:53 PM

To: Michael Waide

Michael,

I believe                could help you. We do not have an IRB process, but we can look at your proposal to ensure student privacy.

Good Luck

Confidentiality Notice: The information contained in this e-mail and all attachments is confidential and is for the sole use of its intended recipient. It may not be disclosed to or used by anyone other than the addressee. If received in error, please contact the sender by return e-mail and delete this e-mail and all attachments from your system. Thank you.

---

[Quoted text hidden]

---

**[External] RE: Request for Dissertation Help**

1 message

---

Mon, Aug 3, 2020 at 10:22 AM

Hello Michael,

**Yes,** I will participate and offer permission to serve as a site for potential data college (i.e., providing a link to an anonymous web-based survey), accepting the IRB approval of the American College of Education.

I will be your contact as your dissertation progresses.

Best,

---

**Request for Dissertation Help**

---

Sat, Aug 8, 2020 at 9:42 PM

I do apologize for the delay in replying to your request. [REDACTED] will be glad to participate if needed when the study has completed the IRB review.

Warm regards and continued health and safety,  
bbc



---

**Request for Dissertation Help**

---

Fri, Aug 14, 2020 at 9:21 AM

Dear Mr. Waide,

I grant you permission to collect information and conduct research related to your doctoral dissertation. If you need anything else, please let me know.

All the best,

**Appendix B****Recruitment Letter and Social Media Flyer Content**

(Date)

Dear student,

I am a doctoral student at the American College of Education. I am writing to let you know about an opportunity to participate in a dissertation research study. The study will examine the relationship between resilience, persistence, and the academic success of community college students. While factors of persistence have been researched and shown students with academic motivation are more likely to succeed academically, less is known about the role of resilience and its relationship to academic success. This background problem has motivated this researcher to complete a quantitative correlational study on the relationships between resilience, persistence, and academic success.

The benefit of the study is to examine if there is a correlation between resilience or persistence and academic success. As a result of this study, higher educational institutions may find the results valuable in developing programs to support or promote resilience and persistence. Results could increase student retention and academic success.

If you agree to participate in the study, please select the link provided in this letter. You will enter a web-based SurveyMonkey survey and answer a question about your age and willingness to participate in the survey. Your participation is entirely voluntary, and you can leave at any time.

I may publish the results of this study; however, I will not use your name or institution in the study. Your information will remain confidential. At the end of the study, the results will be available for participants. If you would like additional information about this study—before, during, or after the survey—please call me at \_\_\_\_\_ or email me at \_\_\_\_\_

Thank you again for considering this dissertation research opportunity.

Michael Paul Waide

## Social Media Flyer Content

**Headline:** Are you a student enrolled at a community college in rural Appalachia? If you are over 18 years old and interested in how resilience and persistence relate to your academic success, this study may be for you.

**Title:** Resilience of Community College Students in Rural Appalachia: A Quantitative Correlational Study

While factors of persistence have been researched and shown students with academic motivation are more likely to succeed academically, less is known about the role of resilience and its relationship to academic success.

**Details of Study:** The purpose of this study will be to explore the relationship between the resilience, persistence, and academic success of community college students in rural Appalachia.

Participants will be asked to participate in a brief 18-item survey, which takes no more than 20 minutes to complete, in the privacy of their home at a time convenient for them, and by clicking the following link to the online survey: [will insert survey link].

**Location:** Online survey

**Eligibility:** Are you eligible? 18 years or older and enrolled in a community college. Your participation is entirely voluntary, and you can leave the survey at any time.

**Reimbursement:** There is no reimbursement for participation in the study, but data gathered will help educators find out more about the relationships between resilience, persistence, and academic success.

**Questions:** If you have questions about eligibility, survey, or participation, you may email the researcher at: [will insert email address]

**Dissertation Chair:** Sherry Ayala, Ed.D., American College of Education

**IRB Approval Number | IRB Approval Date | IRB Expiration Date**

American College of Education  
Institutional Review Board (IRB)  
IRB@ace.edu

## Social Media Flyer

## Resilience of Community College Students in Rural Appalachia: A Quantitative Correlational Study

Are you a student enrolled in a community college in rural Appalachia? If you are over 18 years old and interested in how resilience and persistence relate to your academic success, this study may be for you.

While students with academic motivation persist and are more likely to succeed academically, less is known about the role of resilience and its relationship to academic success. Resilience is the ability of an individual to bounce back after a challenge or adversity.

The study will explore the relationship between the resilience, persistence, and academic success of community college students in rural Appalachia.

If you agree to participate, you will be asked to complete a brief 18-item survey, which should take no more than 20 minutes to complete. You can complete the survey in the privacy and convenience of your home.

Your information will remain confidential at all times. Your participation in the study is voluntary and will end when you complete and submit the survey.

There is no reimbursement for participation in the study, but data gathered will help educators learn more about the relationships between resilience, persistence, and academic success, which could help other community college students.

**Are you eligible?**

- At least 18 years of age
- Enrolled in a community college

**Location**  
To access the survey, click the link below or scan the QR code.



[https://www.surveymonkey.com/r/RESILIENCE\\_PERSISTENCE](https://www.surveymonkey.com/r/RESILIENCE_PERSISTENCE)



If you have questions about eligibility, the survey, or participation, you may email me:

Michael Paul Waide

Sherry Ayala, Ed.D., Chair  
American College of Education

Institutional Review Board  
American College of Education  
IRB@ace.edu

IRB Approval Number: 1805067316 | IRB Approval Date: February 26, 2021 | IRB Expiration Date: February 26, 2022

## Appendix C

### Informed Consent

**Prospective Research Participant:** Read this consent form carefully and ask as many questions as you like before deciding whether you want to participate in this research study. You are free to ask questions at any time before, during, or after you participate in this research.

#### Project Information

|                      |                                                                                                     |
|----------------------|-----------------------------------------------------------------------------------------------------|
| <b>Project Title</b> | Resilience of Community College Students in Rural Appalachia:<br>A Quantitative Correlational Study |
| <b>Researcher</b>    | Michael Paul Waide                                                                                  |
| <b>Organization</b>  | American College of Education                                                                       |
| <b>Email</b>         |                                                                                                     |
| <b>Phone</b>         |                                                                                                     |

|                     |                               |
|---------------------|-------------------------------|
| <b>Chair</b>        | Dr. Sherry Ayala              |
| <b>Organization</b> | American College of Education |
| <b>Email</b>        |                               |

#### Introduction

I am Michael Paul Waide, a doctoral candidate student at the American College of Education (ACE). I am doing research under the guidance and supervision of my Chair, Dr. Sherry Ayala. I will give you some information about the project and invite you to be part of this research. Before you decide, you can talk to anyone you feel comfortable with about the research. This consent form may contain words you do not understand. Please email or call me to go through the information, if you need, and I will explain. If you have questions later, you can ask them via email or opt out of the survey.

#### Purpose of the Research

You are being asked to participate in a research study which will assist with understanding the relationship between resilience, persistence, and academic success. This quantitative correlational study will determine the relationships between community college students' resilience and persistence and their academic success in rural Appalachia. Through the investigation, the determination of relationships between resilience, college persistence, and the academic success of nontraditional aged community college students in Appalachia, where students are at risk because of poverty, could inform or shape institutional responses to promote students' resilience and empower persistence toward academic success and completion.

#### Research Design and Procedures

The study will use a quantitative correlational methodology and research design. Surveys will be disseminated to participants enrolled in community colleges in Appalachia. The study will comprise a cross-section of 136 participants, conveniently sampled through community colleges in Appalachia, who will participate in an online survey, offering convenience and requiring no more than 20 minutes to complete.

#### Participant Selection

You are being invited to participate in this research because you are a community college (2-year) student who is enrolled in a community college in Appalachia and because you can contribute much to the study on resilience, persistence, and academic success. Participant selection criteria include: (1) enrolled in a community college, and (2) aged 18 years or older.

**Voluntary Participation**

Your participation in this research is entirely voluntary. It is your choice whether to participate. If you choose not to participate, there will be no consequences or repercussions. You do not have to participate. If you select to participate in this study, you may change your mind later and stop participating even if you agreed earlier.

**Procedures**

We are inviting you to participate in this research study. We are asking you to help us learn more about how college students persist to academic success. If you agree and accept, you will be asked to complete an online survey with 18 items. The type of questions asked will range from basic demographic questions to direct inquiries about the topics of resilience, persistence, and your self-reported academic success.

**Duration**

The survey for the research study will require no more than 20 minutes to complete. There are only 18 items on the survey. You can use as much time as you need, and you can complete the survey in the privacy of your home or another setting. The survey will remain open for up to four weeks.

**Risks**

The research study does not pose greater than minimal risk. Known risks to the participant include privacy and level of comfort with questions or statements in the survey. You are assured of privacy, and you do not have to answer any questions or finish the survey if you do not wish to do so. You do not have to give any reason for not completing the survey. Your participation is entirely voluntary, and you may refuse or withdraw at any time.

**Benefits**

While there will be no direct financial benefit to you, your participation will likely help us find out more about the relationships between resilience, persistence, and the academic success of community college students. The potential benefits of this study will inform or shape institutional responses to promote students' resilience and empower persistence toward academic success.

**Reimbursement**

There is no reimbursement for participation in the study.

**Confidentiality**

I will not share information about you or anything you say to anyone outside of the researcher. During the defense of the doctoral dissertation, data collected will be presented to the dissertation committee. The data collected will be stored on a password-protected external hard drive, kept in a locked file cabinet for 10 years, and appropriately destroyed after 10 years. Any

data you share will not directly identify you as the participant. Any information about you will have a number on it instead of your name. Your email address and internet protocol (IP) address will be excluded from data collection, and your identity will simply be labeled as "Respondent #." The researcher will not know your identity or which college you attend.

**Sharing the Results**

At the end of the research study, the results were available for each participant as a published dissertation. It is anticipated to publish the results so other interested people may learn from the research. Submission of the survey acknowledges results may be shared. No identifiable information will be used in the sharing of results.

**Right to Refuse or Withdraw**

Participation is absolutely and entirely voluntary. If you wish to end your participation in the research study, you may do so without repercussions. You can exit the survey at any time by simply exiting the survey and SurveyMonkey.

**Questions About the Study**

If you have any questions, you can ask before, during, or after the survey. If you wish to ask questions, you may email the researcher, Michael Waide, or contact Dr. Sherry Ayala, the dissertation committee chair. This research plan has been reviewed and approved by the Institutional Review Board of the American College of Education. This is a committee whose role is to make sure research participants are protected from harm. If you wish to ask questions of this group, email [IRB@ace.edu](mailto:IRB@ace.edu).

**Certificate of Consent**

I have read the information about this study on resilience and persistence, or it has been read to me. I acknowledge why I have been asked to be a participant in the research study. I have been provided the opportunity to ask questions about the study, and any questions have been answered to my satisfaction. By clicking on the "yes" button, I will advance to the next portion of the electronic survey, and I acknowledge I am at least 18 years of age. When I click on the "yes" button, I consent voluntarily to a participant in this study, at which time the survey system will automatically record the date and hide my email address for my participation.

PLEASE KEEP THIS INFORMED CONSENT FORM FOR YOUR RECORDS

## Appendix D

### Permission to Use Questionnaire

---

#### Request for Use: College Persistence Questionnaire

3 messages

---

**Michael Waide**

Mon, Jul 27, 2020 at 8:16 AM

To:

Dr. Davidson:

Good morning from the hills of West Virginia. I hope this email finds you well.

My name is Michael Paul Waide and I am a doctoral candidate in Education (Ed.D.) at the American College of Education (ACE) in Indianapolis, Indiana. I am writing to graciously request permission to use the College Persistence Questionnaire to survey community college students enrolled in member colleges of Community & Technical College System in rural Appalachia.

This information will be used for my dissertation research related to *Exploring the Relationship between Resilience, Persistence, and Academic Success of Community College Students in Rural Appalachia: A Correlational Quantitative Study*. The purpose of this correlational quantitative study will be to explore and determine the relationship between factors of resilience and factors of college persistence of community college students in rural Appalachia and academic success.

From the population of community college students, the study would conveniently sample a cross-section of 200 to 300 community college students enrolled within the Community & Technical College System in Appalachia.

Important Contacts for this study include:

Principal Investigator: Michael Paul Waide  
E-mail:  
Phone:

Dissertation Chair: Dr. Sherry Ayala  
E-mail:

I would greatly appreciate your assistance by providing me with the CPQ and allowing me access to use it for this study. Your team will, of course, receive acknowledgment in my dissertation.

Thank you for your attention to this issue and prompt response. I appreciate your time and consideration of my request.

Regards,

**Michael Paul Waide**

**Bill Davidson** <

Mon, Jul 27, 2020 at 11:00 AM

Hi Michael,  
I am attaching a document that might assist you in your doctoral project.  
Best wishes,  
Bill

William B. Davidson, PhD  
Retired Professor of Psychology  
Angelo State University (1993-2019)  
University of South Carolina - Aiken (1975-1993)

;  
;  
;  
;

---

 **Brief Index of Student Retention V7.docx**  
25K

---

**From:** Michael Waide <michael.waide@pierpont.edu> **Sent:**  
Monday, July 27, 2020 5:16 AM  
**To:** Bill Davidson <William.Davidson@angelo.edu>  
**Subject:** Request for Use: College Persistence Questionnaire

---

---

Mon, Jul 27, 2020 at 11:15 AM

Dr. Davidson,

Thank you for your well-wishes and the most helpful document to assist me in the dissertation project. I appreciate the use of your scale and most assuredly will acknowledge you and your team.

I have appreciated your contributions to the research on college persistence.

Thank you kindly,

## Appendix E

### Resilience and Persistence Survey

Instructions: Hello. Thank you for participating in a survey on the resilience and persistence of community college students. These are questions for a research project and dissertation to pursue a doctoral degree at the American College of Education. The study will examine the relationship between resilience, persistence, and the academic success of community college students.

This survey has only 18 questions and should take you no more than 20 minutes. There are no right or wrong answers. I am only interested in your level of response to some statements.

By participating in the survey, you indicate you understand your responses are anonymous and will not be identified with you in any way, and you are at least 18 years old. You may stop the survey at any time if you are uncomfortable, and you will have the opportunity to withdraw at the end of the survey if you wish.

Thank you. I genuinely appreciate your help.  
Michael Paul Waide

#### Basic Demographics

1. What is your age?
  - a. 18-23 years old
  - b. 24-29 years old
  - c. 30-39 years old
  - d. 40-49 years old
  - e. Over 50
2. What gender would you most associate with?
  - a. Female
  - b. Male
3. My overall or cumulative GPA is about:
  - a. 3.5 to 4.0 (A) or *mostly As*
  - b. 2.5 to 3.4 (B) or *mostly Bs*
  - c. 1.5 to 2.4 (C) or *mostly Cs*
  - d. Less than 1.4 (D) or *mostly Ds or lower*
4. My current enrollment status is:
  - a. Less than full-time (*1-11 credit hours*)
  - b. Full-time (*12 or more credit hours*)
5. My overall total number of credit hours, completed so far, in college is about:
  - a. 0 to 8 credits (*up to 2 classes*)
  - b. 9 to 15 credit hours (*3 to 5 classes*)
  - c. 16 to 24 credit hours (*6 to 8 classes*)
  - d. 25 to 33 credit hours (*9 to 10 classes*)
  - e. More than 33 credit hours (*more than 10 classes*)

6. Presently, while attending college, I am employed:
  - a. Full-time
  - b. Part-time
  - c. I am not presently employed while attending college.

The Brief Resilience Scale (BRS) (Smith et al., 2008)

Directions: Please indicate the degree to which you agree with each of the following statements using the following scale. There are no "right or wrong" answers, so mark your real impressions.

1. I tend to bounce back quickly after hard times.  
*Strongly Disagree (1) / Disagree (2) / Neutral (3) / Agree (4) / Strongly Agree (5)*
2. I have a hard time make it through stressful events.  
*Strongly Disagree (5) / Disagree (4) / Neutral (3) / Agree (2) / Strongly Agree (1)*
3. It does not take time to recover from a stressful event.  
*Strongly Disagree (1) / Disagree (2) / Neutral (3) / Agree (4) / Strongly Agree (5)*
4. It is hard for me to snap back when something bad happens.  
*Strongly Disagree (5) / Disagree (4) / Neutral (3) / Agree (2) / Strongly Agree (1)*
5. I usually come through difficult times with little trouble.  
*Strongly Disagree (1) / Disagree (2) / Neutral (3) / Agree (4) / Strongly Agree (5)*
6. I tend to take a long time to get over setbacks in my life.  
*Strongly Disagree (5) / Disagree (4) / Neutral (3) / Agree (2) / Strongly Agree (1)*

The College Persistence Questionnaire (CPQ) (Davidson et al., 2009)

Instructions: Students differ a great deal from one another in how they feel about their college experiences. These questions ask you about your reactions to many aspects of your college life. Please consider each of the questions carefully and select the answer which best represents your thoughts. There are no "right or wrong" answers, so mark your honest impressions. Please indicate your response to each of the following questions:

1. How much have your interactions with other students had an impact on your intellectual growth and interest in ideas?  
*very much (+2) / much (+1) / some (0) / little (-1) / very little (-2) / not applicable*
2. How often do you turn in assignments past the due date?  
*very often (+2) / somewhat often (+1) / sometimes (0) / rarely (-1) / very rarely (-2) / not applicable*
3. How much thought have you given to stopping your education here (perhaps transferring to another college, going to work, or leaving for other reasons)?

*a lot of thought (+2) / some thought (+1) / neutral (0) / little thought (-1) / very little thought (-2) / not applicable*

4. How likely is it that you will reenroll here next semester?  
*very likely (+2) / somewhat likely (+1) / neutral (0) / somewhat unlikely (-1) / very unlikely (-2) / not applicable*
5. How likely is it you will earn a degree from here?  
*very likely (+2) / somewhat likely (+1) / neutral (0) / somewhat unlikely (-1) / very unlikely (-2) not applicable*

#### Academic Success

On a scale of 0.00—4.00, what would you state is your current GPA? \_\_\_\_\_.

**Appendix F****Scales****Table 7***Six Items of the Brief Resilience Scale (BRS)*

| <b>Items</b>                                                |         |
|-------------------------------------------------------------|---------|
| I tend to bounce back quickly after hard times.             |         |
| I have a hard time making it through stressful events.      | Reverse |
| It does not take me long to recover from a stressful event. |         |
| It is hard for me to snap back when something bad happens.  | Reverse |
| I usually come through difficult times with little trouble. |         |
| I tend to take a long time to get over setbacks in my life. | Reverse |

*Note.* The BRS is scored by reverse coding three items and find the mean of the six items. Each statement is scored from 1 (*strongly disagree*) to 5 (*strongly agree*). The mean score for the six items represents a score for resilience.

**Table 8***Five Items of the College Persistence Questionnaire (CPQ)*

| Items                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| How much have your interactions with other students had an impact on your intellectual growth and interest in ideas?                                                                                                                                                                                                                    |
| How often do you turn in assignments past the due date?                                                                                                                                                                                                                                                                                 |
| How much thought have you given to stopping your education here (perhaps transferring to another college, going to work, or leaving for other reasons)?                                                                                                                                                                                 |
| How likely is it that you will reenroll here next semester?                                                                                                                                                                                                                                                                             |
| How likely is it you will earn a degree from here?                                                                                                                                                                                                                                                                                      |
| <i>Note.</i> These close-ended items, answered on a five-point Likert scale, are scored from -2 ( <i>most favorable</i> ) to 2 ( <i>most favorable answer</i> ). Based on the scoring instructions for the inventory, the owner of the fuller CPQ identified these five questions as the most likely indicators of college persistence. |

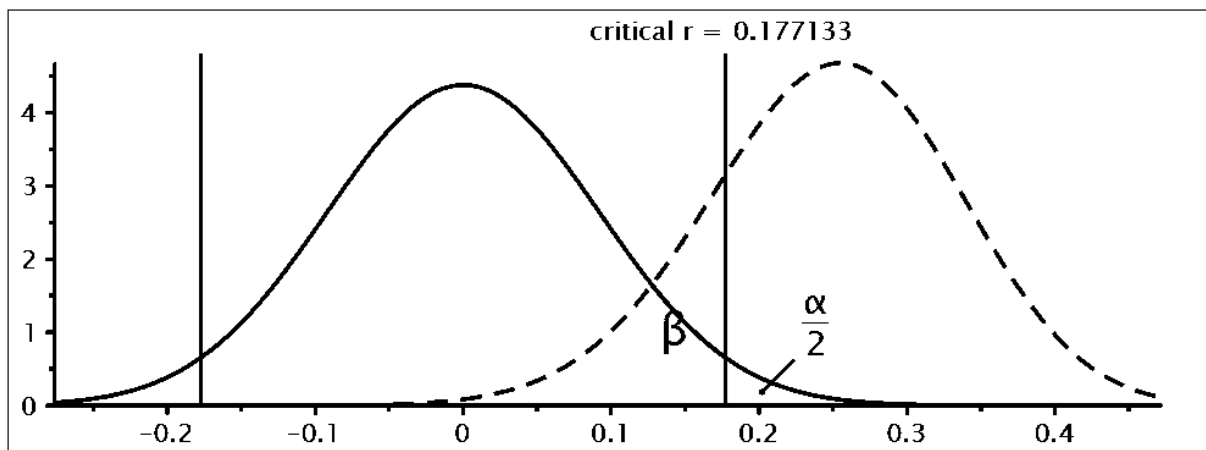
## Appendix G

## Target Sample Size

Figure 10

*G\*Power for Sample Size Estimation for Correlational Analyses*

Central and noncentral distributions Protocol of power analyses



Test family

Exact

Statistical test

Correlation: Bivariate normal model

Type of power analysis

A priori: Compute required sample size – given  $\alpha$ , power, and effect size

Input Parameters

Tail(s) Two

Determine =&gt;

correlation  $\rho$  H1 .25 $\alpha$  err prob .05Power (1- $\beta$  err prob) .80Correlation  $\rho$  H0 0

Output Parameters

Lower critical r -0.1771325

Upper critical r 0.1771325

Total sample size 123

Actual power 0.8022355

**Appendix H**  
**IRB Approval Letter**



February 26, 2021

To : Michael Waide  
Sherry Ayala, Dissertation Committee Chair

From : Institutional Review Board  
American College of Education

Re: IRB Approval

"Resilience of Community College Students in Rural Appalachia: A Quantitative Correlational Study"

The American College of Education IRB has reviewed your application, proposal, and any related materials. We have determined that your research provides sufficient protection of human subjects.

Your research is therefore approved to proceed. The expiration date for this IRB approval is one year from the date of review completion, February 26, 2022. If you would like to continue your research beyond this point, including data collection and/or analysis of private data, you must submit a renewal request to the IRB.

Our best to you as you continue your studies.

Sincerely,

Tiffany Hamlett  
Chair, Institutional Review Board

**Appendix I****Verification of Informed Consent**

## Chair Verification Form

Directions: Please complete this form to verify receipt and review of candidate data collection documents for RES6551 course.

Doctoral Candidate: Michael Paul Waide

Dissertation Title: Resilience of Community College Students in Rural Appalachia: A Quantitative Correlational Study

☐ Dissertation chair, Sherry Ayala, has reviewed and verified the

signed Informed Consent forms for the 212 participants in the doctoral dissertation  
Number  
research study, to be conducted by the candidate.

☐ If informed consent was not necessary because archival data was used, the Dissertation  
Chair has reviewed the site permission granting access to archival data.

*Dr. Sherry Ayala*

\_\_\_\_\_  
Dissertation Chair, Credential

Date 4/16/2021

## Appendix J

### Email Notification and Reminder for Data Collection

---

#### HELP: Request for site permission for dissertation

---

Michael Waide ·

Tue, Mar 23, 2021 at 8:44 AM

Dr.

Following up on my request to survey students for my dissertation, please find attached:

- IRB approval from the American College of Education and corresponding IRB application spelling out the data you may want to review.
- Recruitment letter and flyer (with links)
- I have included a PDF copy of the IRB-approved web-based survey for your review; in this copy, you can view the informed consent which outlines details of the study.

The survey is conducted with Survey Monkey, which is set to collect data anonymously; there is **NO collection of email or IP addresses**, and the students are not affiliated with any institution in the survey. There is no personally identifiable information collected. The survey is only 18 questions and should take no more than 5-minutes to complete. Additionally, if students do not provide consent, they exit the survey without viewing any questions.

If you see no issues, I invite you to share the flyer or recruitment letter with students via institutional email. I am asking institutions to forward the flyer to students, academic success centers affiliated with students, student support centers working with students, and to willing faculty who may be interested in the data of the study.

I am not asking for access to the email addresses. I simply ask the institution to forward an email with the flyer to students and faculty to share. In two weeks, I will follow up with a courtesy email to re-send one more time to students.

The survey will be open for a timeframe of no more than four weeks.

Please let me know if you have any questions.

Thank you,

Michael

[Quoted text hidden]

---

#### 4 attachments

-  WAIDE IRB Approval IRBDRR\_1805067316\_ApprovalLetter.pdf  
34K
-  Waide Social Media Flyer.pdf  
220K
-  Recruitment Letter March 2021.pdf  
120K
-  WAIDE Dissertation Survey.pdf  
145K

---

**REMINDER: Request for data collection**

---

Michael Waide ·

Mon, Apr 5, 2021 at 7:59 AM

Dr.

Following up on my request to survey students for my dissertation, the survey is still open for two more weeks.

The survey is conducted with Survey Monkey, which is set to collect data anonymously; there is **NO collection of email or IP addresses**, and the students are not affiliated with any institution in the survey. There is no personally identifiable information collected. The survey is only 18 questions and should take no more than 5-minutes to complete. Additionally, if students do not provide consent, they exit the survey without viewing any questions.

If you see no issues, I invite you to share the flyer or recruitment letter with students via institutional email. I am asking institutions to forward the flyer to students, academic success centers affiliated with students, student support centers working with students, and to willing faculty who may be interested in the data of the study.

I am **not** asking for access to the email addresses. I simply ask the institution to forward an email with the flyer to students and faculty to share.

The survey will be open for two more weeks.

Attached are the flyer, recruitment letter, IRB approval letter and a copy of the survey.

Please let me know if you have any questions.

Thank you,

Michael

---

**4 attachments**

---

**REMINDER: Request for data collection**

---

To: Michael Waide &lt;mwaide@pierpont.edu&gt;

Mon, Apr 5, 2021 at 8:27 AM

Michael,

The survey should go out this week.

Ph.D. | Provost