Community College Honors Education and Student Outcomes: A Propensity Score Analysis

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Community College Honors Education and Student Outcomes: A Propensity Score Analysis

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of the requirements of the degree

Doctor of Education in Educational Leadership

by

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May 2017

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ABSTRACT

Community College Honors Education and Student Outcomes: A Propensity Score Analysis

by

Jane B. Honeycutt

The purpose of this study was to explore the relationship of honors education to student success by comparing honors-eligible community college students who met requirements to academically matched peers who opted out of honors participation. Honors program participation was defined as completing 12 or more credit hours of honors-level course work. The population for this study included 452 honors-eligible participants with 95 honors participants (HPs) and 357 non-participants (NPs) from a community college in Tennessee. The sampling frame was generated using a five-year participation window from 2008 through 2013. Propensity score matching alleviated the threat to validity for self-selection bias by controlling for confounding variables such as high school GPA, dual-enrollment participation, ACT score, declared major, community college GPA upon first term of eligibility, parental income, parental education, gender, and age.

Major findings of the study were: honors program participants (a) earned a significantly higher numerical final course grade in Composition II, a first-year writing course; (b) earned significantly higher cumulative GPAs the second semester after honors eligibility; (c) earned significantly higher cumulative GPAs upon completion; (d) were significantly more likely to graduate. Conclusions generated from the data analyses indicate that honors education benefits community college students and provide empirical support for increased investment in
community college honors education, especially for high-achieving students experiencing poverty. Low-income students were defined as those students receiving the maximum federal Pell Grant award provided to undergraduate students with financial need. Within the study sample, it was determined that 50% of NPs met the low-income threshold whereas 47% of HPs were identified as low-income. These participation rates suggest that more low-income high-achieving students who could substantially benefit from participating in honors are participating less. Further empirical research studies and policy levers should identify ways to increase honors participation for low-income, high-achieving students.
DEDICATION

I dedicate this work to my generous and loving husband, Jeff, and my beautiful children who have been so supportive and patient. Jeff, thank you for your understanding. Thank you for taking the time to reassure me during trying times. You sacrificed and adapted so that I could realize a dream. With all that I am and all that I have, I honor you. For my children, Anna, Rebecca and Bryan, you have given me the gift of your love, sometimes even your admiration. I am so proud of you, so fortunate to be able to say you are my children. I hope you will pursue your dreams and remember to believe in yourselves as you have believed in me.

I would also like to dedicate this work to the memory of my father, Malcolm Wright Bryan III. You found purpose in your life as a result of research into the subject of your passion. I know you would have read this study willingly and with interest from start to finish. I would also like to honor the memory of my dearest godparents and great aunt and uncle, Mary and Edward Erwin. Your spirit dwells within me. I owe you everything.
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I would like to recognize the work of my committee. My chair, Dr. Bethany Flora, has both challenged and encouraged me from the very beginning. She is the embodiment of teaching excellence. Dr. Good has provided the steady, patient hand which led a reluctant English major to commit to quantitative analysis. Indeed, it is not “rocket surgery.” Dr. William Flora, thank you for your direct, concise instruction, and Dr. Slagle, thank you for your sincere enthusiasm for honors education and genuine interest in the outcomes of this study. I am indebted to all of you.

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Finally, I want to acknowledge the warm friendship of my dean, Dr. Xiaoping Wang, for caring enough to say, “It’s your turn.” Sincere thanks to my colleagues, Dr. Teressa Dobbs and Ms. Dayna Smithers, who convinced me to maximize my education. You are wonderful women and inspiring educators.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>2</td>
</tr>
<tr>
<td>DEDICATION</td>
<td>4</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>5</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>9</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>10</td>
</tr>
<tr>
<td>Chapter</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>11</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>14</td>
</tr>
<tr>
<td>Research Questions</td>
<td>15</td>
</tr>
<tr>
<td>Rationale and Significance of the Study</td>
<td>17</td>
</tr>
<tr>
<td>Definitions of Terms</td>
<td>19</td>
</tr>
<tr>
<td>Limitations and Delimitations of the Study</td>
<td>20</td>
</tr>
<tr>
<td>Overview of the Study</td>
<td>21</td>
</tr>
<tr>
<td>2. REVIEW OF LITERATURE</td>
<td>23</td>
</tr>
<tr>
<td>Rationale for Community College Honors</td>
<td>25</td>
</tr>
<tr>
<td>Honors and the Community College Mission</td>
<td>29</td>
</tr>
<tr>
<td>Challenges Facing Honors</td>
<td>32</td>
</tr>
<tr>
<td>Calls for Honors Outcomes Assessment</td>
<td>35</td>
</tr>
<tr>
<td>Community College Honors Accountability and Assessment</td>
<td>38</td>
</tr>
<tr>
<td>Honors vs. Non-Honors Students</td>
<td>39</td>
</tr>
<tr>
<td>Honors Assessment Research Trends: Propensity Score Analysis</td>
<td>41</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Chapter Summary</td>
<td>82</td>
</tr>
<tr>
<td>5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS</td>
<td>84</td>
</tr>
<tr>
<td>Summary of Findings</td>
<td>84</td>
</tr>
<tr>
<td>Conclusions</td>
<td>88</td>
</tr>
<tr>
<td>Recommendations for Practice</td>
<td>89</td>
</tr>
<tr>
<td>Value-Added Data for Research</td>
<td>89</td>
</tr>
<tr>
<td>Dissemination of Research Results to Potential Students</td>
<td>90</td>
</tr>
<tr>
<td>Recommendations for Further Research</td>
<td>90</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>93</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>99</td>
</tr>
<tr>
<td>Appendix A: Covariate Imbalance Check for 1:1 Optimal Match with</td>
<td>99</td>
</tr>
<tr>
<td>Replacement</td>
<td></td>
</tr>
<tr>
<td>Appendix B: ETSU Institutional Review Board Approval</td>
<td>100</td>
</tr>
<tr>
<td>Appendix C: NeSCC Institutional Review Board Approval</td>
<td>101</td>
</tr>
<tr>
<td>VITA</td>
<td>102</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Demographics of Population</td>
<td>61</td>
</tr>
<tr>
<td>2. Structure of Manipulated Data</td>
<td>63</td>
</tr>
<tr>
<td>3. Composition II Final Grades</td>
<td>65</td>
</tr>
<tr>
<td>4. Cumulative GPA Two Semesters after Eligibility</td>
<td>68</td>
</tr>
<tr>
<td>5. Cumulative GPA upon Graduation</td>
<td>71</td>
</tr>
<tr>
<td>6. Number of Semesters to Graduation</td>
<td>80</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Composition II Final Grades for Honors and Non-Honors Participants</td>
<td>66</td>
</tr>
<tr>
<td>2. Composition II Final Course Grade Distribution for Honors and Non-Honors Participants</td>
<td>67</td>
</tr>
<tr>
<td>3. Cumulative GPAs Two Semesters after Honors Eligibility for Honors and Non-Honors Participants</td>
<td>69</td>
</tr>
<tr>
<td>4. Cumulative GPA Distribution Two Semesters after Honors Eligibility for Honors and Non-Honors Participants</td>
<td>70</td>
</tr>
<tr>
<td>5. Cumulative GPAs upon Graduation for Honors and Non-Honors Participants</td>
<td>72</td>
</tr>
<tr>
<td>6. Distribution of Cumulative GPAs upon Graduation for Honors and Non-Honors Participants</td>
<td>73</td>
</tr>
<tr>
<td>7. Fall-to-Fall Retention for Honors and Non-Honors Participants</td>
<td>75</td>
</tr>
<tr>
<td>8. Fall-to-Fall Retention for Honors and Non-Honors Participants</td>
<td>76</td>
</tr>
<tr>
<td>9. Graduation Outcomes for Honors and Non-Honors Participants</td>
<td>78</td>
</tr>
<tr>
<td>10. Graduation Outcomes for Honors and Non-Honors Participants</td>
<td>79</td>
</tr>
<tr>
<td>11. Number of Semesters to Graduation for Honors and Non-Honors Participants</td>
<td>81</td>
</tr>
<tr>
<td>12. Number of Semesters to Graduation for Honors and Non-Honors Participants</td>
<td>82</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

Honors education began in the United States in 1921 when Frank Ayedelotte became president of Swarthmore College (Morgan, 2015). At that time, Ayedolette initiated an interdisciplinary curriculum which stressed critical thinking and active learning. Almost a century later, the National Collegiate Honors Council (2013) defined honors education in terms true to Ayedolette’s original vision: “Honors education is characterized by in-class and extracurricular activities that are measurably broader, deeper, or more complex than comparable learning experiences . . . [and] honors experiences include a distinctive learner-directed environment and philosophy” (para. 2). Similar to four-year university honors programming, community colleges have likewise established honors programs to meet the academic needs of high-achieving students. Community colleges introduced honors programs in the 1950s and 1960s in the form of “accelerated courses offered to academically talented students who had expressed interest in specific areas of study” (Floyd & Holloway, 2006, p. 43). In the 1980s, community colleges broadened their enrollment focus from open enrollment and social equality to increased attention toward academic excellence. The efforts of increasing quality and academic rigor, especially with regard to transfer courses, led to an expansion of community college honors programming (Carnicom, 2011). Moltz (2010) reported that the National Collegiate Honors Council listed “167 community college members, representing more than 13 percent of its membership” (para. 3).

Bullock (2015) added that, in addition to offering intellectually challenging courses, honors programs provide opportunities outside the classroom for intellectually inquisitive
students to develop critical thinking skills, cultural knowledge, as well as both independent and collaborative learning abilities. Bullock further argued that students who regularly engage in advanced academic inquiry and problem-solving acquire the necessary abilities for occupations that involve unconventional thinking and imagination. “These skill sets are crucial in our increasingly complex and changing society, and they are exactly what an honors education seeks to deliver” (p. 28). Honors programming provides a way for community colleges to achieve the traditional mission of providing access to underrepresented groups. Treat and Barnard (2012) indicated that honors programming can facilitate regional efforts to “attract diversity in terms of underrepresented groups to their colleges, [thus] fulfill the promise of the traditional community college mission by making the transition from the community college to a selective four-year institution less onerous” (p. 695). Honors students experience a boost in self-confidence, achievement, and social resources, thereby meeting both the open access and quality education goals of the community college (Treat & Barnard, 2012). Well-designed honors programs offer ideal environments for high-achieving students; these programs offer innovative best practices that gradually make their way into non-honors programs as well, thereby contributing to the academic excellence of entire institutions.

Though higher education benefits the society as a whole, educational attainment is often out of reach for many high achieving and motivated students due to limited economic resources. Treat and Barnard (2012) discussed the important differences between students who graduate from elite institutions and experience far greater benefits than their counterparts who attain a bachelor’s degree from less selective four-year universities or community colleges:

The statistics are shocking: fewer than 1 in 1,000 graduates of the 38 most selective private institutions began at a community college…Because community colleges serve upwards of half of all students in American higher education, disproportionately serving first generation, low income, and minority students,
transfer to selective institutions represents a real barrier to the promise of social transformation and upward mobility ascribed to the higher education system. Money, not merit, is too often the key to accessing the best bachelor’s level educational institutions. (p. 710)

Often referred to as academic under matching, higher education scholars have increased attention to the phenomenon of high-achieving low-income students’ participation across the sectors of higher education, with emphasis on the absence of a critical mass of these students enrolled in selective institutions (Park, 2013). As reported by numerous researchers, honors programs signify a sincere attempt to overcome the obstacle of academic under matching as long as student educational achievement is emphasized; thus appropriately structured honors programs can be viewed as a commendable expansion of the community college mission (Armstrong, 2015; Bullock, 2015; Cline, 2015; Gee, 2015).

Nevertheless, Furtwengler (2015) acknowledged that, due to concerns about overall student persistence, retention, and completion, particularly among underprepared students, many administrators question the prudence of investments in postsecondary honors programs. In fact, some administrators assume that high-achieving students will succeed without any additional academic support at all. Furtwengler explained that some administrators also face questions regarding whether honors programs successfully meet the academic needs of high-achieving students, while other administrators and faculty are considering abolishing institutional support of honors programming due to allegations that honors programs are exclusive, particularly when admission to honors is restricted to students with a high GPA or ACT/SAT score. Jones and Wehlburg (2014) further explained that, in addition to the internal resource and philosophical challenges facing honors programming, legislators and accrediting agencies require proof of academic program effectiveness; thus honors programs must adopt the methodical use of evaluation and assessment as a core value. Jones and Wehlburg and other honors programming
scholars have called for “more quantitative research of high-achieving students within the context of postsecondary honors programs… to increase validity and generalizability of the results and conclusions regarding the effects of participating in honors and on the factors that influence high-achieving students to participate in honors” (p. 275). Thus honors research must examine outcomes for equivalent students who participate in or opt out of honors programs. Though a number of studies have emerged from four-year university honors programs, very few studies have examined the impact of honors programming on high achieving and motivated community college students (Furtwengler, 2015). The present study addresses the sampling gap in honors programming studies by using a community college sample.

Statement of the Problem

The 2008 recession greatly affected American higher education. In the public sector two major issues emerged: (1) the reduction of direct state support to public institutions; (2) the reduction in state grants and scholarships awarded to individual student residents. According to Weissman (2013), Tennessee State funding for higher education is 30% lower than in 2007. Unfortunately, the cost of education has been transferred to students by way of rising tuition costs. In response to higher university tuition costs and the expansion of community college offerings, “nearly half of all students graduating with a four-year degree in the 2013-14 school year had some experience within a two-year institution” (A. Smith, 2015, para. 1). Further, in Tennessee, a last-dollar scholarship program called Tennessee Promise offers Tennessee high school graduates last-dollar funding for their first two years of community college thereby making community college tuition free for any student regardless of income. Therefore, the potential exists for more high-achieving students in Tennessee to begin their academic careers at
the community college although they would be welcomed at more selective four-year universities. Just as underprepared students require programs and services that address their needs, high-achieving students possess unique academic needs. However, without research to understand whether a significant relationship exists between honors participation and improved student outcomes, honors programming may experience difficulty garnering necessary support.

The purpose of this quasi-experimental observational study is to compare the academic achievement of community college students participating in honors programming, called honors participants (HPs) to students who were academically eligible, but did not participate in honors programming, called non-participants (NPs) from academic years 2008-2013. For the purpose of this study, student outcomes were defined as final numerical course grade in a required freshman writing course called Composition II, cumulative GPA two semesters after honors eligibility attainment, cumulative GPA upon graduation, fall-to-fall retention rate, community college graduation rates, and number of semesters to graduation at a public state community college in Tennessee.

Research Questions

Six research questions were used to determine whether a significant difference exists between honors program participants (HPs) and honors-eligible non-participants (NPs) across six student outcomes. For the purpose of the study, student outcomes include: (1) final numerical course grades in a first-year writing course, extracted from the College’s learning management system; (2) grade-point averages two semesters after honors eligibility attainment; (3) grade-point averages upon community college graduation; (4) fall-to-fall retention rates; (5) community college graduation rates; and, (6) number of semesters (fall, spring, summer) to
graduation. Propensity score methods were used to match HP with NP students to mitigate selection bias and better understand the effect of honors participation. Students were matched across the following characteristics: (a) high school GPA; (b) ACT score; (c) Compass test scores (converted to ACT for those with no ACT); (d) dual-enrollment participation; (e) Northeast State GPA upon eligibility; (f) declared major (g) parental income; (h) parental education; (i) age; (j) gender.

1. Is there a significant difference in numerical final course grades for a required first-year writing course between honors-eligible non-participants and honors program participants?

2. Is there a significant difference in cumulative grade-point average two semesters after honors program eligibility attainment between honors-eligible non-participants and honors program participants?

3. Is there a significant difference in grade-point averages upon graduation between honors-eligible non-participants and honors program participants?

4. Is there a significant difference in fall-to-fall retention rates between honors-eligible non-participants and honors program participants?

5. Is there a significant difference in community college completion rates between honors-eligible non-participants and honors program participants?

6. Is there a significant difference in number of semesters to completion (fall, spring, summer) between honors-eligible non-participants and honors program participants?
Rationale and Significance of the Study

This quantitative study was designed to determine the relationship between honors program participation and student outcomes. Many national organizations and accrediting agencies compel postsecondary education institutions to verify academic program effectiveness, and state legislatures are requiring observable and measurable proof that state funding of higher education is resulting in “high-quality education that positively impacts students” (Otero & Spurrier, 2005, p.5).

According to the National Collegiate Honors Council (2013), “Honors courses foster student development or transformation…” (para. 4). Though honors programs have the potential to make an important difference in postsecondary education (Armstrong, 2015; Bullock, 2015; Burrage, 2015), relatively little scholarship exists regarding community college honors education, nor is there a recognized association or discipline dedicated solely to the study of honors. Additionally, student learning outcomes have become fundamental aspects of regional and professional accreditation reviews, whether those reviews are concentrated on institutions in general or programs in particular (Lanier, 2008). Therefore, research into the impact of both university and community college honors programming is a high priority.

Honors program research must be conducted to answer the basic question of whether or not honors program participants emerge from the experience with measurable or observable superior outcomes than comparable students who opt out of honors participation.

To address this issue, Keller and Lacy (2013) reported that “recent quantitative research on postsecondary honors programs has utilized propensity score methods” (p. 76). Randolph, Falbe, Manuel, and Balhoun (2014) explained that propensity score matching (PSM) is “a statistical technique in which a treatment case is matched with one or more control cases based
on each case’s propensity score” (p. 1). PSM relies on a contrary-to-fact viewpoint; for example, when investigating the effect of honors program participation, the researcher compares the honors program outcomes to the outcomes students would have exhibited if they had, contrary to fact, opted out of the honors program. Though we can study the actual outcomes of the “treatment” group (those receiving the intervention of the honors program), we can only infer what might have happened without participation in honors. To extrapolate the contrary-to-fact outcome, the PSM requires the researcher to begin by using a regression model to analyze both honors and non-honors students. This analysis estimates, as a function of the background factors (e.g., ACT, or high school GPA, etc.), “the probability that a student would have been in the program (honors). This probability or ‘propensity score’ is the basis on which non-participants are judged to be similar to a participant in a given treatment program (honors)” (Keller & Lacy, 2013, p. 76).

Therefore, for every honors participant, one or more honors-eligible non-participants was selected with comparable propensity scores and can, as a result, function as comparable controls. The average outcome among the non-participant controls is used to deduce the expected outcome for the matched treatment subject (honors graduate) if s/he had not received treatment (in this case, honors programming). The propensity score analysis technique bolsters causal arguments by decreasing selection bias. In the present study, the treatment cases were defined as honors program participants (HPs). HPs were those students who had completed 12 or more honors credit hours, and the control cases were defined as those students who were honors-eligible nonparticipants (NPs). NPs opted out of participation in honors.

Keller and Lacy (2013) reported that “three studies comparing outcomes between honors and non-honors students used SAT scores and either high school GPA or class rank as
observable characteristics… other influences such as gender, in-state or out-of-state residency, and family educational background are [also] linked to both academic success and honors programs” (p. 74). Therefore, the propensity score analysis in the present study was based on 13 observable characteristics, to include ACT combined and sub-scores, high school GPA, socio-economic status, first-generation college student status and other characteristics also linked to academic success and honors programs. Following propensity score analysis, independent samples $t$-tests and Pearson Chi-Square analyses were conducted to estimate the effect of the honors program.

**Definitions of Terms**

For the purposes of this study, the following key terms are defined:

*Honors Education:* According to the National Collegiate Honors Council (2013), the fundamental purpose of honors education is always academic enhancement for exceptional students in the form of small classes, individual attention from faculty, and collaboration with other extraordinary students.

*Honors-eligible student:* The community college examined in this study limits honors participation to students with an ACT score of 25 or better or an overall GPA of 3.25 or better. Students may enter honors courses upon the approval and recommendation of honors faculty (Northeast State Community College, 2016).

*Honors-eligible non-participant:* The community college examined in this study defines honors-eligible non-participants as students with an ACT score of 25 or better or returning students with a GPA of 3.25 or better who opt out of participation in honors-level courses (Northeast State Community College, 2016).
**Honors Program Participant:** A student at the community college examined in this study who has completed 12 or more honors hours with a minimum 3.25 GPA (Northeast State Community College, 2016).

**Propensity Score Analysis:** Propensity Score Analysis is a statistical matching procedure which tries to approximate the effect of a treatment by considering the covariates that predict obtaining the treatment. Propensity Score Analysis tries to decrease the bias that results from confounding variables that might be present in an estimate of the treatment effect acquired by merely comparing outcomes of those who received the treatment as compared to those who had not (Rosenbaum & Rubin, 1983).

**Tennessee Promise:** “Tennessee Promise is both a scholarship and mentoring program focused on increasing the number of students that attend college in [Tennessee]. It provides students a last-dollar scholarship, meaning the scholarship will cover tuition and fees not covered by the Pell grant, the HOPE scholarship, or state student assistance funds. Students may use the scholarship at any of the state’s 13 community colleges, 27 colleges of applied technology, or other eligible institution offering an associate’s degree” (Tennessee Promise, 2016, para. 1).

**Limitations and Delimitations of the Study**

The present study was delimited to a single community college in Tennessee. Therefore, results of this study may not be transferable to institutions of other types or in other geographical areas. A second delimitation of the study is the lack of racial diversity in the sample. The overwhelming majority of the student body population was White, which may limit generalization of the findings to institutions with a more racially diverse student body. A
third delimitation of the study is the large number of students who did not report parental education levels, which may limit generalization of the findings to institutions with large populations of first generation students. A limitation of the study was the definition criteria used to establish HPs. Students enter the honors program at various times during their academic careers, with some entering immediately after high school, others stopping out, and others becoming eligible after several semesters of traditional course work. The selection criterion for HP was successful completion of 12 or more credit hours of honors course credit. A different HP selection criterion may have resulted in different findings. A second limitation of the study was the use of HPs who had graduated by Summer 2016 to backwards track the student outcome measures upon enrollment. HPs who did not graduate were included in the sample; however, it is possible that HP transfers could lead to different results compared to their matched NPs. Despite these delimitations and limitations, the study helps to establish a research line of inquiry into the topic of honors participation and impact on student outcomes within a community college setting.

Overview of the Study

This research study is arranged into five chapters. Chapter 1 consists of an introduction, a statement of the problem, research questions, the significance of the study, definitions of key terms, limitations and delimitations of the study, and an overview of the study. Chapter 2 includes a review of relevant literature and is divided into three sections. The first section focuses on honors education in general and the goals and objectives of higher-education honors, including benefits to non-honors students. The second section of the literature review focuses on community college honors programs and manner in which honors programs help fulfill the
community college mission. The final section of the literature review discusses the need for community college honors program assessment in order to provide administrators and faculty with tangible evidence that honors programming is positively related to student retention and completion. Chapter 3 includes the research design, the population studied, the data collection procedures, the research questions and null hypotheses, and data analysis used in completing the research study. Chapter 4 describes the data collected and the results of the analyses. Chapter 5 presents the findings, conclusions, and recommendations for further study.
Honors education in the United States began nearly one hundred years ago when Frank Aydelotte became president of Swarthmore College in 1921. Aydelotte introduced a curriculum emphasizing “active learning, critical thinking, and inter-disciplinarity” (Morgan, 2015, p.188). In response to both growing enrollment and his background as a Rhodes Scholar, Aydelotte rejected the regulated, standardizing approach of higher education in the United States which he believed accommodated average students at the expense of higher ability students. Instead, Aydelotte emphasized the construction, rather than the replication, of knowledge (Carnicom, 2011).

Aydelotte’s approach was not widely adopted for some time, however. After World War II, higher education institutions experienced tremendous enrollment growth as a result of the GI Bill and the baby boom. Unfortunately, this remarkable growth came at the expense of the quality of the educational experience, especially for high-ability students. In response to growing enrollment, America applied business principles to higher education, using cost-saving approaches such as teaching courses in auditoriums and theaters, even sports arenas able to hold thousands of students, a strategy which functioned to perpetuate a passive teacher-centered learning environment (Carnicom, 2011; Rinn, 2006).

The numerous social changes of the 1960s and 1970s resulted in promising changes in higher education as colleges and universities concentrated on raising academic standards. During these years numerous colleges opened new honors programs designed for students with higher academic qualifications and intellectual capabilities (Carnicom, 2011; Scott & Smith,
Between 1957 and 1962, the number of higher education institutions offering honors increased more than twofold, from 90 to 241 programs (Scott & Smith, 2016). Consistent with the liberal arts tradition, honors programs modified course work designed for high-achieving students to include opportunities for intellectual challenges and critical thinking, thereby differentiating honors from “the mass-production” model of education (Carnicom, 2011, p. 49). Scott and Smith (2016) recalled that by 1965, almost 340 institutions offered honors programs. True to Aydelotte’s original vision, the National Collegiate Honors Council (2013) website defined contemporary honors education as typified by academic pursuits, both in and outside of class, that are demonstrably more comprehensive and meaningful than similar academic encounters. Morgan (2015) observed that honors programs continue to limit class sizes to no more than twenty highly able and motivated students to promote lively discussion and critical thinking rather than memorization and duplication.

Similar to four-year universities, community colleges established honors programs to meet the academic needs of high-achieving students. The Truman Commission report of 1947 had a considerable effect on community colleges in general. The expression “community college” became popular as a result of the report, which delineated several significant principles for two-year institutions. Besides solidifying the three existing missions of “community, transfer, and vocational training” (Treat & Barnard, 2012, p. 695), the report underscored the significance of education in maintaining democracy, increasing tolerance between civilizations, and expanding equality and the prospects for Americans, a “shift in emphasis [which] followed directly from the experience of war and loss of freedom for millions of people in Europe” (p. 695-696).
Community college honors programs began in the 1950s and 1960s in the form of fast-tracked classes made available to intellectually gifted students interested in particular majors. Later in the 1980s, community colleges began to focus not only on open enrollment and social equality, but also on academic excellence, especially with regard to transfer courses, which led to an expansion of community college honors programming (Floyd & Holloway, 2006). Treat and Barnard (2012) estimated that in excess of 40% of America’s community colleges house honors programs. As of 2016, Dr. Hallie Savage, NCHC Executive Director, reported that 177 two-year institutions are listed as National Collegiate Honors Council (NCHC) members representing approximately 20% of the total NCHC membership (personal communication, June 30, 2016).

Rationale for Community College Honors

Bullock (2015) remarked that community colleges have become a focus of national attention as leaders acknowledge the outstanding progress that community college students are making. “Thanks to the efforts of hard-working, dedicated faculty and forward-thinking college leaders, test scores, grades, and completion rates are making slow but steady progress while achievement gaps are diminishing” (p. 27). Nevertheless, Trucker (2014) cautioned that…longitudinal studies that track student persistence each semester serve as the primary measurement of an institution’s success or, as the findings are often received at many of the country’s community colleges, an institution’s failure. These studies take place at the institutional and state-wide levels as well as nationally through grant-based organizations such as Complete College America…these studies consistently reveal low college-wide retention and graduation rates. (p. 69)
Moreover, community colleges, which serve approximately 11 million students, are expected to educate the most at-risk students while expending minimal financial resources in institutions that are becoming more and more unconnected and dissimilar from four-year universities; thus American higher education reflects the growing inequality in the larger society (The Century Foundation, 2013). In response to this serious concern, the Century Foundation (2013) offered two overall recommendations to address the disparity: 1) establish new outcomes-based funding with an increased focus on public needs-based funding; and 2) address the financial and ethnic divide between two-year and four-year institutions. To encourage racial and economic inclusiveness, the Century Foundation (2013) recommended that two-year colleges invest in innovative honors programming because honors programs attract economically disadvantaged high-achieving students as well as high-achieving students who would not normally consider community college (Gee, 2015). Treat and Barnard (2012) also indicated that honors programs facilitate regional efforts to “attract diversity in terms of underrepresented groups to their colleges and fulfill the promise of the traditional community college mission by making the transition from the community college to a selective four-year institution less onerous” (p. 695). Treat and Barnard (2012) added that community colleges serve more than half of all postsecondary students in the United States, many of whom are low income, minority, and/or first generation college students who face barriers to entry into selective colleges and universities. Mellow (2015) concurred, that “counter-intuitive though it may be—open-access community colleges need programs like honors to fulfill their mission of serving students who have been under-served and are under-represented in higher education” (p. 66). The honors standard of offering small, learner-focused courses provides students the opportunity to
establish a network of peer and faculty support, which substantially improves the prospects for successful completion (Mellow, 2015).

Armstrong (2015) explained that community colleges have undertaken an essential function in higher education as enrollment in two-year colleges has markedly increased in the past thirty years. For community college students, honors programs embody both a challenging course of study and “an experience, an opportunity, and a community” (p. 16) in classes that promote interdisciplinary thinking and primary research. However, Clauss (2011) argued that the most crucial component of honors programming is not the honors course design as much as the students who are in those courses, ones who ask “smart, incisive, quirky, challenging questions...[which] do not reproduce knowledge” (p. 96). Instead, Clauss (2011) argued that honors students potentially guide us toward new awareness and new courses of investigation by revealing gaps in the foundation of existing knowledge. Bullock (2015) added that, in addition to offering intellectually challenging courses, honors programs provide opportunities outside the classroom for inquisitive students to develop critical thinking skills, cultural knowledge, as well as both independent and collaborative learning abilities. Armstrong (2015) agreed, citing specific benefits such as orientation programming, personal advising, and transfer planning assistance. Armstrong (2015) also pointed out that honors students have the opportunity to become members of a lively learning community and often emerge as campus leaders who participate in on-campus seminars and service to the community. Moreover, by presenting their work at district and national conferences, honors students expand their educational experience and increase the impact and visibility of their colleges through significant interaction and recognition (Burrage, 2015).
As noted by Harkins (2015), honors participation also facilitates the development of meaningful relationships with faculty and peers. The honors campus community can be characterized as a learning laboratory where faculty develop and implement new teaching and learning approaches and share those ideas with other faculty. Harkins explained that honors programs which attract “self-directed and self-regulating” (p. 106) students, offer courses which allow students to follow their unique interests, shape their own knowledge, and thus enjoy a tailored learning experience. As a result, honors students experience meaningful growth and regularly leave postsecondary institutions with greater ambitions for life after college than many of their classmates and often transfer to the finest universities in the nation (Heckler, 2015).

Bullock (2015) maintained that in addition to offering academic enhancement, honors programs attract employers. Students who regularly engage in advanced academic inquiry and problem-solving acquire the necessary abilities for occupations that involve unconventional, imaginative thinking - competencies that are essential in a complicated society experiencing transformative change. These competencies are precisely those that an honors program strives to provide (Heckler, 2015). Rod Risley, former CEO of Phi Theta Kappa International Honor Society of the Two-Year College, affirmed that corporate leaders are highly interested in honors program participants because they are searching for applicants with outstanding critical-thinking and problem solving ability, skills enriched through honors course work. Thus postsecondary students “must face a cultural transformation that is a shift from viewing higher education as simply a gateway toward a career, instead to embracing academic discourse, critical thinking, and intrinsic curiosity” (Pruitt, 2013, p. 276).
Community college honors programs are not without skeptics. Controversy abounds regarding whether two-year honors programs contradict the egalitarian mission of the community college. In fact, some scholars have charged that honors programs promote an elitist agenda. In response to Moltz (2010), who described a boom in community college honors programming, Ira Shor (2010) of the CUNY Graduate Center College of Staten Island asked challenging questions: "Why not make the whole community college curriculum an Honors program?...Democracy means a level playing field and equal protection for all, not tracking and privileging" (Msg. 2). Floyd and Holloway (2006) examined the pros and cons of community college honors programs and conceded the possibility that such programs potentially segregate high-achieving students from the regular student population, thereby creating an atmosphere of elitism. Additionally, the researchers argued that honors programs can lead to faculty hierarchies; nevertheless, Floyd and Holloway ultimately concluded that offering honors classes actually allows community colleges to focus on social equality and level the playing field because all individuals at every academic level, from the under-prepared to the highly able and motivated student, have the same access to education (Pruitt, 2013).

Honors programs also allow community colleges to respond to an increasingly varied student population. These students experience a boost in self-confidence, achievement, and social resources, meeting both the open access and quality education goals of the community college. Wilson (2015) emphasized that for faculty and students, honors intentionally becomes a flagship for the best the college has to offer as well as a “laboratory for high-impact practices [such as]… two-semester interdisciplinary course sequences that emphasize problem-solving, group work, and active engagement with [the] community” (p. 172).
Well-designed honors programs offer ideal environments for high-achieving students, while the programs also have a positive impact on traditional students due to the dissemination of innovative best practices that gradually make their way into traditional programs and contribute to college-wide academic excellence. In answer to concerns that honors programs work against the community college mission of providing equal access to educational opportunities, Clauss (2011) reasoned that though honors students typically complete the majority of their general education requirements in honors, they take the majority of their courses outside of honors. “Honors students typically take at least 75% of their coursework outside of honors. The influence of honors education beyond the perimeters of a particular program is thus substantial as these bright students interact with their peers and teachers outside of honors” (pp. 95-96). Heckler (2015) agreed, stating that honors education enhances the experience of students not participating in honors because the traditional students benefit by observing and frequently embracing the honors students’ excellent critical thinking and research skills in addition to the reflection and control characteristic of their approach to academic matters. Honors students bring their proclivity for engagement into non-honors classes across the disciplines, potentially revolutionizing classroom interactions by transforming class discussions into flashes of uncertainty or awe. Honors students can conceivably inspire classmates to search for and find their own answers (Clauss, 2011). From this perspective, the community college honors program is actually serving all students, from those in learning support programs to those capable of the most exacting challenges.

Honors programs also promote undergraduate research which can take the form of traditional library research or experimental scientific research. The programs can also focus on course designs for K-12 education, film and theater creations and even advertising campaigns.
for corporations. Honors is as much a learning experience for faculty as it is for the students which impacts entire institutions because, drawing from the honors experience, faculty enrich the educational experiences of all members of the student body (Cline, 2015). Wildes (2015) noted the impact of honors beyond a particular individual or institution, explaining that honors students have the responsibility to utilize “their intellectual, emotional, and other gifts to develop an understanding of the world in its complexities and its beauty” (p. 76). Wildes further emphasized that honors graduates emerge from the experience able to interact effectively with others who do not share their opinions and are, as a result, able to achieve compromise.

Mellow (2015) argued that community college honors programs offer students the opportunity to improve their self-awareness and self-image in life-changing ways that far exceed the average students’ increased intellectual capability. This change has the potential to elevate the aspirations the students establish and realize including the goal to transfer to elite universities. Students who graduate from exclusive institutions experience far greater benefits than their counterparts who attain a bachelor’s degree from less discerning four-year universities. The statistics are alarming. Treat and Barnard (2012) reported that “fewer than 1 in 1,000 graduates of the 38 most selective private institutions began at a community college” (p. 710) and commented that select public universities are only marginally superior with 4% of their transfer students coming from community colleges. Meanwhile, more than half of all higher education students in the United States attend community colleges, with a disproportionate number of the nation’s first generation, low income, and minority students attending community college. Therefore, transfer to elite universities exemplifies a tangible obstacle to the potential for higher education to facilitate social change and economic progress.
(Treat & Barnard, 2012). By emphasizing student educational achievement, community college honors programming signifies a serious attempt to overcome this obstacle. Therefore, appropriately structured honors programs can be understood as a commendable expansion of the community college mission (Treat & Barnard, 2012).

Challenges Facing Honors

Ross and Roman (2009) reported that during the 2008 economic downturn, community college enrollments significantly increased. Simultaneously, however, many states decreased monetary support for postsecondary education. Despite increased enrollments, community colleges have been compelled to reduce costs and cut programs. During the economic recovery, “after adjusting for inflation, forty-seven states — all except Alaska, North Dakota, and Wyoming — [were] spending less per student in the 2014-15 school year than they did at the start of the recession,” with the state of Tennessee spending 21% less than in 2008 (Mitchell & Leachman, 2015). In this fiscal climate, honors programs have been strongly encouraged to develop legitimate and tangible assessment procedures. Otero and Spurrier (2005) advised honors programs and colleges to evaluate and assess their strengths and weaknesses in order to address any identified weaknesses, engender institutional backing and acquire external confirmation of goals and accomplishments.

In addition to concerns regarding state education funding, apprehensions about overall student persistence, retention, and completion, particularly among under-prepared students, have become a point of focus as many states have moved to outcomes-based funding models for higher education institutions. Many college administrators question whether or not investments in postsecondary honors programs are the wisest utilization of funds. College administrators
often do not question the assumption that high-achieving students will succeed (Bullock, 2015). Mellow (2015) noted that higher education college administrators, faculty, and staff alike often characterize honors students as intellectually sophisticated and privileged, ones who come to college only requiring encouragement to achieve their highest potential. Accompanying this image is the notion that these students are not at risk and do not need support from the college. In fact, some assume that high-achieving students will succeed without any additional academic support at all. Mellow (2015) observed that “Honors is typically associated with a self-selecting group of polished, academically accomplished, focused, and/or privileged students” (p. 65).

Mellow (2015) contended that high-achieving community college honors students have been overlooked in higher education as they, too, face obstacles to success, not the least of which are economic. Honors students often encounter financial obstacles which make payment of tuition costs, transportation expenses, and textbooks difficult; thus regardless of ability, honors students, like many other community college students, sometimes face the dilemma of choosing between paying rent and registering for classes (Mellow, 2015). During a period when the cost of postsecondary education continues to rise and society doubts the worth of a liberal arts education, it might appear contradictory to maintain that honors, which often offers substantial merit scholarships and small class sizes, represents an advantage to any college; however, honors students, who develop substantial relationships with faculty and peers and greater ambitions for work and career after college, enhance the reputation of the college, and honors program investments potentially benefit the entire college economically due to the high retention rate of honors students (Wildes, 2015).

In addition to the challenges associated with administrator assumptions about the independence and certain success of high-achieving students, administrators also face questions
regarding whether honors programs do successfully meet the academic needs of high-achieving students. Some administrators and faculty have considered abolishing institutional support of honors programs due to concerns that honors programs are exclusive, particularly when admission to honors is restricted to students with high GPAs or standardized test scores. Treat and Barnard (2012) asserted that “little is known about honors colleges’ structure, curriculum, selectivity, or requirements” (p. 711), and Furtwengler (2015) echoed widespread questions about the absence of evidence to support the often touted impact of honors for students who participate.

Perhaps as a result of these interacting challenges, human resources devoted to two-year honors programs have been limited. Most community college honors programs function with extremely limited financial and human resources. Andrew Cognard-Black, NCHC Research Consultant, reported that community college administrations frequently take advantage of the generosity of honors directors to a greater degree than in four-year settings. In fact, “75%-90% of honors directors/coordinators perform administrative duties part-time, frequently at only one-third of full-time equivalency. The majority work on less than a 12-month contract and approximately 50% work during the summer without compensation” (personal communication, July 4, 2016). Cognard-Black further explained that most two-year honors directors administer honors part time, with compensation in the form of release time from teaching. Though release-time compensation is not uncommon, Cognard-Black emphasized that community college faculty typically receive heavy teaching loads, with full-time faculty teaching five courses per semester (personal communication, July 4, 2016). Koh, Chaffee, and Goodman (2009) pointed out that without “dedicated space, budget, or administrative support” (p. 161) it is difficult to
maintain an effective honors program, not to mention expand it and create a vibrant honors community.

**Calls for Honors Outcomes Assessment**

To address the challenges facing honors programming, NCHC officials have strongly encouraged honors deans and directors to conduct formal research to substantiate claims of the value of honors programming. Lanier (2008) called for the development of honors assessment plans based on student learning outcomes, explaining that honors assessment “is a relatively new phenomenon with neither an extensive history nor a wide scholarly corpus” (p. 81). Lanier (2008) observed, however, that honors faculty have resisted outcomes assessment, citing such activity as an encroachment on self-government. For example, Snyder and Carnicom (2011) challenged the notion that assessment provides a meaningful measure of student learning outcomes in honors and argued against embracing the culture of assessment mainly because it implies an overall undeserved lack of trust in higher education professionals. Arguably, however, evaluation procedures are intricately connected to an understandable demand for accountability in postsecondary education, which has become an important aspect of the academic environment. As Lanier (2008) noted, “Resisting the call to develop best assessment practices for honors education seems a bit like standing on the seashore and repudiating the tide for coming in as it laps about our feet” (p. 82). Mandatory learning outcomes assessments are permanent requirements put in place by higher education institutions themselves as assessment strategies have become a fundamental element of both institutional and specific program accreditation processes (Lanier, 2008). Additionally, because contemporary colleges and universities have adopted business practices, accountability measures are virtually unavoidable. In many instances, politicians connected to state and federal higher education funding have
compelled postsecondary institutions to demonstrate program effectiveness; therefore, accrediting agencies have advised colleges and universities to conduct student learning assessment to answer the concerns of detractors and supporters alike (Snyder & Carnicom, 2011).

Prior to conducting assessments, however, honors program directors are duty-bound to establish clear goals and objectives; Goodell and Herrmann (2014) stated that after goals and objectives have been established, educational programs can create and utilize outcomes assessment instruments to effectively ascertain what and how effectively students are learning and subsequently direct curriculum improvement. The National Collegiate Honors Council (2013) explained that honors education fundamentally aims to enhance the academic experience; however, the means to this objective are determined based on the context of individual institutions, honors faculty members and the specific needs of honors students. Therefore, effective honors program mission statements should 1) provide a common commitment with the institution; 2) communicate opportunities to potential students; and 3) fulfill accrediting body requirements (Bartelds, Drayer, & Wolfensberger, 2012). Preferably, an honors program transforms its mission into explicit objectives, generates a list of performance measurements and evaluates honors graduates to determine whether they realize the stated mission after completing honors and beyond (Bartelds et al., 2012). In their examination of honors program mission statements, Bartelds, et al. discovered that honors directors and deans expect honors students to become involved academically and be responsible as citizens; however, their mixed-methods study of 169 randomly selected honors mission statements revealed “a strong emphasis…on process (87% of the key terms) as opposed to outcomes.
(14%)” (pp. 140-141); the researchers further noted that links between mission statements, student outcomes, and program evaluations are not discernible in American honors programs. Because legislators and accrediting agencies require proof of academic program effectiveness, Jones and Wehlburg (2014) argued for honors program adoption of methodical evaluation and assessment as a core value to develop “a culture of assessment and data-based decision-making” (p. 18). The establishment of an assessment canon through common standards in honors education practice could result in collective knowledge of the mission and the specific expectations of honors students. Research-based evidence of the impact of honors potentially substantiates and clarifies the rationale for judgments regarding honors programming so that everyone involved understands the data driving the administrative process. Furthermore, when programs use data about student learning outcomes, the students’ educational needs are addressed. Assessment can be understood as an ethical obligation because program assessment reveals what we value; conversely, the absence of program assessment signals that a program is not valued (Knight as cited in Jones & Wehlburg, 2014). Learning outcomes assessment must be at the core of postsecondary education, including honors programs.

Assessment is not solely for administrative reports, however; when assessment results are shared with faculty, the faculty can use results to subsequently participate in decision-making. Ideally, these outcomes evaluations form the basis for decisions regarding honors courses and guide academic decisions to guarantee that departments, programs, and administrators fulfill commitments made to students and the society at large (Jones & Wehlburg, 2014). Furtwengler (2015) specifically called for more quantitative research regarding postsecondary honors students “to increase validity and generalizability of the results and conclusions regarding the effects of participating in honors and on the factors that influence high-achieving students to
participate in honors” (p. 275). In particular, Furtwengler (2015) called for the examination of outcomes for equivalent students who participate in or opt out of honors programs. Though a number of such studies have emerged from four year university honors programs, very few quantitative studies exist to evaluate the impact of honors programming on high-achieving and motivated community college students.

Community College Honors Accountability and Assessment

Community college honors programs attract an economically and racially diverse population. The honors model, with its accompanying teaching and learning best practices, eventually reaches the traditional classroom. Consequently, honors programs at the community college level have the potential to improve learning outcomes for all community college students. Carnicom (2011) argued that community college honors programs have a history of “democratically leveling the playing field and providing a top-notch education to students outside the hallowed halls of the oldest and/or most prestigious institutions” (p. 51). Therefore, accountability is crucial at the two-year level as well. Smith (2013) observed that the discipline is growing as a recognized field and that “the next step for honors education will be political agitation resulting in specialized titles for programs that pass a review or examination” (p. 1). Most of the existing research in honors education relies on descriptive data without formal evaluation; thus, to evolve into a profession, colleges -- including community colleges -- must begin assessing and seeking certification for their honors programs. Specifically, honors researchers need to ask what and how honors students should be taught as well as examine the outcomes of comparable students who do and do not participate in honors programs, because community college administrators are not likely to invest in honors programming without proof of its impact (Smith, 2013). Kelly (2013) strongly encouraged honors directors and deans to
measure honors program effectiveness by formally assessing honors students to demonstrate that they graduate at a higher rate, achieve more, are more thoroughly involved in campus life and express more satisfaction with the college than their non-honors peers. By doing so, honors administrators may capture formidable support for the assertion that honors programs stimulate personal and college successes. Also, honors assessment results may have the potential to improve the status of honors within the college because its function in facilitating institutional efforts to achieve excellence could be assessed outside the honors area. For example, when honors faculty and administrators intentionally develop a powerful and substantially engaging curriculum, one that connects students with the entire institution, faculty contribute to the intellectual growth of all students. In addition to classroom curriculum, honors programs have historically offered high-impact educational practices such as study abroad, service learning, and internships. High-impact practices significantly contribute to academic achievement, interactions on campus, and overall satisfaction with learning (Kelly, 2013)

**Honors vs. Non-Honors Students**

As honors programs enter the age of assessment and accountability, honors researchers are conducting quantitative analyses embedded in social science structures, approaches, and lexicon. At the same time, the purpose of honors research has changed slightly, from NCHC members conducting internal conversations to verifying the significance of honors by way of quantitative assessment (Long, 2016). The Scott and Smith (2016) demographic study of honors programs revealed that two-year and four-year honors programs deliver honors education differently, stating “however, there is no current knowledge of the extent to which honors education is being delivered at four-year versus two-year institutions nationwide” (p.
Scott and Smith (2016) indicated a need for further research regarding the configuration of honors programming at all institutions offering honors. Moreover, because research that compares honors to non-honors students is scarce, more analysis of the value and planned impact of honors programs is crucial (Buckner, Shores, Sloane, Dantzler, Shields, Shader, & Newcomer, 2016).

Carnicom and Clump (2004) used the Inventory of Learning Processes (ILP) assessment to study the learning styles of honors and non-honors students from a small Catholic university. The researchers found that both groups exhibited sound study skills; however, the two groups differed significantly in Deep Processing, but not in the Methodical Study subscales on the ILP. The differences indicate that the participants began the honors program already able to organize and analytically assess material at a higher level than their contemporaries. Carnicom and Clump concluded that “although it is unclear whether this difference was innate or fostered at the secondary level, college honors courses could build upon this pre-existing proclivity for Deep Processing, which arguably corresponds with critical thinking ability” (p.41). That same year, Cosgrove (2004) conducted a study examining Pennsylvania State University honors and non-honors student academic outcomes over a five-year period focusing on academic performance, retention and degree-completion rates among three groups: honors program graduates; those who began in honors but did not finish the program; and, students who met the requirements for honors but opted out of participation. Cosgrove (2004) found that honors program graduates “have the highest academic performance and graduation rates and shortest time to degree compared to other high ability students” (p. 51). Scager, Akkerman, Keesen, Tim-Mainhard, Pilot, and Wubbels (2012) also observed that studies comparing honors and non-honors students in terms of specific attributes are limited; thus, the researchers conducted a
quantitative study using a questionnaire in which over 1,000 students from Utrecht University in the Netherlands were asked to “assess themselves on six characteristics: intelligence, creative thinking, openness to experience, the desire to learn, persistence, and the drive to excel” (p. 19). Results indicated a significant difference between honors and non-honors students. The most convincing finding was differences associated with the desire to learn, the drive to excel, and creativity. Notably, these studies have examined university honors programs; very few empirical studies of community college honors programs exist. As Scager et al. (2012) contended, “the scarcity of information on the differences between honors and non-honors students that has been gathered in the last two decades suggests that there is a need for additional studies” (p. 25).

_Honors Assessment Research Trends: Propensity Score Analysis_

As colleges and universities strive to develop robust student learning atmospheres, research studies are needed to assess whether honors program participation produces positive effects on learning outcomes. Answers to this question have the potential to inform teaching practices in all learning environments (Siefert, Pascarella, Colangelo, & Assouline, 2007). Austin (2011) noted that in observational studies, an individual’s decision to engage in treatment, such as an honors program, is shaped by that individual’s attributes. Therefore, “baseline characteristics of treated subjects often differ systematically from those of untreated subjects” (p. 400). To address these confounding variables, Austin recommended adjusting for fundamental variations when assessing the effect of treatment, such as honors, on outcomes. Traditionally, researchers have utilized regression adjustment to explain differences in baseline attributes between treated and untreated subjects. However, researchers are increasingly
interested in techniques grounded in the propensity score to diminish or remove “the effects of confounding when using observational data” (p. 400). Phillips (2012) explained that propensity score matching (PSM) is a rather innovative method utilized in observational studies to estimate treatment effects on outcomes. The propensity score method integrates the “values of several covariates into a single propensity score that is used as a matching variable to create similar groups” (p. v). Keller and Lacy (2013) explained that propensity score analysis relies on a contrary to fact viewpoint. For example, when investigating the effect of honors program participation, the researcher compares the honors program outcomes to the outcomes students would have exhibited if the student had, contrary to fact, opted out of the honors program. Though one can study the actual outcomes of the “treatment” group (those receiving the intervention of the honors program), one can only infer what might have happened if the student had not participated in honors. To extrapolate the contrary to fact outcome, the propensity score analysis requires the researcher to begin by using a regression model to analyze both honors and non-honors students. This analysis estimates, as a function of the background factors (e.g., standardized test scores or high school GPA), the likelihood that a student would have enrolled in honors. Keller and Lacy (2013) explained that “this probability or ‘propensity score’ is the basis on which non-participants are judged to be similar to a participant in a given treatment program (honors)” (p. 76).

A number of studies using propensity score analysis have emerged in an effort to maximize the accuracy of comparisons between the academic outcomes of honors vs. non-honors participants. For example, Cosgrove (2004) used propensity score analysis in the comparison of academic accomplishment, graduation and retention rates to compare “honors program completers, partial honors students, and high-ability non-honors students” (p. 47).
Utilizing SAT scores and High School Percentile Ranking (HSPR) as baseline characteristics, the researcher found that students who completed the honors program had “the highest academic performance and graduation, and shortest time to degree compared to other high ability students, including students who enter honors programs but do not complete them” (p. 51).

In a 2001-2004 longitudinal study, Shushok (2006) analyzed the academic performance of honors and non-honors students. The research indicated that the 2001 honors students earned a higher GPA than their non-honors counterparts by the end of the first year, suggesting that honors participation had a positive effect. Additionally, honors students were also retained at higher rates. Participation in extracurricular activities was similar between the two groups, but with regard to interaction with faculty independent of the classroom, “male honors students reported significantly higher levels of engagement than traditional students, while female honors students reported essentially the same engagement with faculty when compared to traditional students” (p. 89). Shushok found, however, that the honors student retention rates and grade point average gains noted in the study had flattened by the fourth year of postsecondary education. Further, retention distinctions between honors and non-honors students were not statistically significant. However, honors students were at highest risk of dropping out during the first year. On the other hand, honors students were more than twice as likely as non-honors students to work with faculty during office hours and more than three times as likely as non-honors students to engage with faculty to discuss professional ambitions. Interestingly, male honors students were significantly more likely to take advantage of faculty office hours than female honors students and more than five times as likely as male non-honors students to engage with faculty. This finding suggests that “honors programs may encourage
outcomes for males in a way that it does not for females” (p. 94). Evaluation endeavors potentially reveal constructive data that can be used to increase honors program effectiveness “and the influence such efforts have on student learning outcomes. In this example, university officials will want to explore more thoroughly the possibilities for the differing impact on men and women” (Shushok, 2006, p. 95).

Keller and Lacy (2013) also conducted a longitudinal propensity score study comparing the academic outcomes of honors and non-honors students at Colorado State University. Rather than examining outcomes year by year, the researchers combined retention and graduation data from 2005-2008 and examined fall to fall retention rates and whether students graduated within a four-, five- or six-year period from original year of enrollment. Keller and Lacy considered a broader range of background characteristics than previous propensity score studies, considering not only high school GPA, ACT or SAT, ethnicity, gender, and residency, but also first-generation college status and academic major on entry. The researchers concluded that honors program participation was correlated with significantly higher fall semester to fall semester retention as well as a larger percentage of students who graduated within four, five, or six years. With regard to demographic considerations, the researchers revealed that “women were more than twice as likely as men to participate in honors,” pointing out that while 54% of the university population was female, 70% of honors participants were female (p. 78).

Goodell and Herrmann (2014) explained that educational programs can effectively ascertain what and how effectively students are learning and direct curriculum improvement by creating and utilizing outcomes assessment instruments. Furtwengler (2015) argued that researchers need to ascertain the impact of the honors education experience so that “if a positive or negative effect [is] associated with participation…high-achieving college-going students are
aware of the associations and their options” (p. 275). Therefore, Furtwengler studied the scale of the impact of taking part in honors as measured by overall GPA, emphasizing that GPA has been correlated with “personality and motivation, achievement striving, individual learning, academic performance, team learning, and cheating behavior. Furthermore, GPA has the potential to account for nearly half the variance in educational research models” (p. 279). Austin (2011) concurred, pointing out that “in observational studies, treatment selection is often influenced by subject characteristics. As a result, baseline characteristics of treated subjects often differ systematically from those of untreated subjects” (p.399). Furtwengler evaluated information for two groups of entering freshmen at a four-year university to establish whether a connection between honors participation and academic success as indicated by cumulative GPA existed. The researcher ultimately found that the advantages of honors participation were not consistent for all those studied; specifically, the effect of honors participation was higher among those students with a lower covariate value and lower for those with a larger covariate value score. Thus, the conclusion was that high-performing honors non-participants with a predicted probability of honors participation should be strongly encouraged to participate. However, Furtwengler listed important limitations associated with establishing propensity scores regarding honors program participation and the associated outcomes. In addition to using baseline characteristics of Scholastic Aptitude Test (SAT), High School Percentile Ranking (HSPR), gender, and ethnicity, the researcher acknowledged that socioeconomic status and parents’ level of education should also be considered because these characteristics impact academic success. Further, Furtwengler recommended including students’ academic goals and declared majors as baseline characteristics. Future studies should attempt to identify colleges where honors and non-honors students embark on a comparable curriculum and explore the
influence of honors and non-honors participation on individual course success, completion, retention and time to graduation. Using these factors would allow for better control of confounding variables related to differing curricula and teaching. Because much of the work at the community college level involves the completion of general education courses, a comparison of honors and non-honors students with regard to successful completion of general education courses is possible.

Tennessee Promise and Community College Honors

In general, community college honors assessment is needed. More so, honors program assessment is especially needed in the state of Tennessee. Community colleges in Tennessee have entered the national spotlight as a result of President Obama’s America’s College Promise, which can be traced directly to Tennessee Governor Bill Haslam’s Drive to 55 initiative. According to the Executive Office of the President (2015), Obama’s proposal, “inspired by groundbreaking work in Tennessee” (p. 2) will make community college for conscientious undergraduates as common and widespread as high school. Tennessee Governor Bill Haslam established Drive to 55 with the goal that 55% of all Tennessee citizens will obtain a college degree or certificate by the year 2025 (Drive to 55 Alliance, 2014). Politico Magazine (2016) included Governor Haslam on its list of 50 “thinkers, doers, and visionaries transforming American politics in 2015,” reporting that Haslam initiated attempts to enhance postsecondary education achievement in Tennessee in 2013.

According to the Tennessee State Board of Education (SBE) and Tennessee Higher Education Commission (THEC) (2016), 58% of 2014 high school graduates enrolled in some type of higher education. Despite these encouraging numbers, the state has shifted its focus
from enrollment to completion: “Only 24% of the high school class of 2008 attained a postsecondary degree within 6 years. To prepare for a future in which most Tennessee jobs will require a postsecondary credential, the SBE aspires to push this rate to over 50% of the graduating class of 2020” (p. 9). Therefore, administrators need substantial evidence to justify providing meaningful investments in the academic and personal growth of high-achieving students (Jones & Wehlburg, 2014; Kelly, 2013). Gee (2015) argued that with investments in honors, more students will have access to an intellectually stimulating atmosphere which encourages self-efficacy and access to programs that provide scholarship and leadership opportunities.

The Drive to 55 Alliance (2014) described three initiatives associated with Drive to 55: Tennessee Promise, which supports high school graduates; Tennessee Reconnect, which encourages adult learners to complete higher education; and Tennessee LEAP, which encourages collaboration between education institutions and business and industry to reduce skills gaps. “Tennessee Promise offers two years of tuition-free community or technical college to Tennessee high school graduates beginning with the Class of 2015” (Drive to 55 Alliance, 2014). Tennessee Promise is a last-dollar scholarship which pays college costs not covered by Pell and other Tennessee state scholarships. Tennessee Promise students are also assigned a mentor to assist them with the process of applying to college, and students are required to meet with their mentors to remain eligible. Further, participants are also required to complete eight hours of community service each semester they are enrolled, and earn a minimum 2.0 grade point average each semester (TBR, 2016). Tennessee launched Tennessee Promise in fall 2015, and according to the Obama administration Executive Office of the President (2015), “58,000 students applied, and 15,000 [were] expected to enroll” (p. 3). SBE
and THEC (2016) reported that the inaugural Tennessee Promise cohort included more than the expected 15,000 students.

Sixteen thousand two hundred ninety-one Tennessee Promise students enrolled in community and technical colleges throughout the state. First-time freshmen enrollment in Tennessee public higher education increased by 10 percent, including a 24.7 percent increase at community colleges and a 20 percent increase at TCATs. The second application cycle for the program concluded on November 2, 2015. As of this date, 59,621 students applied for the Tennessee Promise program, representing over 90 percent of high school seniors in the state. (p. 21)

Tennessee’s investment in community college has the potential to impact honors program enrollment as high-performing students who might have otherwise chosen four-year universities immediately after high school will consider the economic and academic benefit of attending community college (Treat & Barnard, 2012). “The enhanced confidence, success, and social capital obtained in such an honors college simultaneously meets the egalitarian and meritocratic aims of the community college” (p. 695). Koh et al. (2009) reported that honors programming efforts have led to a growing number of community college transfer successes, including acceptance with scholarship support to an increasing number of highly discerning four-year universities.

Chapter Summary

Researchers have indicated that honors programs can be understood as a worthy expansion of the community college mission; however, due to the absence of evidence supporting the impact of honors for students who participate, widespread questions regarding the value of honors programming remain. Because honors assessment plans based on student learning outcomes are relatively new, honors as a discipline does not enjoy a far-reaching history or a vast body of devoted scholarly material. Nevertheless, the discipline is growing.
Therefore, research comparing honors to non-honors students is crucial to understand the impact of community college honors programs on student outcomes.
CHAPTER 3

METHODOLOGY

Honors researchers posit that honors courses and programs provide an avenue for students to experience academic distinction, set higher aspirations for themselves and distinguish themselves as extraordinary life-long learners (Harkins, 2015). Therefore, honors programs can be understood as a valuable expansion of the community college mission. In this context, Carnicom (2011) argued that community college honors programs have a history of “democratically leveling the playing field” (p. 51) by offering the highest quality education to capable students who, for largely economic reasons, do not have access to prominent, exclusive higher education institutions. More than half of all higher education students in the United States attend community colleges, with a disproportionate number of the nation’s first generation, low income and minority students attending community college (Mellow, 2015). Therefore, transfer to elite universities represents a substantial impediment to the potential for higher education to facilitate social change and economic progress (Treat & Barnard, 2012). By emphasizing student educational achievement, community college honors programming signifies a serious attempt to overcome this obstacle; nevertheless, evidence supporting the impact of honors for community college students who participate is rare, resulting in widespread questions regarding the demonstrated value of community college honors programming.

Because the honors discipline is growing, scholars in the field have called for research to compare honors to non-honors students as a step toward formally establishing the value and intentional impact of community college honors programs. Recently, researchers interested in
examining the impact of honors programs on academic achievement have utilized propensity score matching (PSM), a statistical procedure which matches treatment cases with one or more control cases using each participant’s propensity score. PSM is used in quasi-experimental and observational studies to reinforce causal arguments and diminish selection bias (Randolph et al., 2014). Furtwengler (2015) cited three studies comparing outcomes between honors and non-honors students, each of which matched the students using SAT scores and “either high school GPA or class rank as observable characteristics” (p. 277). However, Furtwengler conceded that including additional confounding variables predictive of academic success would strengthen propensity score assessments of the impact of honors programming on student outcomes. The present study included baseline characteristics such as ACT scores and high school GPA because this information provides “a measure of students’ motivation and perseverance” (Keller & Lacy, 2013, p. 76). In addition, the study included gender, age, ethnicity, high school dual-enrollment participation, students’ socioeconomic status from the Free Application for Federal Student Aid (FAFSA), parental level of education, and declared major. Each of these characteristics have been empirically aligned with student success (Furtwengler, 2015).

The current study includes the full population of honors-eligible non-participants (NPs) and honors participants (HPs) between academic years 2008 and 2013 at a community college in Tennessee. For selection in the study, HP and NP student records included an ACT score, a completed FAFSA, and successful completion of the first fall and spring semesters after honors eligibility attainment. PSM was used to reduce selection bias and support a comparison between a one-to-one matching of HPs to NPs while controlling for a variety of predictors functioning as covariates.
This was a post-hoc quantitative comparative study using archival data collected from a medium-sized community college in Tennessee. In sum, five honors-eligible cohorts from academic years 2008 to 2013 were included in the design. For the five cohorts, the following data were collected: first year cumulative GPA at the end of the second semester after honors eligibility (a minimum of 24 credit hours); cumulative GPA at the time of graduation; fall-to-fall retention; graduation data, including number of semesters to completion; and final course grade in Composition II, a required first-year writing intensive course. Before comparing HPs to NPs, subjects were matched using PSM according to 13 criteria predictive of student success. According to Furtwengler (2015), “there are four types of propensity score analysis methods: matching on the propensity score, stratification on the propensity score, inverse probability of treatment weighting using the propensity score, and covariate adjustment using the propensity score” (p. 280). The current study used the covariate adjustment method. By adding covariates (variables that predict student success) to the model, the number not only indicated the treatment (honors) effect, but also the estimated difference in means between honors and non-honors groups once the determination was made regarding expected outcomes for different individuals based on their covariates. Thus, by utilizing information regarding background characteristics, the study more accurately predicts what the outcomes should be aside from the honors treatment, therefore better estimates the overall average honors effect.
Research Questions and Hypotheses

This quantitative study addresses six research questions to determine the impact of honors program participation on student outcomes. For the purpose of the study, student outcomes include grades in a required first-year writing-intensive course, grade point averages two semesters after achieving honors eligibility, grade point averages upon graduation, fall-to-fall retention rate, community college graduation rate, and number of semesters to graduation.

Research Question 1: Is there a significant difference in final course grade for a required first-year writing course between honors-eligible non-participants and honors program participants?

H1: There is a significant difference in final grade for a required first-year writing course between honors-eligible non-participants and honors program participants.

H₀₁: There is no significant difference in final grade for a required first-year writing course between honor-eligible non-participants and honors program participants.

Research Question 2: Is there a significant difference in grade-point average two semesters after honors eligibility attainment between honors-eligible non-participants and honors program participants?

H2: There is a significant difference in grade point average two semesters after honors eligibility attainment between honors-eligible non-participants and honors program participants.
H₂: There is no significant difference in grade point average two
semesters after honors eligibility attainment between honors-eligible non-
participants and honors program participants.

Research Question 3: Is there a significant difference in grade-point average upon graduation
between honors-eligible non-participants and honors program participants?

H₃: There is a significant difference in grade-point average upon
graduation between honors-eligible non-participants and honors program
participants.

H₀₃: There is no significant difference in grade-point average between
honors-eligible non-participants and honors program participants.

Research Question 4: Is there a significant difference in fall-to-fall retention rate between
honors-eligible non-participants and honors program participants?

H₄: There is a significant difference in fall-to-fall retention rate between
honors-eligible non-participants and honors program participants.

H₀₄: There is no significant difference in fall-to-fall retention rate
between honors-eligible non-participants and honors program
participants.

Research Question 5: Is there a significant difference in community college graduation rate
between honors-eligible non-participants and honors program participants?

H₅: There is a significant difference in community college graduation rate between honors-eligible non-participants and honors program
participants.

H₀₅: There is no significant difference in community college graduation
rate between honors-eligible non-participants and honors program participants.

Research Question 6: Is there a significant difference in number of semesters to graduation between honors-eligible non-participants and honors program participants?

H6: There is a significant difference in number of semesters to graduation between honors-eligible non-participants and honors program participants.

Hₒ₆: There is no significant difference in number of semesters to graduation between honors-eligible non-participants and honors program participants.

Population

Data were collected from a medium-sized community college in Tennessee using a stratified sampling process of: (1) honors-eligible non-participant students from the years 2008-2013 and (2) honors program participants (12 or more honors credit hours completed) from the years 2008-2013. Entering community college students are eligible for honors course work if they enter with an ACT of 25 or better, and returning students are eligible when they earn a 3.25 GPA or higher. For the purposes of this study, students who completed 12 or more credit hours of honors-level course work were defined as honors participants. PSM was used to create a sub-sample of honors-eligible non-participants whose past academic achievements and academic potential approximated the academic profile of honors program participants at the community college.

Data Collection

Using archival data from Banner, the community college’s Research, Analytics and
Planning Division (RAP) identified and extracted a list of HPs (12 or more honors credit hours) and NPs for the entry years 2008-2013 through the final graduating term of Summer 2016. From this list of students, staff in RAP provided the data for 13 propensity score matching variables for each student. The RAP staff removed all identifying information. At no time in the study did the researcher have access to student identification information, such as name or unique college ID number.

Data Analysis

The current study utilized PSM as a method to better estimate the effect of honors programming (treatment effect) on the student outcome criteria variables of grade in a first-year required composition course; cumulative GPA two semesters after honors eligibility attainment; cumulative GPA upon graduation; fall-fall retention rate; and graduation rate; and number of semesters to completion between the groups (NPs = 0, HPs = 1). The propensity score was defined as the probability of honors participation based on the following measured covariates:

1. High school GPA
2. Dual enrolled
3. ACT score: Composite
4. ACT English
5. ACT Math
6. ACT Reading
7. Compass tests converted to ACT (for students with no ACT)
8. Northeast State overall GPA upon eligibility
9. Income level
10. First generation college student status
11. Declared major  
12. Age  
13. Gender

In other words, the propensity score signified the probability that an HP student will enroll in honors based on the above observable covariates. From there, logistic regression was utilized with the binary response variable (NP = 0, HP = 1) to the above set of explanatory variables. This estimated the propensity scores using a dichotomous assignment of NP or HP as the outcome variable; the 13 covariates represented the predictors.

A propensity score for each student was calculated to determine the predicted probability for participation in the honors group using the above 13 observable characteristics on the dichotomous variable of group (NP = 0, HP = 1). One-to-one matched sets of NPs and HPs were then formed based on the similar value of the propensity score. The next phase of analysis was to determine the effects of honors participation on student outcome variables. Student outcomes were defined as: (1) final grades earned in Composition II, a first-year writing intensive course; (2) grade point average the second semester after honors eligibility attainment; (3) overall grade point average upon graduation; (4) fall-to-fall retention; (5) graduation rate; (6) semesters to graduation from the community college within a two-three or four-year period. Using data from 2008-2013 and R Studio software, students were matched according to probability of honors program participation. Prior to matching, the population included 452 NPs and HPs with 357 NPs and 95 HPs. After matching, 95 NPs were matched with the 95 HPs on the propensity score leaving 190 students in the population for outcomes assessment.

Independent samples $t$-tests were used to analyze the resulting propensity scores for Research Question 1, Composition II final numerical grades, Research Question 2, cumulative
GPA two semesters after honors eligibility, Research Question 3, cumulative GPA upon graduation, and Research Question 6, number of semesters to completion. Pearson Chi-Square analyses were used to analyze the resulting propensity scores for Research Question 4, fall-to-fall retention and Research Question 5, graduation outcomes.

Chapter Summary

Chapter 3 included the research design, population being studied, research questions, null hypotheses, and data collection procedures that were used to conduct this quantitative study regarding a comparison of student outcomes between HPs and NPs. The data analysis techniques were also introduced in this chapter. Chapter 4 presents findings from the analyses of data. Chapter 5 presents a discussion of the findings, conclusions, and recommendations for policy, practice and future research.
CHAPTER 4

FINDINGS

The purpose of this study was to explore the impact of honors education participation by comparing HPs to NPs. For the purpose of this study, HPs (honors participants) were defined as eligible students who completed 12 or more honors credit hours. The following measurable student outcomes were used in analyses: (1) final course grade in Composition II, a required first-year writing-intensive course which emphasizes critical analysis; (2) overall GPA two semesters after honors eligibility attainment; (3) fall-to-fall retention after eligibility; (4) number of semesters to graduation; (5) overall GPA upon graduation; (6) and number of semesters to completion.

Propensity score matching (PSM) was used to generate two equally matched sample groups that served as the foundation of the analyses. PSM utilizes logistic regression to generate a propensity score for individual participants, which indicates the probability that each individual will choose to participate in the treatment examined. After creating the propensity scores, a matching process chooses a control group from among the untreated subjects to minimize the covariate differences between the treated and untreated groups. In essence, this technique balances the two groups thereby eliminating observed bias from the comparison (Grubb, Scott, & Good, 2015). PSM was a method for better estimation of treatment effect on the criterion variables of: (1) final course grade in a required freshman writing course; (2) cumulative GPA two semesters after honors eligibility attainment; (3) fall-to-fall retention; (4) graduation; (5) cumulative GPA upon graduation; (6) and number of semesters to completion between the groups (NPs – 0, HPs – 1).
Honors participation was predicted by the select set of 13 covariates predictive of honors participation described in Chapter 3. For each honors-eligible student, this logistic regression estimated the probability that the individual student would opt to participate in honors based on his/her ranking on the covariates. These estimated probabilities, or propensity scores, are intended to compare honors vs. non-honors among individuals with almost equal probabilities of participating in honors. Therefore, assignment to honors or non-honors among eligible students with similar propensities is virtually random and approaches the kind of results one might discover in a true experiment (Connelly, Sacket, & Waters, 2013).

The quasi-experimental study used archival data collected from five cohorts: 2008, 2009, 2010, 2011, 2012, and 2013. For the five cohorts, the director of the community college’s Research and External Reporting collected all covariate and outcome data, resulting in an initial dataset including 4,931 individuals. The dataset was then screened to remove students with incomplete covariate information such as no high school GPA, no ACT, or incomplete ACT, or incomplete Compass test score information, and no Composition II grade. After all the incomplete or missing records were eliminated from the dataset, a total of 452 unique student records remained with 95 (21%) meeting the study’s definition of honors participants (HPs) and 357 (79%) meeting the study’s definition of honors-eligible non-participants (NPs).

Matching Procedure and Demographics

Across the dataset of HPs and NPs from 2008-2013, 278 (62%) were females and 174 (38%) were males. Ninety-three percent of the population was White, and it was determined
there were not substantial numbers of other races within the dataset to disaggregate specific racial categories. Therefore, the racial and ethnic description category was combined from a polytomous categorical variable into the dichotomous variable of White/non-White. Seventy-seven percent of the students in the dataset were 24 years of age or younger and categorized as traditional students. Students 25 years of age or older were categorized as non-traditional. Only 79 (17%) of the students in the dataset had participated in dual enrollment in high school, and the vast majority (97%) of students had attended public high schools. Fifty percent of the students met the criterion of low income based on whether or not they received a full Pell award, while 37% of students were first-generation college students. It should be noted that 44% of the students left parental education information missing and did not indicate parental education levels. Honors program participants totaled 95, with 357 students opting out of honors participation Table 1 illustrates demographics by group. Following Table 1, Table 2 illustrates the structure of the covariates on which students were matched and the outcome variables by which they were compared.

Table 1

*Demographics of Population*

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<td>%</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
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<td>Gender</td>
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<td>278</td>
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<td>134</td>
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<td>174</td>
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<tr>
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<td>357</td>
<td>100</td>
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Table 1 continued

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<td>339</td>
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<td>Non-Traditional</td>
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<td>373</td>
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Table 2

*Structure of Manipulated Data*

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<th>Levels of the Variable</th>
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<td>ETHNICITY</td>
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<td>AGE AT ELIGIBILITY</td>
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The data were imported into the R environment and matched using the *Match It* package version 2.4-21 (Ho, Imai, King, & Stuart, 2013). The *Match It* package contains several methods of matching and provides other packages to assist with analytical choices. Each individual received a propensity score in the data reports and a weight so that the covariates were balanced as evenly as possible. After the matching process, a summary of the balance for the unmatched and matched data was generated. Table 3 below provides the full report of the balance of unmatched and matched data.

**Results**

**Research Question 1**

RQ1: Is there a significant difference in final numerical course grade for a required first-year writing course between honors-eligible non-participants and honors program participants?

H₀₁: There is no significant difference in final numerical course grade for a required first-year writing course between honors-eligible non-participants and honors program participants.

An independent-samples *t*-test was conducted to evaluate the hypothesis that a significant difference exists in final numerical course grade for a required first-year writing course between honors-eligible participants and honors-eligible non-participants. The test was significant *t* (186) = 2.15, *p* = .03. Therefore, the null hypothesis was rejected. There was a significant difference in the final numerical course grade for participants (*M* = 91.18, *SD* = 6.41) and non-participants (*M* = 88.77, *SD* = 8.81). The 95% confidence interval for difference in means was .19 to 4.63. However, the Cohen’s effect size value (*d* = .31) suggested a weak to
moderate practical significance of the difference. The 95% confidence intervals for the differences, means and standard deviations for the two groups are presented in Table 3. A depiction of the distributions of the difference in Composition II final course grades between groups are shown in Figures 1 and 2. In summary, HPs earned a significantly higher final numerical course grade than non-honors participants. HPs earned a numerical course grade corresponding to the letter grade of A as compared to NPs who earned a numerical grade corresponding to the letter grade of B suggesting that a significant relationship exists between honors program participation and performance in a course that required critical thinking and analytical writing skills.

Table 3

*Composition II Final Grades*

<table>
<thead>
<tr>
<th>Program</th>
<th>$N$</th>
<th>$M$</th>
<th>$SD$</th>
<th>CI</th>
</tr>
</thead>
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<tr>
<td>Honors</td>
<td>93</td>
<td>91.18</td>
<td>6.41</td>
<td>[.19, 4.63]</td>
</tr>
<tr>
<td>Non-Honors</td>
<td>95</td>
<td>88.77</td>
<td>8.81</td>
<td>[.20, 4.63]</td>
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</table>
Figure 1. Composition II final grades for honors and non-honors participants.
Figure 2. Composition II final course grade distribution for honors and non-honors participants.

Research Question 2

RQ2: Is there a significant difference in grade-point average two semesters after honors eligibility attainment between honors-eligible non-participants and honors program participants?

H₀₂: There is no significant difference in grade point average two semesters after honors eligibility attainment one academic year between
honors-eligible non-participants and honors program participants.

An independent-samples t-test was conducted to evaluate the hypothesis that a significant difference exists in cumulative GPA two semesters after honors eligibility was achieved between HPs and NPs. The test was significant \( t (188) = 4.42, p < .001 \). Therefore, the null hypothesis was rejected. There was a significant difference in the cumulative GPA the second semester after honors eligibility for participants \( (M = 3.71, SD = .35) \) and non-participants \( (M = 3.47, SD = .04) \), with HPs earning a significantly higher cumulative GPA than their NP peers. These results suggest that a significant relationship exists between honors program participation and academic performance two semesters after honors participation begins. The 95% confidence interval for difference in means was .13 to .35. Further, the Cohen’s effect size value \( (d=.69) \) suggested a moderate to strong practical significance. The 95% confidence intervals for the differences, means, and standard deviations for the two groups are presented in Table 4. A depiction of the distributions of the difference in cumulative GPAs two semesters after honors eligibility is shown in Figures 3 and 4. In summary, HPs are more likely than NPs to perform at the highest academic levels.

Table 4

*Cumulative GPA Two Semesters after Eligibility*

<table>
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<tr>
<th>Program</th>
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<th>M</th>
<th>SD</th>
<th>CI</th>
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</thead>
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<td>[.13,.35]</td>
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<td>Non-Honors</td>
<td>95</td>
<td>3.45</td>
<td>.40</td>
<td>[.13,.35]</td>
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Figure 3. Cumulative GPAs two semesters after honors eligibility for honors and non-honors participants.
Research Question 3

RQ3: Is there a significant difference in grade-point average upon graduation between honors-eligible non-participants and honors program participants?

\[ H_{03}: \text{There is no significant difference in grade-point average upon graduation between honors-eligible non-participants and honors program participants.} \]
An independent-samples $t$-test was conducted to evaluate the hypothesis that a significant difference exists in cumulative GPA upon graduation between honors-eligible participants and honors-eligible non-participants. The test was significant $t (142) = 3.76, p < .001$. Therefore, the null hypothesis was rejected. There was a significant difference in the cumulative GPA upon graduation for honors participants ($M = 3.66, SD = .32$) and non-participants ($M = 3.44, SD = .38$), with HPs earning a significantly higher cumulative GPA upon graduation than NPs; therefore, the null hypothesis was rejected. These results indicate that a relationship exists between honors program participation and academic achievement. Honors participants are more likely than their non-honors peers to achieve the institutional honor of cum laude (GPA 3.5-3.7) upon graduation. The 95% confidence interval for difference in means was .10 to .34. Additionally, the Cohen’s effect size value ($d=.63$) suggested a moderate to strong practical significance. The 95% confidence intervals for the differences, means, and standard deviations for the two groups are presented in Table 5. A depiction of the distributions of the difference in cumulative GPAs upon graduation is shown in Figures 5 and 6. In summary, HPs and more likely than NPs to earn institutional honors upon graduation, which suggests that HPs demonstrate a higher level of individual learning and motivation.

Table 5

*Cumulative GPA upon Graduation*

<table>
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<tr>
<th>Program</th>
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<th>$M$</th>
<th>$SD$</th>
<th>CI</th>
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<td>Honors</td>
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<td>3.66</td>
<td>.32</td>
<td>[.11, .34]</td>
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<tr>
<td>Non-Honors</td>
<td>62</td>
<td>3.44</td>
<td>.38</td>
<td>[.11, .34]</td>
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</table>
Figure 5. Cumulative GPAs upon graduation for honors and non-honors participants.
**Figure 6.** Distribution of cumulative GPAs upon graduation for honors and non-honors program participants.

**Research Question 4**

RQ4: Is there a significant difference in fall-to-fall retention rate between honors-eligible non-participants and honors program participants?

\[ H_{04} \]: There is no significant difference in fall-to-fall retention rate between honors-eligible non-participants and honors program participants.

A two-way contingency table analysis was conducted to evaluate whether a significant
difference exists in fall-to-fall retention between honors-eligible non-participants and honors program participants. The two variables were honors program participation and fall-to-fall retention. Although honors participants were 1.1 times more likely to persist one year after honors eligibility, the difference was not significant. Honors program participation and fall-to-fall retention were found not to be significantly related, Pearson $x^2(1, N = 190) = 3.30, p = .07$, Cramer’s $V = .25$; therefore, the null hypothesis was retained. Honors participants are not necessarily more likely than their non-honors peers to persist the following fall after achieving honors eligibility. The proportion of HPs who persisted fall-fall after attaining eligibility was .89 and the proportion of NPs who persisted fall-to-fall was .80. The results are illustrated in Figures 7 and 8 below.
Figure 7. Fall-to-fall retention for honors and non-honors participants.
Research Question 5

RQ 5: Is there a significant difference in community college graduation rate between honors-eligible non-participants and honors program participants?

\[ H_0: \text{There is no significant difference in community college graduation rate between honors-eligible non-participants and honors program participants.} \]

A two-way contingency table analysis was conducted to evaluate the hypothesis that a
significant difference exists in community college graduation rates between honors-eligible non-participants and honors program participants. The two variables were honors program participation and graduation, with two levels, (graduate and non-graduate). Honors participation and graduation were found to be significantly related, Pearson $x^2(1, N = 190) = 11.47, p = .001$, Cramer’s $V = .13$. Therefore, the null hypothesis was rejected. The proportion of HPs who graduated was .86, and the proportion of NPs who graduated was .65, suggesting that honors participation is significantly related to community college completion. These results suggest that HPs are 1.3 times more likely to graduate than their NP peers. The honors program participant and non-participant graduate outcomes are shown in Figures 9 and 10 below. In summary, HPs are more likely to have completed than NPs.
Figure 9. Graduation outcomes for honors and non-honors participants.
Research Question 6

RQ6: Is there a significant difference in number of semesters to graduation between honors-eligible non-participants and honors program participants?

H₀₆: There is no significant difference in number of semesters to graduation between honors-eligible non-participants and honors program participants.

An independent-samples t-test was conducted to evaluate the hypothesis that a significant
difference exists in number of semesters to completion between HPs and NPs. The test was not significant $t(142) = -1.73$, $p = .08$. Therefore, the null hypothesis was retained. Although HPs completed somewhat faster, there was no significant difference in the number of semesters to completion for HPs ($M=6.35$, $SD=1.82$) and NPs ($M = 6.98$, $SD = 2.4$). The 95% confidence interval for difference in means was -1.35 to .09. The Cohen’s effect size value ($d = .30$) suggests a weak to moderate practical significance. The 95% confidence intervals for the differences, means, and standard deviations for the two groups are presented in Table 6. A depiction of the distributions of the difference in number of semesters to graduation is shown in Figures 11 and 12. In summary, both HPs and NPs complete community college within the expected time frame.

Table 6

*Number of Semesters to Graduation*

<table>
<thead>
<tr>
<th>Program</th>
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<th>$M$</th>
<th>$SD$</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honors</td>
<td>82</td>
<td>6.35</td>
<td>1.82</td>
<td>[-1.35, .09]</td>
</tr>
<tr>
<td>Non-Honors</td>
<td>62</td>
<td>6.98</td>
<td>2.40</td>
<td>[-1.35, .09]</td>
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</tbody>
</table>
Figure 11. Number of semesters to graduation for honors and non-honors participants.
Chapter Summary

This chapter presented the analyses of archival data obtained from the student information system at the community college regarding the academic outcomes of honors-eligible non-participants and honors-eligible participants between 2008 and 2013. Six research
questions and their corresponding null hypotheses were examined. The study found that honors program participants were (a) significantly more likely to earn a letter grade of A in Composition II than their peers who had opted out; (b) were likely to earn a significantly higher GPA one year after achieving honors eligibility; (c) were likely to earn a significantly higher GPA upon graduation; (d) were significantly more likely to graduate; (e) were not significantly more likely to persist fall-to-fall at a higher rate than NPs; (f) were not significantly more likely to complete community college in fewer semesters than NPs.
CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Chapter 5 presents a summary of findings, conclusions, and recommendations regarding the impact of community college honors education. The purpose of this study was to compare outcomes for community college students who opted in to honors-level course work and those who did not.

Summary of Findings

The data analyses reported are based upon six research questions that were tested at a .05 level of significance. The variables studied include final course grade in Composition II, a required freshman writing-intensive course; cumulative GPA two semesters after honors eligibility attainment; GPA upon graduation; graduation rate; fall-to-fall retention; and number of semesters to completion. Data were collected regarding a community college in Tennessee’s honors and non-honors participants for 2008-2013. Data were accessed using archival data and extracted by the director of research and external reporting. In response to Keller and Lacy (2013) and others who recommended that propensity score studies consider a broader range of background characteristics than the typical high school GPA, ACT or SAT, this study considered not only high school GPA and ACT, but also age, ethnicity, gender, parental education and income, dual-enrollment participation, academic major, and community college GPA upon honors eligibility.
Research Question 1

Is there a significant difference in final course grade for a required first-year writing course between honors-eligible non-participants and honors program participants?

In this study, the results indicated that honors program participants were likely to earn significantly higher final course grades in Composition II than their non-honors counterparts. Honors program participants were more likely to earn a final course number grade corresponding to the letter grade of A (90-100) in Composition II which requires critical thinking, research, and analysis. Honors non-participants also performed well, but were more likely to earn a number grade corresponding to the letter grade of B (80-90) in the same course. 43% of honors program participants earned a Composition II final course grade of 96 as compared to 16% of non-honors participants. This study confirms Cosgrove’s (2004) conclusion that honors program graduates, typically those students who are encouraged to ask intelligent and insightful questions, perform at the highest academic levels even when compared to students with equivalent ability.

Research Question 2

Is there a significant difference in grade-point average two semesters after honors eligibility attainment between honors-eligible non-participants and honors program participants?

The results indicated that honors program participants earned a significantly higher GPAs two semesters after honors eligibility attainment than their non-honors peers. These results confirm Shushok’s (2006) findings regarding university-level honors students who earned a higher GPA than their non-honors counterparts by the end of the first year. These results suggest that community college honors participation does have a positive effect on
academic achievement. This study suggests a positive effect of honors education which high-achieving college students can consider when weighing the options available to maximize their educational experience.

**Research Question 3**

Is there a significant difference in grade-point average upon graduation between honors eligible non-participants and honors program participants?

The results indicated that honors program participants earned significantly higher GPAs upon graduation than honors-eligible non-participants. Furtwengler (2015) noted that the cumulative GPA reflects not only academic performance and individual learning, but also student motivation and determination. This community college honors program study suggests a significant advantage for honors participants. Eligible community college students should be informed of the connection between participation and success in community college in addition to the advantages that honors participation offers as students prepare to transfer to a university or enter the workplace.

**Research Question 4**

Is there a significant difference in fall-to-fall retention rate between honors-eligible non-participants and honors program participants?

Results suggested that honors program participants were not significantly more likely than their non-honors counterparts to persist fall-to-fall after attaining honors program eligibility. Honors program participation and retention rate were not found to be significantly related; however, honors participants were slightly more likely to persist from fall-to-fall than non-honors participants in the study. These results reflect Shushok’s (2006) findings that retention differences between honors and non-honors students were not statistically significant;
however, in Shushok’s longitudinal study, students were more likely to drop out their first year whereas this study indicates a high first year retention rate for both groups. The Tennessee Higher Education Commission reported that only 24% of the high school class of 2008 completed a post-secondary degree within 6 years. In this study, 80% of non-honors participants and 89% of honors participants persisted fall-to-fall, indicating that investment in community college honors could be one high impact practice employed by the state of Tennessee in its effort to improve post-secondary education persistence to completion for community college students.

**Research Question 5**

Is there a significant difference in community college graduation rate between honors eligible non-participants and honors program participants?

Results indicated that honors program participants were significantly more likely to graduate than honors-eligible non-participants. The proportion of honors program participants who graduated was slightly higher than that of honors-eligible non-participants. Kelly (2013) and Jones and Wehlburg (2014) urged honors directors to formally assess honors program effectiveness in order to justify investment in honors. The findings from the present study support prior research further demonstrating that honors students graduate at a higher rate and that honors programs encourage personal and college success. As with the high rate of retention among honors program participants, the high graduation rate among honors program participants should be of particular interest to federal and state policymakers as well as institutional representatives who are currently engaged in completion agenda initiatives that facilitate postsecondary degree completion.
Research Question 6

Is there a significant difference in number of semesters to graduation between honors-eligible non-participants and honors program participants?

Results suggested that no significant difference exists in number of semesters to graduation between honors-eligible participants and honors-eligible non-participants although honors program participants completed somewhat faster. Both groups completed community college in slightly more than 6 semesters. These results confirm Trucker’s (2014) findings that high-achieving students tend to complete within the expected window.

Interestingly, HPs graduated at a significantly higher rate than NPs; however, they were retained at similar rates. Conceivably, the intensive advising that HPs enjoy along with the enhanced engagement that HPs experience inspire HPs to persist to graduation. Potentially, NPs might transfer to a university prior to community college completion, not realizing the transfer scholarship opportunities available to high-achieving community college students who participate in academically challenging course work and leadership opportunities.

Conclusions

The purpose of this study was to explore the relationship of honors program participation by comparing honors-eligible community college students who participated in honors education to honors-eligible students who did not participate. Honors program participation was defined as completing 12 or more honors credit hours. The population for this study (N= 452) included honors-eligible community college students from 2008 through 2013. Propensity score matching was employed to remove self-selection bias by controlling for confounding variables such as ACT scores, high school GPA, dual-enrollment participation, parental
education, parental income, first term of honors eligibility GPA, declared major, age, gender, and ethnic description.

The major findings of the study included the following: honors program participants earned: (a) significantly higher final course grades in Composition II, a first-year writing course; (b) significantly higher cumulative GPAs the second semester after honors eligibility; (c) significantly higher cumulative GPAs upon completion; and, (d) were significantly more likely to graduate. These findings substantiate prior research and support increased investment in community college honors education as a high impact practice particularly for low income high-achieving students experiencing poverty. Fifty percent of eligible students were identified as low-income with 47% of honors participants identified as low income.

**Recommendations for Practice**

**Value-Added Data for Research**

In order to fully evaluate honors education, access to effective honors-level assignments would provide the opportunity to measure the depth and complexity of the assignments that distinguish honors courses from non-honors courses. Such data would provide honors instructors with much-needed guidelines regarding continuous improvement and encourage faculty to continue revising the curriculum in ways most likely to develop the potential of high-achieving students. It is recommended that all honors faculty create an e-portfolio of assignments in the learning management system. Such a database would allow all instructors access to assignments designed to develop critical thinking and problem solving skills. Further, such a system would provide honors researchers access to honors assignments which could then be assessed using a measure such as Bloom’s Taxonomy.
Additionally, honors research could benefit if instructors required honors students to maintain an e-portfolio. The e-portfolio would provide a record of the development of students’ critical thinking ability, which could then be observed and objectively measured. It is recommended that honors faculty require honors participants to establish and maintain an e-portfolio until graduation.

Dissemination of Research Results to Potential Students

In an effort to increase community college honors participation, particularly among low-income, first-generation students, honors directors should enhance marketing strategies. Invitations to join honors should include quantitative data illustrating the potentially positive impact on individual learning, motivation, and determination as indicated by course grades in general education courses, overall GPAs and graduation rates. Honors education is a high-impact practice. Community colleges offering honors programs should study the impact of their programming, make improvements where indicated, and report the results to students and administrators alike in order to increase participation in high-impact practices.

Recommendations for Further Research

This study examined the relationship between honors participation and outcomes at a single community college using a rigorous statistical method to control for self-selection. Increasing the scale of a similar study to all Tennessee community colleges offering honors programs would be worthwhile. Future research should duplicate this study but expand its scope to include all Tennessee Board of Regents community colleges offering honors programming to address this study’s limitation to one community college in Tennessee.

A comparative analysis of Tennessee’s community college honors programs including the structure of honors degree programs, staffing, extra-curricular requirements, and measurable
outcomes would contribute to the development of honors best practices.

This study evaluated quantitative outcomes; however, in addition to evaluating quantitative outcomes, a survey of honors-eligible non-participants and honors participants regarding faculty interaction, extra-curricular activity participation, and leadership development activities would enrich future studies. Therefore, it is recommended that future studies are designed to compare honors-eligible non-participants, honors-participants, and honors-participant student leaders to discover potentially valuable information about the connection between community college engagement and academic success, particularly with regard to substantial scholarships to the finest universities.

Finally, it is recommended that future research include studies focused on better understanding of why the majority of students eligible for community college honors choose not to participate, particularly for low-income students. It is recommended that a comparative analysis of honors-eligible non-participants and honors-eligible participants across income levels is conducted to understand why some students choose to take the honors challenge and why others decline.

All students are required to take an exit exam before graduation. Access to the exit exam results, particularly critical-thinking scores, for all honors participants and honors-eligible non-participants would provide a crucial outcome variable to include as a measure of critical thinking ability which is a major objective of honors education. It is recommended that honors program directors request exit exam scores for all participants on an annual basis and examine those scores as part of improving the quality of annual honors program assessment and reporting.
The creation and maintenance of a detailed honors alumni database combined with student clearinghouse data could provide longitudinal student record information that can be used to improve the quality of honors education research. Because the majority of the honors participants in this study were university parallel majors, community college honors outcomes should include transfer rates and measures of future student success at the transfer institution. Further, careful records of scholarship awards would be useful information to evaluate. Because 45% of the honors participants identified as low-income, scholarships for these students could serve as a support for continued academic pursuit and success. Information regarding the pathway to substantial scholarship awards could benefit potential community college honors students. These data would provide honors-eligible students with essential information about the benefits of participation. Community colleges typically do not invest substantial resources into alumni affairs departments due to the reality that community college graduates tend to establish their allegiance with their transfer institution and donate to the university from which they receive a baccalaureate degree. It is recommended that community colleges invest in alumni affairs in order to track long-term student success which could not only assist honors researchers in tracking honors participant success, but also such information could result in more community and philanthropic support for community college initiatives.
REFERENCES


## APPENDICES

### Appendix A

**Covariate Imbalance Check for 1:1 Optimal Match with Replacement**

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<th>Variables</th>
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<th>Before</th>
<th>After</th>
<th>Before</th>
<th>After</th>
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Appendix B

ETSU Institutional Review Board Approval

November 17, 2016

Jane Honeycutt

Dear Jane,

Thank you for recently submitting information regarding your proposed project “Assessing the Impact of Community College Honors Education”.

I have reviewed the information, which includes a New Protocol Submission xForm.

The determination is that this proposed activity as described meets neither the FDA nor the DHHS definition of research involving human subjects. Therefore, it does not fall under the purview of the ETSU IRB.

IRB review and approval by East Tennessee State University is not required. This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are human subject research in which the organization is engaged, please submit a new request to the IRB for a determination.

Thank you for your commitment to excellence.

Sincerely,
Stacey L. Williams, Ph.D.
Chair, ETSUIRB
Appendix C

NeSCC Institutional Review Board Approval

Jane,

Please be advised that your research proposal was approved by President’s Council today. Congratulations! I wish you great success!

Kindest regards,

Kim

Kim Gant
Institutional Effectiveness Officer
SACSCOC Accreditation Liaison
Northeast State Community College
PO Box 246
Blountville TN 37617
(423) 354-2445
VITA

JANE BRYAN HONEYCUTT

Education:
B.A. English/Literature, San Francisco State University, San Francisco, California, 1988
M.A. English/Composition, San Francisco State University, San Francisco, California, 1991
Ed.D. Educational Leadership, East Tennessee State University, Johnson City, Tennessee, 2017

Professional Experience:
Associate Professor, Northeast State Community College, 1994 - Present
Project Director, Regional Roadmap II Grant, Northeast State Community College, 2016-17
Project Director, Keeping Our Promise Peer Mentoring Project, Tennessee Promise Forward Grant, 2015 - Present
Coordinator, Northeast State Community College Honors Program, 2006-Present
Lead Advisor, Alpha Iota Chi Chapter of Phi Theta Kappa, 2008-Present

Publications:
Honors and Awards:

Continued Excellence Award, 2nd Place,
   Tennessee Region of Phi Theta Kappa
Horizon Advisor Award,
   Tennessee Region of Phi Theta Kappa
Outstanding Student Organization Advisor Award,
   Northeast State Community College
Distinguished Faculty Award - 2nd place
   Northeast State Community College
Distinguished Advisor Award
   Phi Theta Kappa International
Paragon Award for New Advisors
   Phi Theta Kappa International
Horizon Award for New Advisors
   Tennessee Region of Phi Theta Kappa