EXAMINING ADULT BASIC EDUCATION IN INDIANA

A DISSERTATION

SUBMITTED TO THE GRADUATE SCHOOL

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE

DOCTOR OF EDUCATION

IN ADULT, HIGHER AND COMMUNITY EDUCATION

BY

ALISHEA HAWKINS

DISSERTATION ADVISOR: DR. MICHELLE GLOWACKI-DUDKA

BALL STATE UNIVERSITY

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BALL STATE UNIVERSITY

MUNCIE, INDIANA

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ABSTRACT

DISSERTATION PROJECT: Examining Adult Basic Education in Indiana

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While it is known that over 500,000 individuals in the State of Indiana have not obtained a High School Diploma or Equivalency (StatsIndiana, 2015), limited empirical information exists on Indiana students pursuing adult basic education along with implications for a state that has changed its adult basic education high stakes high school equivalency assessment. This study is the first to use the full adult basic education population of a single state to compare learner characteristics and pass rates for two different High School Equivalency (HSE) exams. In 2014 Indiana switched from the GED test to the TASC test. Using quantitative methods, descriptive and outcome data for all students receiving federally and state funded adult basic education services over a three-year timespan (2012-2015) were analyzed. Three research questions guided the study: What are the demographic factors and learner characteristics that HSE exam passers and non-passers have in common? Is the pass rate different for each test (GED, TASC)? Did the outcomes for HSE passers and non-passers change per HSE exam? Results indicate that younger students are more likely to take and pass the HSE, while more women participated in adult education services, more men passed a HSE test, as the number of hours spent on classroom and distance education increase the likelihood of passing the HSE

decreases and students who took the TASC have lower Educational Functioning Levels as compared to those who took the GED. Results also indicate there was a difference in pass rates for the two HSE exams with more students taking and passing the GED but a higher pass rate for those who only took and passed the TASC as compared to those who only took and passed the GED. Finally results show that HSE passers have higher wage outcomes than non-passers. Study limitations and recommendations are discussed.

ACKNOWLEDGEMENTS

Pursing my doctoral degree has been a long journey. As a working adult, starting the program, then stepping out for a number of years, then starting again helped me appreciate the population for which my study was focused upon. Returning to school to further my education as a working adult, parent, spouse, and community volunteer offers a unique set of challenges. There were many people who I leaned on to keep progressing forward.

I would like to first acknowledge and thank my doctoral committee. To my chair, Dr. Michelle Glowacki-Dudka, thank you for your continued guidance, support, and unwavering belief that I would complete this degree and dissertation within the tight timeline set. To Dr. George Gaither, thank you for once again walking beside me on another research project and guiding me to produce a high quality product. To Dr. Cain and Dr. Jones, thank you for your time and encouragement.

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To Jen Walker, thank you for keeping me excited about exploring numbers and reviewing drafts and giving feedback on a foreign topic. Thank you to the Indiana Department Workforce Development, specifically, Gina Ashly, Chris Deaton, and Marilyn Pitzulo. Thank you Gina, for allowing me the time to focus on this dissertation and for continuing to support and encourage me through the process. Thank you Deaton, for walking me through the data system and answering all my endless questions. Thank you Marilyn, for providing the context of which the

data was collected, the field perspective and helping me understand the detriment of ‘garbage in, garbage out.’

Finally, I need to acknowledge my sister, for which all things in life are possible because you are always in my corner cheering me on. Thank you for having my graduation date already in your calendar before I believed I really could finish. Love you Sissy!

DEDICATION

This dissertation is dedicated to my boys. My husband and son, who allowed me to spend all my free time on this project instead of with you. I am grateful for the constant support and encouragement from you both.

Thank you Peyton for understanding why I had to spend so much time on the computer. Thank you for allowing me to teach you all the things I know. Thank you for helping me see that I could balance being a parent with completing this degree.

To Matt, it is not just me earning yet another degree, but the two of us earning this third and final degree. I know it was not easy to have a distracted wife who was chained to a computer. Thank you for taking care of me, the child, the dogs, the housework, and picking up some of my volunteer commitments while I sat at the library buried in books and numbers. Thank you for always believing in me. I love you Mr. Pollock.

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LIST OF ACRONYMS

ABE: Adult Basic Education

AEFLA: Adult Education and Family Literacy Act

ACE: American Council on Education

ANOVA: Analysis of Variance

BLS: Bureau of Labor Statistics

CAP: Corrective Action Plan

DAEL: Department of Adult Education and Literacy

DRC: Data Recognition Company

GED: Generalized Education Development

HiSET: High School Equivalency Test

HSE: High School Equivalency

IDOE: Indiana Department of Education

IDWD: Indiana Department of Workforce Development

IEP: Individualized Education Plan

LSAL: Longitudinal Study of Adult Learning

NRS: National Reporting System

NSC: National Skills Coalition

OCTAE: Office of Career, Technical and Adult Education

TABE: Tests of Adult Basic Education

TASC: Test Assessing Secondary Completion

U.S. DOE: United States Department of Education

U.S. DOL: United States Department of Labor

WIOA: Workforce Innovation and Opportunity Act of 2014

CHAPTER ONE:

INTRODUCTION

There are over 500,000 individuals in the State of Indiana who have not obtained a High School Diploma or Equivalency (StatsIndiana, 2015). The Indiana Department of Workforce Development (IDWD) serves about 30,000 students annually in the Adult Basic Education (ABE) programs they fund (National Reporting System, (NRS), 2015). The IDWD collects data on all students served in their programs. However, beyond the mandatory annual reporting to the U.S. Department of Education (U.S. DOE), this student level data has not been explored.

National Landscape of Adult Basic Education

Over the past 50 years, legislation has allowed for the federal government's formal involvement in adult education in the United States (U.S. DOE, 2013). In general, Adult Basic Education (ABE; heretofore referred to as adult education) consists of instructional programs and practices that are focused on adults who did not obtain a high school diploma or who have obtained a high school diploma, but are basic skills deficient in areas such as math, reading, writing, English language competency, and problem solving (U.S. DOE, n.d.; National Skills Coalition, 2016).

Funding is passed through formula allocation grants from the federal government to states to provide adult education services (U.S. DOE, 2014). States distribute these funds to local providers for the administration of direct services to students. Providers of adult education services vary by state and can include secondary education institutions, community based organizations or community colleges (see definition section for full eligible provider list). Services offered to students vary based upon student needs and educational and/or workforce goals. However, all services must fall within the Workforce Innovation and Opportunity Act

(WIOA) definition of Adult Education and Literacy Activities that includes adult, family, English language and workplace literacy activities, workforce preparation activities, civics education or integrated education and training (WIOA Sec 203(2)).

National Adult Education Student Outcomes

States provide reports to the Office of Career, Technical and Adult Education (OCTAE), Division of Adult Education and Literacy (DAEL) annually regarding adult education and literacy activities and aggregated student performance. The National Reporting System (NRS) is the web-based outcome driven reporting system for federally funded, state administered adult education reporting (NRS, n.d.). The NRS tracks a multitude of data elements to determine what is working well within state administered adult education programs and where the federal government can assist in supporting adult learning through the adult education system (NRS, n.d.).

States must report four core outcome measures: educational gain, entered and retained employment, receipt of a secondary credential, and entered postsecondary education (NRS, 2016). Educational gain, defined as improving the literacy skills of students, is the primary purpose of adult education. Educational gain is measured by educational functioning levels. Only four assessments are approved by OCTAE for adult education programs to use in assessing educational functioning levels: Comprehensive Adult Student Assessment Systems or CASAS; Tests of Adult Basic Education or TABE; Wonderlic GAIN or General Assessment of Instructional Needs; and the Massachusetts Adult Proficiency Tests (MAPT) (NRS, 2016). The TABE is the only approved assessment for Indiana (IDWD, 2016). The TABE test is used to evaluate student skill levels in language, reading and math (Data Recognition Corporation (DRC), n.d.).

Students are assessed of their initial abilities on literacy-related tasks in certain content areas, using the TABE, then placed at the appropriate educational functioning level. Students are assessed again after a certain amount of instructional hours or a set time period. If the student has improved one or more levels, an educational gain is documented (NRS, 2016). Table 1 lists the NRS defined literacy levels and equivalent grade levels. Table 2 lists the NRS follow-up outcome measures along with the NRS definitions of each measure.

High School Equivalency

Currently, there are three high school equivalency (HSE) assessments approved by OCTAE to be used by States: Generalized Education Development (GED), High School Equivalency Test (HiSET) and Test Assessing Secondary Completion (TASC). The GED is the most commonly recognized of the three, however in March of 2011, the American Council on Education (ACE) and Pearson together announced a joint venture, the GED 21st Century Initiative (ACE & Pearson, 2011). This decision opened the market for other assessment vendors to begin competing to provide high school equivalency assessments to states (U.S. Department of Labor (U.S. DOL), 2015). States cited concerns about the increase costs and rigor of the new GED test, as well as a computer-based format as the sole testing option, which further prompted many states to research other high school equivalency assessment options (IDWD, 2012; U.S. DOL, 2015; Zinth, 2015).

Indiana was one of the states that chose to select a different HSE assessment vendor. In 2014 Indiana implemented the Test Assessing Secondary Completion or TASC assessment as the state approved High School Equivalency Diploma exam (IDWD staff, personal communication, 2014).

Problem Statement

The Indiana Department of Workforce Development (IDWD) is the state agency that receives federal funds and provides oversight of adult education programs and services in Indiana. IDWD leadership recognized the growing demand for middle skilled workers, i.e., those who have more than a high school diploma or equivalency and less than a four-year degree, such as licensed practical nurse (LPN) or welder (National Skills Coalition (NSC), 2010; 2013). They also understood the urgency in which adult education students needed to acquire the necessary skills to join, rejoin, or advance in the workplace (IDWD, 2012). IDWD prioritized adult education as a method to address the skills gap in Indiana and prepare Indiana workers to fill the expanding number of middle skill jobs. IDWD houses much data on the adult education population, including data on employment and wage outcomes. Despite this data-rich environment, there is a lack of scholarly research that focuses on Indiana adult education students. Understanding the data and the factors that influence success is critical for workforce agencies as they try to address the skills gap in their states.

Factors that Impact Success in Adult Education Programs

There is a large body of research that specifically explores student persistence in adult education and literacy programs (Kerka, 2005; O'Neill & Thomson, 2013; Reynolds & Johnson, 2014; Comings, Parrella, Soricone, 2000). Greensburg et al. (2012) and Quigley (1997) posit that most researchers who study adult literacy persistence tend to focus on student (situational), program (institutional), or dispositional obstacles to persistence.

Situational factors are external stimuli (O'Neill & Thomson, 2013) related to the students' life that may interfere with persistence, such as lack of childcare (Greensburg et al., 2012); or demands from employment or families (National Research Council, 2012; Reynolds & Johnson, 2014). Institutional factors are program related influences that may interfere with a

student's persistence, such as timing of classes (Greensburg et al., 2012); or the intake and follow up process (Kerka, 2005). Dispositional factors are internal stimuli that may interfere with a student's persistence and can incorporate many influences. The National Research Council dedicated an entire chapter of their 2012 report *Improving Adult Literacy Instruction* to motivation, engagement and persistence. Within this chapter, they explored the psychological literature on factors that may contribute to motivation in adults. They identified self-efficacy, goal setting, and ability to receive feedback and monitoring progress as well as intrinsic motivation.

Characteristics of learners may also play a role in influencing success of students participating in adult education programs (Comings, et al., 1999; 2000; Rose, 2009; Greensburg et al., 2012; Mellard, Krieshok, Fall, & Woods, 2012). Comings et al. (1999) found three learner characteristic type variables related to an increase in persistence: English language learner status, students 30 years of age or older and students who were parents of teenage or older children. These authors posit that these findings may be interpreted as older students are more likely to persist as they do not have added responsibilities of taking care of small children and are benefiting from the maturity that comes with age. These findings were supported by Greensburg et al. (2012) and Comings et al. (1999).

Previous research (Comings et al., 1999; Greensburg et al., 2012) has identified age, parental status and previous adult education program experience as having an impact on persistence or success in adult education programs. The present study will explore common learner characteristics of adult education participants, such as employment status, disability status, lives rural status in addition to traditional demographic variables such as age and parental status.

Increased Basic Skills, Increased Wage Potential

On average, individuals with less than a high school diploma earn less and have a higher unemployment rate than those with an academic credential (U.S. DOL, 2017). Beyond the data that supports the notion of increased basic skills and increased wage potential, many national reports (Jones, 2007; National Center for Higher Education Management Systems, 2009; National Skills Coalition, 2010a-b; 2013; Foster, 2012) and research studies have made similar connections (Tyler, 2003; Bingham, 2009; Rose, 2009; Reder, 2010, 2014 a-c).

Most notability is the Longitudinal Study of Adult Learning (LSAL) (Reder & Bynner, 2008). A key finding from the LSAL is that literacy development influences employment initial earnings and growth of earnings overtime (Reder 2010; 2014a). Furthermore, Reder (2014a) found that intensity, measured by time, of program participation was positively correlated to earnings. The more time a student spent in the adult education program, beyond approximately 100 hours, the higher the student's earnings were likely to be.

Greensburg et al. (2012) and Rose (2009) discuss the lack of research comparing adult education and literacy program completers versus non-completers. The current study will explore employment and wage outcomes of Indiana adult education students who obtained their HSE and those who did not.

Deficiencies in the Literature

Although data exist on factors that influence adult education student success and persistence in adult education programs, there is little empirical research on Indiana students specifically. Data on student demographics and performance are reported to OCTAE annually. However, beyond reporting aggregate student demographics and performance data not much analysis is conducted with the data. Attention is paid to program level performance data for accountability purposes; however, IDWD does not explore or analyze student level data beyond

mandated annual federal reporting. From this researcher's experience, IDWD does not have the capacity (human capital) or time to focus on analyzing and using the data to present the story of adult education in Indiana. While attempts were made, the priorities changed and this type of data project received little attention. The current study will begin to analyze this longitudinal data collected by IDWD about adult education students in Indiana.

Only one peer-reviewed article was found that focused on the impact of the change in HSE test. Brinkley-Etzkorn and Skolits (2014) utilized an in-depth, qualitative approach to address three research questions concerning impact of the 2014 GED changes. Changes to the GED included increased rigor, alignment with state Common Core Standards, only offered through computer-based format as opposed to paper and pencil format, and aligned to prepare students to be college and/or career ready (GED Testing Service, n.d.; Brinkley-Etzkorn & Skolits, 2014). The current study examines the impact of the HSE test change in Indiana. Specifically, pass rates will be compared for GED and TASC examinees, with consideration of other demographic factors.

Purpose of Proposed Study

This study is concerned with causes (factors and/or learner characteristics; change in HSE exam) that impact outcomes (student completion of a test, wage and employment outcomes) (Creswell, 2014). Therefore, a post-positivist framework will overlay this study. While some critics of the quantitative approach or post-positivism viewpoint might suggest that such methods are not applicable to the real world (Mertens & Wilson, 2012), the results of this study will have immediate implications. For example, this study will examine pass rates between two high-stakes adult education assessments. To date, this type of review has not been conducted.

The purpose of this study is to analyze data collected on students receiving adult education services by an IDWD funded adult education program. There are two areas of focus

for analysis. The first focus is to examine the data specifically looking for factors and learner characteristics that impact success for High School Equivalency (HSE) completers. For the purpose of this study, successful completers are defined as students who passed the HSE exam and gained or retained employment. Employment status and wage outcomes are federally defined follow-up outcomes per OCTAE (U.S. DOE, 2016). Demographic and learner characteristic data will be explored for this focus.

The second focus is to compare the results of the data through the lens of the HSE assessment change (from GED to TASC). Data on HSE pass rates and the federal follow-up outcomes will be compared for participants who completed the GED and those who completed the TASC. The federal follow-up outcomes will be compared for participants who completed and passed, those who completed and did not pass the GED or the TASC.

Considering the above two focus areas data from three academic years will be included in analysis for this study:

- Year 1: 2012-2013 Baseline year, before change in HSE exam
- Year 2: 2013-2014 HSE test change occurred during this year, new test implemented 1/14/14
- Year 3: 2014-2015 Baseline year, first full program year of TASC test implementation

Research Questions and Hypotheses

The following research questions will guide this study.

1. What are the demographic factors and learner characteristics that HSE exam completers and non-completers have in common?
    a. This is a descriptive research question.
2. Is the pass rate different for each test (GED to TASC)?

3. Did the outcomes[1] for HSE completers and non- completers change per HSE exam?

Based upon prior research related to characteristics of students pursuing adult education and literacy programs, the researcher proposed the following hypothesis related to research question one.

- Hypothesis 1: Older students will be more likely to complete and pass the HSE exam.
- Hypothesis 2: Students who are parents will be more likely to complete and pass the HSE exam.

Due to the gap in the literature regarding the impact of changing high stakes assessments in adult education, the researcher proposed the following hypothesis.

- Hypothesis 3: Null; There is no significant difference between the pass rates for the GED and the TASC.

Based upon prior research related to connecting increased skill attainment with increased wage potential the researcher proposed the following hypotheses.

- Hypothesis 4: There is a positive relationship within HSE test (GED and TASC) completers and wage.
- Hypothesis 5: There is a positive relationship within HSE test (GED and TASC) completers and employment status.
- Hypothesis 6: There is a negative relationship within HSE test (GED and TASC) non-completers and wage.

---

[1] For the purposes of this research question, outcomes are wage and employment status. Wage is defined as wages for adult education participants during the first and third quarter after program exit. Employment status is defined as adult education participants who either gained or retained employment during first and third quarter after exit. Wage and employment status are defined under the Workforce Innovation Act, the workforce law that pre-dated WIOA. All data collected for this study was collected under WIA rules, as WIOA data collection definitions are not effective until July 1, 2016 (U.S. DOL, 2016a).

- Hypothesis 7: There is a negative relationship within HSE test (GED and TASC) non-completers and employment status.
- Hypothesis 8: There is no significant difference on wage or employment status between HSE tests (GED and TASC) for completers.
- Hypothesis 9: There is no significant difference on wage or employment status between HSE tests (GED and TASC) for non-completers.

Significance of the Study

In 2011, the landscape of adult education changed with the announcement that GED Testing Service® was merging with a for-profit entity (ACE & Pearson, 2011). This change was felt on many levels: at the national level an opening occurred for high stakes assessment vendors to enter the newly created market of High School Equivalency Assessments (Iowa Department of Education, 2013; U.S. DOL, 2015). At the state level additional vendors allowed for competition and at the local level assessment choice for students in many states (IDWD, 2012; U.S. DOL, 2015; Zinth, 2015).

Much research has focused on the GED (Heckman & LaFontaine, 2006; Park, Ernst, & Kim, 2007; Tyler, 2003; Zhang & Patterson, 2010). However, to date, there are no studies that focus on the impact of HSE exam change on outcomes for ABE students in Indiana. The current study focuses on the impact of HSE exam change on both outcomes and pass rates. In addition, this study will contribute to the research base on factors that influence persistence of students in adult education programs. More specifically, this study examines the demographic and learner characteristic data collected on Indiana students who have successfully obtained an HSE and positive outcomes to determine if there are any common factors.

This study will contribute to the general body of research regarding impact of changing high stakes assessments by comparing the pass rates and outcomes of Indiana basic education

students on the GED and TASC assessments. This study will contribute to the body of research regarding factors that impact student success in adult education by exploring data collected on HSE completers in Indiana. This study will also contribute to the body of research on Indiana residents by highlighting the specific adult education population.

Audience

This study contributes to the larger research area of adult basic education. The change from GED exam to TASC has occurred nationally and this study will examine the differences in successful completion of the exam as well as the other corresponding factors. Examining the full data set of a statewide adult basic education program is unusual and will provide clear insights into the issues of persistence, success, and factors being studied.

The current study will be of interest to the IDWD administrators of the adult education program, as well as the 800 plus local instructors and administrators of the funded adult education programs. It may also be of interest to federal policy-makers, such as those at DEAL and OCTAE and other funders of adult basic education, adult literacy, adult numeracy, and adult basic skills development programming.

Another group who might be interested in this study is future adult educators, those who are pursuing graduate studies who wish to understand more about the students who are enrolled in adult education programming in Indiana.

Researcher Statement

This researcher worked as state staff (Director of Adult Education Policy and Programs) assigned to administer and monitor the adult education funding and services provided in Indiana. Recognizing the wealth of data collected and the lack of attention to such data, beyond mandated federal reporting purposes, telling the story of adult education in Indiana was a long-term goal. However, prior to starting this goal, this researcher was promoted into another position within

IDWD. This researcher will work with the current adult education state staff and the State Director of Adult Education to access the raw data needed to address the research questions.

Delimitations and Limitations

A strength of the current study is the large sample size. Using three years of data allowed for a longitudinal approach to data analysis. In addition, this study excluded specialized populations from the sample. More specifically, students under the age of 18, students in correctional facilities and English language learners were excluded from this study.

Definitions of Terms

Adult Basic Education Program: "A program of instruction designed for adults who have some literacy skills and can function in everyday life but who are not proficient or do not have a certificate of graduation or its equivalent from a secondary school" (NRS, 2016, p. 49)

Adult Education. For purposes of this study, Adult Education will refer to Adult Basic Education as defined by the Workforce Innovation and Opportunity Act (WIOA), Title II:

> The term 'adult education' means academic instruction and education services below the postsecondary level that increases an individual's ability to-
>
> (A) read, write, and speak in English and perform mathematics or other activities necessary for the attainment of a secondary school diploma or its recognized equivalent;
>
> (B) transition to postsecondary education and training; and
>
> (C) obtain employment. Sec203(1).

Adult Education and Literacy Activities. The term *adult education and literacy activities* means programs, activities, and services that include adult education, literacy, workplace adult education and literacy activities, family literacy activities, English language acquisition

activities, integrated English literacy and civics education, workforce preparation activities, or integrated education and training. WIOA Sec 203(2).

Adult Secondary Education Program: "A program of instruction designed for adults who have some literacy skills and can function in everyday life but who are not proficient or do not have a certificate of graduation or its equivalent from a secondary school" (NRS, 2016, p. 49).

Educational Level Gains. Federal follow-up outcome measure as defined by OCTAE as:

> Educational functioning levels in reading, writing, speaking, and listening and functional areas (NRS, 2016).

Educational Functioning Level: Skill descriptors that demonstrate the types of skills students functioning at that level are likely to have. Levels are determined based upon OCTAE approved assessments administered in a standardized and consistent way by all programs in each State (NRS, 2016).

Eligible Individual. The term "eligible individual" means an individual-

(A) who has attained 16 years of age;

(B) who is not enrolled or required to be enrolled in secondary school under State law; and

(C) who-

(i) is basic skills deficient;

(ii) does not have a secondary school diploma or its recognized equivalent, and has not achieved an equivalent level of education; or

(iii) is an English language learner. WIOA Sec 203(4).

Eligible Provider. The term "eligible provider: means an organization that has demonstrated effectiveness in providing adult education and literacy activities that may include-

(A) a local educational agency;

(B) a community-based organization or faith-based organization;

(C) a volunteer literacy organization'

(D) an institution of higher education;

(E) a public or private nonprofit agency;

(F) a library;

(G) a public housing authority;

(H) a nonprofit institution that is not described in any of the subparagraphs (A) through (G) and has the ability to provide adult education and literacy activities to eligible individuals;

(I) a consortium or coalition of the agencies, organizations, institutions, libraries, or authorities described in any of the subparagraphs (A) through (H); and

(J) a partnership between an employer and an entity described in any of subparagraphs (A) through (I). WIOA Sec 203(5).

Entered Employment. Federal follow-up outcome measure as defined by OCTAE as:

Learners who obtain a job by the end of the first quarter after the exit quarter (NRS, 2016).

Retained Employment. Federal follow-up outcome measure as defined by OCTAE as:

Learners who obtain a job and remain employed in the third quarter after program exit (NRS, 2016).

Postsecondary Education or Training. Federal follow-up outcome measure as defined by OCTAE as: "Learners enrolling after exit in a postsecondary educational or occupational skills program building on prior service or training received" (NRS, 2016, p 4).

Summary of Chapter One and Organization of the Remainder of the Study

Adult education is introduced in this chapter by discussing the national landscape and outcomes of adult education, as well as High School Equivalency assessment. The problem statement discussed the need in Indiana to focus on middle skilled workers and the factors that may impact a student's success in adult education programs. The literature revealed the potential path for low skilled individuals to increase their potential future earnings. The deficiencies in the literature leave opportunities for the current study to contribute to the research base, paying particular attention to adult education students in Indiana. Comparing the data of two high stakes HSE exams and examining learner characteristics starts to tell the story of adult education in Indiana.

The literature review in chapter two will highlight the history of adult education, who is being served and how longitudinal research plays a role within tracking literacy over time. The multiple factors that impact student success will be discussed as well as the connection between increased skills and potential increased future earnings. A narrow scope will be used to examine the landscape of adult education in Indiana and the movement from GED to HSE.

Chapter Three, the methods section, highlights the methods and design of the current study. The purpose of the study is revisited with additional detail on how the data was selected.

Chapter Four will detail how three years' worth of data are reviewed to answer the three research questions. A pre-existing dataset will yield a large amount of learner characteristic and demographic variables to explore through descriptive analysis. Crosstabs and ANOVA's will also be utilized.

Chapter Five; Discussion will revisit the findings from Chapter Four within the context of the major themes presented in Chapters One through Three. The final chapter will also discuss recommendations for future research.

CHAPTER TWO:

LITERATURE REVIEW

Introduction

Adult education at the national level and the need for the current study was introduced in Chapter One. Chapter Two provides a more in-depth review of the literature on adult education as the umbrella of many types of learning. The history of adult education is briefly presented from both a scholarly and federal perspective, along with an overview of the population that adult education serves. Next, longitudinal research on literacy and numeracy with a focus on the Longitudinal Study of Adult Learning is discussed. Factors that impact student success as well as the link between increased basic skills and increase in earnings is explored. This chapter then dives into the landscape of adult education in Indiana. Finally, a discussion regarding the High School Equivalency Diploma will wrap up this chapter.

First attention must be given to the overlaying framework for this study. This study is concerned with causes (factors and/or learner characteristics; change in HSE exam) that impact outcomes (student completion, employment status and wage outcomes) (Creswell, 2014), therefore, a post-positivist framework overlays this study. The intent of post-positivist research is to take large social issues and reduce them to smaller questions or hypothesis to test. Thus, the quantitative approach to research is typically rooted in the post-positivist paradigm or worldview (Creswell, 2009; Mertens & Wilson, 2012). After an extensive literature review, Jackson (2015) summarized the quantitative ontology, epistemology, and axiological assumption as follows: ontology - a single knowable reality (Creswell, 2009; Mertens & Wilson, 2012); epistemology - distance from the object of study, avoids bias and all things can be studied as objects (Mertens &

Wilson, 2012) and axiological assumptions - research must occur in controlled and value-free settings. These also are applicable to the current study.

Overview of Adult Basic Education

Learning in adulthood can take many forms. Merriam and Caffarella (1999) describe the multiple and diverse settings where learning occurs. Formal learning typically takes place in educational institutions whereas informal learning can be found in everyday situations. Community-based learning typically takes place in community organizations or institutions and may have a variety of structures. Self-directed learning can occur as the person seeks out new opportunities for learning in their daily lives, with or without others as formal teachers. Adult education is an umbrella for many types of learning. Examples of adult education include: formal courses, bible study groups, participating in library activities, adult high school equivalency courses, continuing professional education, training and development, apprenticeships, and many more. This study will focus on formal adult education programs that serve people with low levels of literacy and those who need basic skills remediation.

Learning is part of being human; thus, the history of adult education is robust and full of complexities (Merriam & Brockett, 1997). The academic discipline of adult education in the United States finds its origins in Eduard Lindeman's text, *The Meaning of Adult Education* published in 1926. Influenced by Dewey and other contemporaries, Lindeman saw adult education as more than simply vocational training (Lindeman, 1926). He described that it "begins where vocational education leaves off. Its purpose is to put meaning into the whole of life" (p. 7). When he traveled to Denmark, he recognized that "adult education . . . has not merely changed citizens from illiteracy to literacy; it has rebuilt the total structure of life's values" (p. xviii).

For the purposes of this study, adult education will be examined through the lens of the state and its impact on low level learners and those who need literacy training and basic education. While this focus only begins to address what adult education can provide, it is a core component of enhancing educational abilities and future learning. Educational historian, Sticht (2002) documents adult education comprising over 400-years with a beginning in vocational apprenticeships, religious instruction and "common schools of the original thirteen colonies" (p. 1). He recognized that when the Economic Opportunity Act in 1964 was passed, the federal role in basic education grew rapidly. Sticht (2002) found prior to a formal adult education and literacy system forming, adult education was characterized by an extensive range of educational activities that were pursued by a wider range of adults from varying educational and socioeconomic backgrounds. As the system become more formalized, services and receipts of those services became narrower.

In 2013, the U.S. Department of Education commissioned a history of adult education to be developed. The authors examined state histories and found documentation of organized state involvement in adult education such as adult evening schools, citizenship classes, and part-time education offerings (U.S. DOE, 2013) dating back to the late 1800s. Early programs began in 1914, when the Federal Government awarded grants to states, with matching requirements, to focus on rural and agricultural educational needs, yet these narrowly focused programs excluded millions from participation (U.S. DOE, 2013). With the passage of the Economic Opportunity act of 1946, services were expanded to reach all educationally disadvantaged adults (U.S. DOE, 2013). Legislation allowing for the Federal Government's formal involvement in adult basic education in the United States began in 1964 and met its 50th year in 2014 (U.S. DOE, 2013). Over the course of this history priority in such legislation has varied across several initiatives,

such as military skills for soldiers, workforce education, adult literacy and numeracy, and partnerships and accountability (U.S. DOE, 2013).

The histories recorded by Sticht and commissioned by the Department of Education are reflective of each other for the most part. Yet, there is a discrepancy regarding the access to adult education prior to a national framework being created and funded by the U.S. Department of Education. The federal historical review does not acknowledge the complexities of changing ideas and definitions regarding who is considered an adult, how to define adult education versus adult learning and how literacy fits into the discussion (Merriam & Brockett, 1997; Sticht, 2002).

Providing adult education is a mandate from the Federal Department of Education, Office of Career, Technical, and Adult Education, Division of Adult Education and Literacy (DAEL) through the WIOA legislation. As this study examines federally-mandated programs that are implemented and assessed by the state, the focus is on the federal definitions and purposes of adult education. For purposes of this study Adult Education will refer to Adult Basic Education as defined by the Workforce Innovation and Opportunity Act (WIOA), Title II:

> The term 'adult education' means academic instruction and education services below the postsecondary level that increases an individual's ability to:
>
> (A) Read, write, and speak in English and perform mathematics or other activities necessary for the attainment of a secondary school diploma or its recognized equivalent;
>
> (B) Transition to postsecondary education and training; and
>
> (C) Obtain employment. Sec203(1).

In more layman terms the National Skills Coalition (2016) recently defined adult education as "adult education refers to instructional programs provided to adults who did not" obtain a high school diploma or who have obtained a high school diploma but are basic skills

deficient in areas such as math, reading, writing, English language competency, and problem solving (U.S. DOE, n.d., p. 1).

In her research about those who serve learners in adult education classes, Rose (2009) cites a range of educational entities who provide adult education such as community colleges, correctional facilities, school districts, or local libraries. She describes that these learning spaces use multiple and diverse pedagogical and/or andragogical approaches to curriculum design and implementation. Class sizes, times, and locations also vary significantly depending on local needs. Adult education programs are provided by a wide range of organizations with different requirements about teacher training and education levels. Traditional classroom settings, distance education, work based learning settings are all acceptable instructional settings based upon the current WIOA (2014) definition. However, eligible providers of adult education are well-defined within the law (see definition section in Chapter One). Rose (2009) also showed that adult education students bring varying levels of skill sets to the classroom. Due to this mixed class, instructional methods consist of individual instruction, group work, tutoring or a combination of these methods.

Who is Being Served?

The nature of federally-funded assistance to adult learners has changed over the years, accordingly who was being served has also changed (U.S. DOE, 2013). The earliest focus was on teaching math and military skills to soldiers. In the 1960's instructional materials were shared to be used by civilian educational programs (U.S. DOE, 2013). Federal funds were targeted for use for people not enrolled in school to increase their skills in problem solving within families and communities, especially in rural areas. This narrowed focus excluded millions. Thus, the adult basic education program was established under the Economic Opportunity Act of 1964 and

expanded services to all adults in need of basic skills remediation to obtain or retain employment (U.S. DOE, 2013).

The current federal law, WIOA, has few eligibility criteria with the intent to serve as many individuals as possible (see Chapter 1, definitions). In 2009, Rose observed that students in adult education programs, "tend to be older students" (p. 281). However, other research has proposed and commented on the growing number and impact of youth in the classroom (Rachel & Bringham, 2004; Perin, Flugman, & Spiegel, 2006; Brinkley-Etzkorn & Skolits, 2014) as well as the impact the GED has on dropout rates (Heckman, LaFontaine, & Rodriguez, 2012; Horn, Rachal & Shelley, 2012).

Rachel and Bringham (2004) reviewed statistical reports on the demographic breakdown of GED recipients and documented the percentage increase of teenagers between the ages of 16-19 obtaining their GED from 1996 to 2001. Most notably is the 42% increase for 16 year olds over the 5-year period. Perin et al. (2006) also investigated the percentage increase of youth in adult education programs. They reviewed program data at four adult education programs and interviewed 40 administrators/teaching staff and nine students. They found that as the proportions of younger (16-20) students grew the proportions of older (21+) students either remained the same or declined. Through conducting three studies on the incentive effect of the GED, Heckman et al. (2012) found that offering the GED to students of high school age increase dropout rates.

Longitudinal Research in Literacy and Numeracy

Reder and Bynner (2009) focus on tracking literacy and numeracy over time by inviting several researchers to contribute to a book compiling results and lessons learned from longitudinal studies in the United Kingdom and North America. These authors highlight the benefits of longitudinal research such as the ability to recognize potential relationships between

student experiences and observed changes. For example, attending an adult education program and increased wages. In addition, longitudinal studies can increase the understanding of literacy and numeracy development over time as well as the factors that may influence such development.

Rose (2009), a contributor to the Reder and Bynner book, offers a critique of The National Reporting System (NRS; the OCTAE required data reporting system) in that data are submitted by states annually and performance is monitored based upon these yearly snapshots. Rose acknowledges the single-year approach might offer a method to summarize the type and number of students served whereas a longitudinal approach offers a more accurate way to track student progress.

Longitudinal Study of Adult Learning (LSAL)

The LSAL was proposed, awarded and funded in response to a U.S. Department of Education Request for Proposal (Dr. S. Reder, personal communication, November 2016). Portions of the LSAL were also funded by the National Center for the Study of Adult Learning and Literacy and the National Institute for Literacy (Dr. S. Reder, personal communication, November 2016).

The LSAL (Reder, 2009b; Reder, 2010) utilized a mixed method, longitudinal approach that followed 940 randomly selected high school dropouts, aged 18-44, over a nine-year period, 1998-2007. Participants were statistically representative of the Portland, Oregon dropout population. Reder (2010) acknowledges the limitations and the methodological advantages of using a local as opposed to a national representative sample. More specifically, Reder cites the lack of generalizability of some findings as a limitation. However, this limitation is outweighed by the advantage of using a local representative population with shared similar contexts such as local labor markets. These shared contexts allowed the study to examine individual differences

at a deeper level. Participants were included, regardless of their adult education program involvement, and followed instead of relying on data gathered and reported by adult education programs (LSAL, n.d.).

At the beginning of the study, the average participant age was 28 and participants were evenly divided between women and men. One-third of the sample were "members of a minority group, one in ten were born outside of the US," one-third reported having a learning disability and "one in three reported having taken special education classes" (Reder, 2009a, p. 38). The LSAL's intent was to answer four research questions:

1. To what extent do adults' literacy abilities continue to develop after they are out of school?
2. What are adult learners' patterns of participation over time in literacy training and education? In other learning contexts?
3. What life experiences are associated with adult literacy development? How do formally organized basic skills programs contribute to these learning trajectories? Workplace training? Other contexts and activities?
4. What are the impacts of adult literacy development on social and economic outcomes? (p. 59-60).

The LSAL consisted of six periodic interviews that took place in the participant's homes. Each phase of data collection was completed about the same time each year and included a face-to-face interview and skill assessments. Participants received a stipend for each phase and staff maintained contact in between data collection phases (Reder, 2009b; 2010). The study retained 82% of the 979 participants through nine years of data collection (LSAL, n.d.).

The findings from the LSAL have been reported upon and cited in a plethora of books, articles, and research briefs (Reder, 2009a-b; 2010; 2012; 2013; 2014a; 2014b; 2014c; 2014d;

Reder & Strawn, 2001a; 2001b; Strawn, 2006). They have been applied to topics beyond general literacy and numeracy such as computer use and skills (Bynner, Reder, Parsons & Strawn, 2008; 2010; Strawn, 2008). They also have been applied to literacy and the health care system (Seccombe, Lockwood & Reder, 2005).

The findings from the LSAL that relate to the current study are those that reveal factors that impact student success as defined by obtaining the skills necessary to gain or retain employment or enter postsecondary education or training. More specifically, the LSAL found when students used both self-study and participation in an adult education program the level of literacy proficiency increases at a higher rate (Reder & Strawn, 2006, 2014b). LSAL data also found and is supported by Merriam (2001) that students who participated in an adult education program obtained the GED at higher rates (Reder, 2014b).

In addition, the LSAL found that literacy development influences employment initial earnings and growth of earnings overtime (Reder 2010 & 2014a). Furthermore, Reder (2014a) found that intensity, measured by time of program participation was also found to positively correlate to earnings, at 100 hours. A final finding from the LSAL data that impacts student success and is supported by O'Neill and Thomson (2013) is that many high school dropouts express interest in postsecondary education, however, very few accomplish this goal.

Factors that Impact Success in Adult Education Programs

Persistence of adult education and literacy students has been a popular topic for several research studies over the past twenty years (Kerka, 2005; O'Neill & Thomson, 2013; Pickard, 2013). These literature reviews support Greensburg's et al. (2012; Quigley, 1997) statement that most researchers who study adult literacy persistence tend to focus on student (situational), program (institutional) or dispositional obstacles to persistence.

Situational factors are external stimuli (O'Neill & Thomson, 2013) related to the students' life that may interfere with persistence. These factors can include lack of childcare or transportation (Greensburg et al., 2012); demands from employment or families (National Research Council, 2012; Reynolds & Johnson, 2014); or social support (Kerka, 2005).

Institutional factors are program related influences that may interfere with a student's persistence such as the timing of classes (Greensburg et al., 2012); the intake and follow up process (Kerka, 2005); faculty-student relationship (O'Neill & Thomson, 2013; Reynolds & Johnson, 2014); and social support developed inside the classroom with peers (Reynolds & Johnson, 2014). Increasing numbers of younger students in the adult education classroom has also been cited as an institutional barrier for some students who are uncomfortable with multi-generational classrooms (Rachal & Bingham, 2004; Perin et al., 2006; Horn et al., 2012).

Reynolds and Johnson (2014) conducted interviews with 60 adult education students in the rural Midwest between 2004 and 2008. The participants were identified and nominated by their adult education instructor "as exemplary for outstanding academic achievement (e.g. high GED score), hours of program attendance, or community service" (p. 39). These authors used Thompson and Cuseo's (2011) *Four Pillars* model of student success that examines sources of support including individual, family, institution, and community as a theoretical framework. Results are organized by phase of students' progression (i.e., entering, persistence, and transition) in the adult education program.

Reynolds and Johnson found that all participants engaged all four areas of supports (pillars) as they progressed through the adult education program. For the students who successfully completed their adult education program the importance placed on various pillars varied depending on student needs during a specific phase. A key finding was that adult education instructors were "the most influential asset" in assisting students in transitioning to

opportunities beyond the adult education program (p. 45). Another reported theme was the adult education program's role in facilitating transformative experiences for students. Many students reported being changed by their experiences in adult education, "experiencing an increased sense of self-worth and increased self-efficacy" (p. 46). This finding supports Comings et al. (2000) and O'Neill and Thomson, (2013) notion of self-efficacy being an important factor for successful adult education students.

Dispositional factors are internal stimuli that may interfere with a student's persistence. This group of factors can incorporate many influences. Early research by Quigley (1997) cited past negative experiences with schooling as significantly impacting persistence. However, using the LSAL data, Reder and Strawn (2001a) found this not to be the case. More specifically, they found more dropouts (68%) reported either somewhat positive or very positive experiences versus those who reported negative (28%) experiences. These authors further found that dropouts who reported more negative experiences typically repeated grades or reported academic performance problems.

The National Research Council dedicated an entire chapter of their 2012 report *Improving Adult Literacy Instruction* to motivation, engagement and persistence. Within this chapter they explored the psychological literature on factors that may contribute to motivation in adults. They identified self-efficacy, goal setting, ability to receive feedback and monitoring progress as well as intrinsic motivation. Furthermore, Comings et al. (2000) set out to redefine student persistence, moving away from length of time an adult spends in a class to a definition that includes a learner centric view. The learner might view persistence as self-directed study or learning during times when the student is unable to attend classes. They concluded their study with four supports for persistence:

1. Awareness and management of the positive and negative forces that help and hinder persistence.
2. Self-efficacy (O'Neill & Thomson, 2013).
3. The establishment of a goal by the student (O'Neill & Thomson, 2013).
4. Progress toward reaching a goal (Meder, 2000).

Other studies also found or focused on dispositional factors as impacting student persistence. More specifically, O'Neill and Thomson (2013) state that task value, external stimuli, urgency and effort, and impact of affect was an often cited dispositional factor within their literature review on student persistence for low-skilled adult learners. Patterson (2013) interviewed 20 students with special needs who often cited resiliency (a dispositional factor) type of attributes as they talked about their employment experiences after obtaining their GED.

Ziegler, Bain, Bell, McCallum, & Brian (2006) administered the Adult Education Persistence Scale to 245 female students as part of an intake process into an adult literacy program in Tennessee. The purpose of this study was to identify dispositional factors and test if those factors could predict persistence for female students attending adult literacy classes who were also receiving welfare benefits. These authors state their findings support Comings et al. (1999) results that dispositional factors influence persistence. Furthermore, they encourage the use of a dispositional screening tool in predicting persistence as well as identifying possible supportive services that contribute to student success.

Mellard et al. (2012) also focused their research on dispositional factors impacting persistence in adult basic and secondary education programs. These authors were interested in understanding how dispositional factors impacted motivation during learning. Using a survey and retrospective design, these authors found that students who made an educational gain differed only slightly in dispositional factors from those who did not make such a gain.

However, when comparing across educational levels, these authors found significant dispositional factor variations.

Greensburg et al. (2012) point out that while student persistence in adult education programs is important to understand, 'rigorous research' is lacking on this topic (p. 496). He further acknowledged that the current research base is built on quantitative studies with small samples and qualitative interviews. Greensburg et al. (2012) critiques current research as focusing on categorizing obstacles as opposed to focusing the profiles of students who persist and those who do not.

Characteristics of learners may also play a role in influencing success of students participating in adult education programs (Comings et al., 1999; 2000; Rose, 2009; Greensburg et al., 2012; Mellard et al, 2012). More specifically, in working on a study of three states who were identified as having the "highest quality data", Rose (2009) offered through strong management information systems student backgrounds, participation in classes or programs and learning outcomes could all be aligned (p. 283).

Comings et al. (1999) conducted an exhaustive literature review, spoke to practitioners and interviewed 150 pre-GED students in 15 adult education programs across multiple states about persistence barriers and supports. This work was the first phase of a persistence study commissioned by the National Center for the Study of Adult Learning and Literacy or NCSALL in efforts to develop advice for how to assist adults persist in adult education classes and programs. The first major finding from this study was the typical definition of persistence focused on length of time an adult student attended an educational activity, such as an adult education class or tutoring sessions.

Comings et al. (1999; 2009) critiqued this definition as limiting. Furthermore, Greensburg et al. (2012) offered a similar critique of persistence studies. They cited the various

methods to categorize students and definitions of persistence make summarizing findings from this research difficult. Comings et al. (1999) suggested a broader definition that included other forms of learning such as self-directed study. They report findings that support the definition expansion. More specifically, these authors found students who had previous involvement in activities to increase one's basic skills (e.g., self-directed study, vocational skills training or participation in adult basic education program) were more likely, than those who did not have such previous involvements, to persist. Using data from the LSAL, Reder and Strawn (2006) reported a relationship between self-study and GED attainment. They cite this relationship was as strong as program participation and GED attainment.

Another significant finding from the Persistence Study, Phase I was that many of the demographic variables used to traditionally classify students did not help in predicting persistence (Comings et al., 1999). This finding was supported by Mellard et al. (2012). In comparing students who achieved an educational gain and those who did not, Mellard et al. (2012) found that student demographic summary, current economic state and family history did not predict success or failure in an adult education program. A finding these authors labeled as "encouraging for learners" (p. 535-6).

Furthermore, Comings et al. (1999) found only three demographic type variables were related to an increase in persistence: English language learner status, students 30 years of age or older and students who were parents of teenage or older children. These authors posit that these findings may be interpreted as older students are more likely to persist as they do not have added responsibilities of taking care of small children and are benefiting from the maturity that comes with age.

Greensburg et al. (2012) found a similar finding. These authors explored the impact of learner profiles of program completers versus non-completers, on persistence of 395 students

from 23 adult literacy programs. The findings from this study supported Comings et al. (1999) in that few demographic related variables predicted persistence. More specifically, English language status, age, previous adult education experience and receipt of WIC benefits predicted persistence. In this study, much like Comings et al. (1999) older age was associated with full program completions. These authors also cited confirming Comings et al. (1999; Rose, 2009) finding that employment status was not related to persistence.

The current study will review demographic and other characteristics of students (e.g., employment status, disability status, etc.) to determine what factors successful students have in common. As Greensburg et al. (2012) suggests, this study will focus on successful learner characteristics instead of obstacles for students who were not successful.

Increased Basic Skills, Increased Wage Potential

Human capital is thought of as investing resources in people (Becker, 1962). Such investments can be made in a variety of ways such as medical care, schooling, on-the-job-training (Becker, 1962), post-schooling training, family (Mincer, 1974) and household skills (Dale, 2009). Human capital theory predicts a positive relationship between earnings and individuals investing in educational attainment (Becker, 1962; Becker, 1992; Mincer, 1974; Rubb, 2006).

The connection between increased basic skills or educational attainment and earnings is often cited by national public policy organizations (Jones, 2007; National Center for Higher Education Management Systems, 2009; National Skills Coalition, 2010a-b; 2013; Foster, 2012) and adult education researchers (Tyler, 2003; Bingman, 2009; Rose, 2009; Reder, 2010, 2014 a-c).

In July of 2011, the media focused much attention on the idea of increased skills lead to increased wages (Alliance for Excellent Education, 2011; Amos, 2011). The Alliance for

Excellent Education is a national advocacy organization that focuses on policy making and highlighting best practices that assist traditionally underserved students to graduate from high school and become college and career ready (Alliance for Excellent Education, n.d).

The Alliance for Excellent Education publishes on their website state and national level data utilizing a number of sources (Alliance for Excellent Education, n.d.). In 2011, this organization highlighted the annual discrepancy of earnings between high school graduates and high school dropouts (Alliance for Excellent Education, 2011; Amos, 2011). They chose to release this data in conjunction with the White House Roundtable on education and business leaders (Alliance for Excellent Education, 2011; Mechaber, 2011). At this same time National Public Radio announced a 5-part series on dropouts focusing on headlines such as "School Dropout Rates Adds to Fiscal Burden" and "The Costs of Dropping Out" (NPR, 2011). A review of the Bureau of Labor Statistics *Unemployment rates and earnings by education attainment, 2016* data show that high school graduates make on average $9,831 more than high school dropouts (U.S. DOL, 2017).

While the data are compelling, researchers are concerned with understanding this topic at a deeper level. For example, Rose (2009) warns that in order to review if adult education programs are impacting the economic outcomes of students, a comparable control group is needed. Without such a control group, only labor market trends of adult education students before and after participation in the program can be compared.

Using three states identified as having high quality data, Rose (2009) linked adult education data to economic outcomes using unemployment insurance wage data. After reviewing six years or 24 quarters of unemployment insurance data (14 quarters prior to program participation and 10 quarters after starting the program), common trends were identified. More specifically, this study found that during the first quarters of wage data (prior to program

participation) there was a trend of increasing earnings. However, the increase leveled off or started to decline in the quarters leading up to program participation. Earnings remained flat then begin to rise sharply in the last quarters of data collected (during program participation).

Rose (2009) also examined the impact of program participation (measured in hours of attendance) on impacted earnings. This study found student earnings showed positive growth with increased participation hours (Reder, 2014c).

The LSAL data (Reder, 2010; 2014a-c) offer many important findings for this discussion. More specifically, the study found strong relationships among high school dropouts between literacy proficiency (2010) and earnings and adult education program participation and long term economic outcomes (2014a).

The LSAL extend the findings of Tyler (2004) to all high school dropouts. Tyler's (2004) research focused on the impact of GED attainment on earnings of male high school dropouts in Florida. He reviewed 16,304 GED and unemployment insurance administration records. The first and twenty-fourth quarter data after GED exam attempt were examined. He found that 81.3% successfully obtained the GED. In comparing those who obtained the GED versus those who did not, he found that earnings for those who were successful on the GED grew faster than those who were unsuccessful. After six years or 24 quarters, Tyler found that those who attained the GED could expect to earn 13-20% more than those who did not obtain the GED.

Another important finding from the LSAL study (Reder, 2010) is that literacy proficiency in general as well as the rate of literacy proficiency growth impact earnings growth. More specifically, the LSAL data show that the level of literacy proficiency and the rate of growth of literacy proficiency impacts initial earnings and the rate of ensuing growth of earnings. Thus, if an individual increases their literacy proficiency quickly, the more likely the individual is to see

a quicker rate of earnings growth. Reder posits that this finding impacts the role of literacy proficiency in gaining access to postsecondary education and training, including workplace or on the job training.

The Tennessee Longitudinal Study (Bingham, 2000; 2009) consisted of two components: 1-data collected over a 3-year period on 450 adult students enrolled in beginning adult education classes, 2-a follow up qualitative study, the Learner Identified Outcomes study. The second study collected life history interviews for 10 student participants of the original study. Findings from the original study included rate of employment rose from 32% to 48% for participants after one year of program participation.

The LSAL data showed the relationship of literacy proficiency and earnings is unidirectional. An increase in literacy proficiency saw an increase in earnings. No reciprocal effect was found. Reder (2014c) documented the impact of adult education program participation on literacy growth. Sixty-eight percent (68%) of the LSAL population participated in an adult education program during the course of the study. Many students experienced multiple periods of participation in different programs at different times. Utilizing fixed panel regression models, the data show that students who participate in adult education programs tend to have higher levels of literacy proficiency. Furthermore, the more intense the participation the higher the literacy proficiency grew with a threshold of around 100 hours of participation.

The LSAL data also show a positive relationship between adult education program participation and GED attainment (Reder, 2014b). Another important finding from the LSAL study is the linkage of adult education program participation and long-term economic outcomes (Reder, 2014a). Reder compared the annual wages for those who participated in an adult education program and those who did not. Those who did not participate in an adult education program saw higher wages than those who participated at the beginning of the study. The non-

participants wages remained stable as the participants wages grew to eventually surpass the non-participants wages by the end of the study. Over the course of the study, participants in adult education programs saw a mean income increase of 53%, whereas, the non-participants saw a mean income decrease of 2%.

The current study will test the human capital theory by reviewing outcomes for students who obtained an HSE and for those who did not. Specifically, this study will review and compare employment status and wage outcomes for both groups.

Indiana Adult Education

In 2011, legislation was passed that moved the administration and oversight of adult education from the Indiana Department of Education (IDOE) to the Indiana Department of Workforce Development (IDWD) (IC 22-4.1-20; HB1340, 2011). With a change of administration came a change of philosophy. In an internal report, IDWD (2012) concluded that "time was the enemy of an adult learner in need of basic education and occupational training" (p. 2). They cite a paradigm shift that included a belief that adult education students would have better outcomes when engaged in intensive "case management and academic and career counseling at the WorkOne Centers and dedicated instruction at the adult education [program] sites" (p. 4).

The IDOE viewed 'seat time' as evidence of persistence for adult learners, similar to 'seat time' at the primary and secondary levels (IDWD staff, personal communication, 2014). Whereas, the IDWD recognized the growing demand for middle skilled workers and the urgency in which adult education students needed to acquire the necessary skills to join, rejoin or advance in the workplace (IDWD, 2012). The notion of urgency was supported by a national report on Indiana's middle skill jobs published the year prior to the movement of adult education to IDWD (National Skills Coalition, 2010).

The internal report (2012) further explains that IDWD inherited a Corrective Action Plan (CAP) from IDOE, issued by the federal Office of Vocational and Adult Education (now called OCTAE). The CAP was focused on the IDOE data system's lack of compliance with the National Reporting System (NRS, see above for discussion). IDWD built a new data system that was compliant with NRS guidelines; could automatically data match with other systems such as "post-secondary institution enrollments, workforce case management system, GED testing results, Bureau of Labor Statistics wage and employment data, and more" (p. 8); and could track outcomes in real time at multiple levels (e.g., state, regional, provider, teacher).

IDWD distributes funds to local providers who consist of local educational entities, community colleges, community based organizations and economic development entities. Services offered to students vary based upon student needs and educational and/or workforce goals. However, all services must fall within the WIOA definition of Adult Education and Literacy Activities (see definition section in Chapter One for full definition).

From GED to High School Equivalency

In March of 2011, the American Council on Education (ACE) and Pearson mutually announced a joint venture, the GED 21st Century Initiative (ACE & Pearson, 2011). The press release explains, "the two partners will combine their collective expertise and resources to develop a new GED Test aligned with Common Core State Standards" (p. 1). While ACE and Pearson brand this collaboration as a public-private partnership, other sources (Iowa Department of Education, 2013) acknowledge a shift from GED® Testing Service, historically "the only provider of assessments that count toward a state-issued high school equivalency diploma," and a nonprofit entity to a "for-profit enterprise" (p. 1) This shift allowed other assessment vendors to begin competing to provide high school equivalency assessments to states (Iowa Department of Education, 2013; U.S. DOL, 2015).

States cited concerns about the increased costs and rigor of the new GED test as well computer-based format as the sole testing option, which further prompted many states to research other high school equivalency assessment options (IDWD, 2012; U.S. DOL, 2015; Zinth, 2015). Currently, there are three high school equivalency assessments being used by states, GED, HiSET and TASC.

The GED (Generalized Education Development) test continues to be the most commonly recognized of the three. As stated above, the GED is currently managed via a partnership between the nonprofit ACE and for-profit Pearson Learning Company. The newest version is aligned with Common Core standards and career and college readiness expectations. This test is delivered exclusively via computer-based format (U.S. DOL, 2015; Zinth, 2015).

The HiSET (High School Equivalency Test) is a product of Educational Testing Services (ETS) and Iowa Testing Programs. ETS is the only nonprofit High School Equivalency assessment vendor. HiSET "assess the students' ability to demonstrate their high school-level proficiency and their readiness for higher education or workplace" (U.S. DOL, 2015, p. 10). This test offers both paper-and-pencil and computer based formats (U.S. DOL, 2015; Zinth, 2015).

The TASC (Test Assessing Secondary Completion) test was developed by CTB/McGraw-Hill and is now administered by Data Recognition Corporation (DRC) (DRC, 2015). The "TASC test items will gradually increase in depth of knowledge rigor over three years, 2014-2016 to gradually accommodate college ready content" (U.S. DOL, 2015, p. 11). This test offers both paper-and-pencil and computer based formats (U.S. DOL, 2015; Zinth, 2015).

In 2012, IDWD released a Request for Proposal for High School Equivalency Assessment (IDWD, 2013c). IDWD cited many concerns about the new GED test, which lead to

the Request for Proposal. Some of the concerns include: increase in rigor at once versus a phase in of increased rigor, testing center accessibility and staff capacity to offer high school equivalency tests solely on a computer based format as well as test-taker ability and increased costs of the GED test (IDWD staff, personal communication, 2014). A contract was awarded originally to CTB/McGraw Hill (developers of TASC) and later transferred to DRC who bought the assessment division of CTB/McGraw Hill in 2015 (DRC & McGraw Hill Education, 2015). The TASC was adopted as Indiana's High School Equivalency Assessment and implemented on January 14, 2014.

The current study will explore the impact of the HSE exam change from GED to TASC in Indiana, specially looking at pass rates and student outcomes.

Summary

Two perspectives on the history of adult education opened this chapter. A brief overview of who is being served was presented. Next, attention focused on longitudinal studies of literacy and numeracy growth. Multiple factors and characteristics of learners that impact student success was presented. Many national groups and researchers alike have found that increasing basic skills can lead to an increase in future earnings. Indiana adult education is discussed leading into the explanation of the national landscape change in HSE assessments. As many states are changing from the GED to other assessment tools, it is critical to understand the impact of that change. There have not been studies specifically looking at the pass rate and the demographic characteristics of those who are likely to pass each assessment. In addition, there have been no studies on the changes in employment status and wage outcomes that may exist as a result of the assessment change.

Moving on to Chapter Three, methods and data analysis is presented. This includes a discussion of the purpose of the study including research questions and hypothesis. The Indiana

adult education population and types of demographic data are reviewed. Procedures cover the research design, data collection and data analysis.

CHAPTER THREE:

METHODS

Introduction

This quantitative longitudinal study focused on Indiana adult basic education students who received services through an IDWD funded adult education program during three program years. There were two areas of focus: to examine data specifically looking for factors or learner characteristics that impact success for HSE completers; and to compare the results of the data through the lens of the HSE assessment change (from GED to TASC). Previous research (Comings et al., 1999; Greensburg et al., 2012) has identified age, parental status, and previous adult education program experience as having an impact on persistence or success in adult education programs. The present study explored common learner characteristics of successful adult education participants such as employment status, disability status, lives rural status, as well as others, in addition to traditional demographic variables as Greensburg et al. (2012) suggest. In addition, Greensburg et al. (2012) and Rose (2009) discuss the lack of research comparing adult education and literacy program completers versus non-completers. The current study explores employment and wage outcomes of Indiana adult education students who obtained their HSE and those who did not.

Ethical Considerations

The present study was submitted to the Ball State University, Institutional Review Board (IRB) on 5/16/2017. The IRB Review Committee determined this research was exempt based upon the Code of Federal Regulations, Protection of Human Subjects §45CFR46 Subpart A-Basic HHS Policy for Protection of Human Research Subjects. More specifically, this study is exempt under §46.101 (b)(4). The current study used ". . . existing data, documents, records . . .

if the information is recorded . . . in such a manner that the subjects cannot be identified, directly or through identifiers linked to subjects" (n. p.) (U.S. Department of Health & Human Services, n.d.).

Purpose of the Study

The purpose of this study was to analyze data collected on adult education students who received adult education services by an IDWD funded adult education program. There were two areas of focus for analysis. The first focus was to examine the data specifically looking for factors that impact success for High School Equivalency (HSE) completers. For this study, successful completers are defined as students who passed the HSE exam and gained or retained employment. Employment and wage outcomes are federally defined follow-up outcomes per OCTAE, see Definitions section in Chapter One (NRS, 2016). Demographic data are also explored for this focus.

The second focus was to compare the results of the data through the lens of the HSE assessment change (from GED to TASC). Data on HSE pass rates and the federal follow-up outcomes were compared for participants who completed the GED and those who completed the TASC. The federal follow-up outcomes were compared for participants who did not complete the GED or the TASC.

Considering the above two focus areas, five academic years of data were considered for analysis, 2011-2016. In consultation with IDWD staff (personal communication, March 2017) Table 3 presents the decisions made regarding which years of data to use. In summary, data from academic year 2011-2012 and 2015-2016 were excluded from consideration for this study. The three academic years of data that were included in analysis for this study are:

- Year 1: 2012-2013
- Year 2: 2013-2014

- Year 3: 2014-2015

Research Questions and Hypotheses

The following research questions guided this study.

1. What are the demographic factors and learner characteristics that HSE exam completers and non-completers have in common?
    a. This is a descriptive research question.
2. Is the pass rate different for each test (GED to TASC)?
3. Did the outcomes[1] for HSE completers and non-completers change per HSE exam?

Based upon prior research related to characteristics of students pursuing adult education and literacy programs, the researcher proposed the following hypotheses related to research question one.

- Hypothesis 1: Older students will be more likely to complete and pass the HSE exam.
- Hypothesis 2: Students who are parents will be more likely to complete and pass the HSE exam.

Due to the gap in the literature regarding the impact of changing high stakes assessments in adult education, the researcher proposed the following hypotheses, related to research question two,.

- Hypothesis 3: Null; There is no significant difference between the pass rates for the GED and the TASC.

Based upon prior research related to connecting increased skill attainment with increased wage potential the researcher proposed the following hypotheses related to research question three.

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[1] For the purposes of this research question, outcomes are wage and employment status. Wage is defined as wages for adult education participants during the first and third quarter after program exit. Employment status is defined as adult education participants who either gained or retained employment during first and third quarter after exit. Wage and employment status are defined under the Workforce Innovation Act, the workforce law that pre-dated WIOA. All data collected for this study was collected under WIA rules, as WIOA data collection definitions are not effective until July 1, 2016 (U.S. DOL, 2016a).

- Hypothesis 4: There is a positive relationship within HSE test (GED and TASC) completers and wage.
- Hypothesis 5: There is a positive relationship within HSE test (GED and TASC) completers and employment status.
- Hypothesis 6: There is a negative relationship within HSE test (GED and TASC) non-completers and wage.
- Hypothesis 7: There is a negative relationship within HSE test (GED and TASC) non-completers and employment status.
- Hypothesis 8: There is no significant difference on wage or employment status between HSE tests (GED and TASC) for completers.
- Hypothesis 9: There is no significant difference on wage or employment status between HSE tests (GED and TASC) for non-completers.

Participants

Target Population

The target population for this study was students who enrolled in an IDWD funded adult education program during three academic years (2012-2015). Research question one focused on data from students in all three academic years who passed the HSE and gained or retained employment. Research question two focused on data from students in all three academic years who passed the HSE. Research question three focuses on outcome data from students in all three academic years who passed the HSE and those who did not pass the HSE.

Student eligibility for adult education services include any student over the age of 18 or between the ages of 16 and 18 who are no longer connected to a school and must have special permissions to attend adult education programming (IDWD Policy, 2013b). The programs that deliver adult education services in Indiana during the years of review mainly consist of Local

Educational Entities, Institutions of Higher Education, and Community Based Organizations (NRS, 2012-15).

The data was collected for all students who received services from IDWD funded adult education program. All students, except those under the age 18, those identified as English language learners or receiving services in a correctional facility, were included in the database during the three-year period are part of the population. Sampling was based on years selected rather than a sampling from the population during those years. Pre-existing data for three academic years was used. These years were chosen for the following reasons:

- Year 1: 2012-2013; Baseline year, before change in HSE exam
- Year 2: 2013-2014; HSE test change, new test implemented 1/1/14
- Year 3: 2014-2015; Baseline year, first full year of TASC test implementation

Demographics and Characteristics of Learners

This study examined more than traditional participant demographic data. Additional characteristics of participants such as disability status, educational functioning level, and lives rural status were examined. All of the below variables are collected on all students who receive services from an IDWD funded adult education program. Most data elements are federally required to be collected and reported upon annually (NRS, 2016). The current analysis provided a deeper dive into the data collected for Indiana students as compared to the national reporting. OCTAE provides annual national reports to congress on the state of the federally funded adult education program through frequency data (U.S. DOE, 2015). These annual reports only look at one program year at a time with the most recent report published in 2015, covering program year 2011-2012 (U.S. DOE, 2015). Rose (2009) provides a critique of such yearly snapshots and suggests that a multi-year approach offers a more accurate way to track student progress. The current study analyzes three years' worth of data looking at between (e.g., comparing pass rates,

research question two and outcomes, research question three) and across years (e.g., looking for common factors, research question one) to answer the research questions.

Additional demographic and variables such as: learner characteristics: age, gender, ethnicity, veteran status, parent status, public assistance status, education status at entry, education attainment, disability status, citizenship status, lives rural status, low income status and employment status at entry are reviewed.

Procedures

Research Design

Considering the context of the research questions a quantitative approach provides the best methods for answering the research questions. More specifically, this researcher used a pre-existing data set and did not have access to participants to conduct any follow up qualitative analysis.

Data Collection

Data collection consisted of gaining permission from the IDWD to use an existing dataset. Once data were de-identified to protect student identity, the dataset was made available to the researcher with a fictitious student number assigned to each participant for the purpose of this study. The participant dataset was provided to the researcher by the IDWD Director of CTE and AE Data Compliance.

Permission to use adult education data was granted by IDWD. This researcher used to work for the Adult Education (AE) Division of the IDWD, she transitioned to another role within the agency prior to starting this research. Permission to use adult education data for the purposes of this study was granted by the State Director of Adult Education.

Prior to data being given to the researcher, data on any students younger than age 18 were excluded from the dataset. In addition, data on students who were identified as English language

learners or were receiving services in a correctional facility were excluded from the dataset. These students are considered special populations and are outside the scope of this research study.

Employment and wage data are collected through a data match procedure between the IDWD AE Division and the IDWD Research and Analysis (R&A) Division. Annually, a data file containing a list of active adult education students is pulled from the InTERS database and sent to the IDWD R&A Division. The R&A Division adds first and third quarter wages from the Unemployment Insurance data system to that file. The data file is then returned to the InTERS data team who uploads the added data to the InTERS system. At this point, reports can be assembled.

Data Collection Procedures at Program Level

Data collection procedures at the program level are guided by several IDWD policies (IDWD, 2013a-b; 2014; 2016). All providers receiving funding from IDWD must utilize the state electronic data collection system, InTERS (IDWD, 2013a). Student data must be entered into InTERS within the first few hours the student is engaged in services, but no later than after 12 attendance hours (IDWD, 2013b). Required data field categories include: demographics, status, test scores, educational gains, participation and follow up measures. Additional categories of data that can be collected in the InTERS system include: work-based achievements, community involvement, family, student status (IDWD, 2013a). The IDWD Data Collection and Reporting policy (IDWD, 2013a) also mandates all programmatic data be entered into the InTERS system by the 10th of the month for all services delivered for the prior month. Furthermore, IDWD encourages individual programs to monitor and utilize data for student and program compliance and progress (IDWD, 2013a).

Data Analysis

Data analysis consisted of frequencies, crosstabs and analysis of variance or ANOVA's. Huck (2004) and Creswell (2014) both cite descriptive data analyses as a way to summarize quantitative data. Johnson and Christensen (2012) suggest using cross tabulation or contingency tables to compare categorical variables. Creswell (2014) offers ANOVAs as methods for non-experimental research. Furthermore, he cites use of ANOVA's when comparing two or more groups in terms of outcomes. This section presents the data analysis as a series of steps organized by research question (Creswell, 2014).

Research question one utilized descriptive statistics, such as frequencies to determine if there are factors that the majority of successful HSE completers have in common. Crosstabs were used to determine whether relationships exist between two or more variables (Johnson & Christensen, 2012). Chi Square (Johnson & Christensen, 2012) or Correlations and Pearson *r* statistic (Huck, 2004) were used to determine the strength of relationships. Descriptive statistics were also used to describe the learner and demographic characteristics of the participants. Zhang and Patterson (2010) conducted a study of repeat GED examines. This study provided support for the use of descriptive statistics to describe characteristics of the participants. Specifically, these authors found that individual characteristics played a role in determining if GED examinees should retest. Taylor (2007) also used descriptive statistics to build a demographic profile of participants for a study that examined non-GRE related factors and graduate school success.

Research question two utilized crosstabs and t-tests to determine whether relationships exist between or within variables. Chi square analysis were used to determine if any identified relationship was statistically significant. Frequencies were also utilized. At this given time,

there is no research available that compares the pass rate of two HSE assessments using a single states' adult education population.

Research question three utilized a series of ANOVAs. Cohorts were assigned based upon testing groups. Analysis was conducted to look for both between and within differences. Tukey's Post Hoc Tests were used to determine the significance of any identified differences. For this question, employment status and wage are the predictions or dependent variables and the predictors or independent variables are test (e.g., GED or TASC) and pass status (e.g., passers or non-passers). The following analyses were conducted to test Hypothesis:

- Between test comparisons of GED and TASC completers and non-completers and employment status and wage.
- Within test comparisons of GED and TASC completers and non-completers and employment status and wage.

Additional analyses were focused on between and within testing group comparisons, using the same cohort groups defined for research question three, on hours of study/education and wage. For this set of analyses, a series of ANOVAs were used to identify differences. Tukey's Post Hoc Tests were used to determine the significance of any differences between and within cohort groups.

Summary

The purpose of the present study was to analyze data collected on adult education students in Indiana with a focus on describing learner characteristics and impact of the HSE exam change. Methods of data collection, participants, the three research questions and associated hypothesis, and data analysis techniques were explained.

Findings will be detailed in Chapter Four, covering challenges of working with the data, comparison of cohort groups on demographic and learner characteristics, pass rates and wage

outcomes. Chapter Five will continue the conversation of findings related back to the literature discussed in Chapter One and Two. Specifically, discussing who is being served, factors impacting student success, pass rates and implications of increased basic skills on wage outcomes.

CHAPTER FOUR:

RESULTS

Introduction

The dataset obtained for this study was robust. The dataset contained data for every student who received services from an IDWD funded adult education program within a three-year time period: 2012-2013, 2013-2014, and 2014-2015. The dataset was obtained by the Director of CTE and AE Data Compliance. Data was received through a secure file transfer that was password protected. Data was downloaded and stored on a personal computer that is password protected. There was no identifiable personal information within the dataset. This chapter first highlights the challenges of working with such a large dataset. The demographics and learner characteristics of the full population are discussed next. This is followed by a comparison of those learners who never took an HSE exam with those who did. Results for each research question are then detailed. Finally, additional analysis and a summary of findings close the chapter.

Challenges in Sorting the Data

During the initial analysis, this researcher discovered many duplicate entries in the data, especially in academic year one or 2012-2013. In a personal communication with the IDWD Director of CTE and AE Data Compliance, this researcher realized that the 2012-2013 academic year was the second year of the InTERS data system. Many duplicate learner files were created by mistake as program level staff were continuing to learn how to use the system. In addition, this researcher learned that new data fields were continuously added to the data system and not

all were made mandatory (personal communication, 2017). This also created additional confusion, which resulted in duplicate entries into existing learner files.

There were many variables with low response rates that were unusable for analysis. For example, there were 85 variables associated with student goals. One such variable was *goal vote*. This goal had 228 yes responses indicating that out of 44,202 students only 228 identified this as a goal. The corresponding variable *achieved goal vote* only had 81 yes responses indicating that out of the 228 students who identified this as a goal, only 81 achieved this goal. Another goal oriented variable, *goal GED prep* only had 21 yes responses, all from 2011. The unusable variables were eliminated for this study, none of which were mandated variables. While those variables could have provided a useful examination into more detailed learner characteristics, they were not statistically sound.

Another example of limited analysis pertains to the parental status of participants. Within the dataset there were three variables that addressed parental status. The variable *single parent* is a required data point completed at intake of the adult education program. This data point contained the most responses and the least blanks/missing data. The other two variables; *has dependents* and *single parent description* contained less data and were not required fields. Therefore the variable *single parent* was used for analysis.

Along similar lines there were several variables pertaining to employment within the dataset. The variable *employed* is a required data point completed at entry into the adult education program much like the *single parent* variable above. Additional variables either lacked sufficient definition or were self-reported which resulted in missing data. For example, variables such as *underemployed* and *unemployable* were not well defined within the system. As a result, all responses to these two data points were ‘no’. In addition, there were several follow

up data points where the adult education provider staff would contact the students and gather information. These data points were all self-reported data from the participant with very low response rates. For example, variable *local followup employed fulltime* had 644 'yes' responses with 41,477 'unknown' responses. Therefore, the variable *employed* was used to determine employment status at entry, as it contained the most reliable data.

The methodology for reporting the federal employment measures are based upon wages and not necessarily employment status. The data system does not contain a variable that addresses employment status after exit from the adult education program. Since wages are gathered on all students, it is assumed that the student was employed if wages are reported during the data matching process. Furthermore, if a student reported employment at entry into the adult education program and the student continued to have wages after exiting the program, this scenario counted as a 'yes' for the federal *retain employment* measure. If a student reported not being employed at entry into the adult education program and after exit there was a data match for wages, this scenario counted as a 'yes' for the federal *gained employment* measure.

As discussed in Chapter Three, wage data match captures all wages for a single quarter, including bonuses, lay-off pay outs, etc. Due to this uncertainty of data and the lack of the ability to determine when employment was achieved, employment status after exit was excluded from the data analysis. More specifically, this impacted research question one and three. Research question one initially focused on participants who passed the HSE and gained or retained employment. Analysis focused on all HSE passers and non-passers. Research question three initially focused on both employment status and wage outcomes. Given the concerns, analysis focused only on wage outcomes.

Examining the Full Population's Demographics

Learner Characteristics

The dataset contained 44,202 unique student records. Of the total population more women (52%; *N*=22,995) participated in Adult Education services than men (48%; *N*=21,207). The largest age group receiving services were young adults aged 18-24 (47%; *N*=20,814). Most of the ethnicity groups had a higher percentage of participants from the 25-44 age range. However, the largest ethnicity groups (White at 57%; *N*=25,022 and African American at 18%; *N*=8,111) had a higher percentage of younger participants.

The majority of participants were US Citizens (89%; *N*=39,132) and identified as living in an urban area (60%; *N*=26,416). Small percentages of participants reported having a disability (13%; *N*=5,770); being a veteran (0.5%; *N*=225); being a single parent (17%; *N*=7,581) or receiving public assistance (17%; *N*=7,605). Thirty three percent (33%; *N*=14,557) reported being low income and 28% (*N*=12,270) reported living in a rural area. See Table 4 for additional demographic information for the full population.

Table 5 examines the category of age more specifically by looking at the gender of the learners in the various age groups. This table indicates there was slightly more women in the 25-44 age range (45%; *N*=10,307) then the 18-24 range (43%; *N*=9,957). On the other hand, over 50% (*N*=10,857) of men who participated in adult education services were from the youngest age range (18-24).

Education Characteristics

An Individualized Education Plan (IEP) is used for students with identified disabilities during primary and secondary education and describes how a student will interact with the general education curriculum and/or any special education related services to ensure the student

can participate in the educational setting (IDOE, 2017). According to the Indiana Department of Education's accountability data (IDOE, 2014-2016) the graduation rate for students with disabilities is lower than the general population. The dataset for this study contained a variable indicating whether a student had an IEP during their formal education. This data point was explored and of the total population, only 1% (*N*=529) reported having an IEP while attending school.

Table 6 illustrates participant's education status at entry into the adult education program and the participant identified last grade completed. It shows that the majority of students reported disconnecting from formal education during high school before receiving a high school diploma. More specifically, examining the variables education status at entry, *Grades 9-12 no diploma* and last grade completed *9-12* indicate that 81% (*N*=35,575) and 65% (*N*=29,144) of participants, respectively, reported exiting formal education during high school.

Table 7 displays the number of classroom and distance education hours participants spent on adult education instruction. This table indicates the majority of students (71%; *N*=31,411) participated in under 100 hours of classroom instruction. The same was found for the 33% (*N*=14,658) of students who participated in distance hours of study/education (93%; *N*=13,651) under 100 hours).

Table 8 describes the NRS defined educational functioning levels of participants in the academic areas of Language, Reading and Math. See Chapter One for description of Educational Functioning Levels. Over the three academic years reviewed for this study, the highest educational functioning level in Language achieved by the greatest number of students was ASE High (or Adult Secondary Education-High) at 27% (*N*=11,937), and ABE Intermediate High with 27% (*N*=11,709). For Reading, the same categories were highest; ASE High with 33%

(*N*=14,374) of students and ABE Intermediate High with 24% (*N*=10,479) of students. Math showed slightly different results. For Math, ABE Intermediate High showed the highest percentage (33%; *N*=14,382) while ABE Intermediate Low and ASE High were second highest with the same percentage of students in each category (21%; *N*=9,212 and *N*=9,258, respectively).

Employment and Wage Outcomes

Table 9 documents employment status at entry of the adult education program. Sixty-five percent (*N*=28,910) of participants reported not being employed at time of entry. Table 10 shows the average wage of program participants. Information about the amount of the participant's wage is collected at first and third quarter after she or he exits the program. For the total population, the average wage at first quarter after exit was $13,813, whereas the average wage at third quarter after exit was $15,544.

Comparisons of Characteristics Between Those Who Never Took The HSE Test and Those Who Took A HSE Test

Learner Characteristics

The analysis revealed a large sub-population within the dataset who had not taken an HSE test. Of the total population (*N*=44,202), 64% (*N*=28,304) did not take a HSE test. The reasons for not taking a HSE exam during the three years reviewed for this study are plentiful. Some examples include: the participant might have gained employment prior to taking the test; the participant might have already obtained a HSD and entered adult education services for focused remediation; the participant might have only needed to remediate to a certain level that is lower than a HSE; or the participant might still be working towards preparing for the HSE exam.

Table 4 contains a full listing of all demographic and learner characteristic variables by those who did not take a test and those who took a test during the three-year period reviewed for this study. Only a slightly higher number of men (37%; *N*=7,917) took a test, compared with women (35%; *N*=7,981). Whereas, over 60% for both women (*N*=15,014) and men (*N*=13,290) did not take a test. Table 4 illustrates that as age increases the likelihood of taking a test decreases. For those who took a test, the youngest age group (18-24) held the largest percentage of participants with 54% (*N* =8,508) taking a test. For those who did not take a test, there were 44% (*N*=12,306; *N*=12,559, respectively) in each of the age groups, 18-24 and 25-44.

Ethnicity was a factor for those who were more or less likely to take a test. Those who identify as White took the test at 42% (*N*=10,505). All other ethnicity groups were in the 30% range for taking a test, with the exception of Asian and Hispanic students, who showed the least likelihood of taking a test at 11% (*N*=114) and 18% (*N*=434), respectively.

Those who identified as living in rural areas are more likely to take a test when compared with those who identified as living in urban areas. When considering the remaining demographic factors, including being a U.S. Citizen, veteran status, identifying as disabled, being a single parent, low income status and if a student identified she/he was receiving public assistance, those who identified as being a Veteran's had the highest likelihood of taking the test at 41% (*N*=92). While those who identified as having a disability had the lowest likelihood of taking a test at 31% (*N*=1,811).

Education Characteristics

Table 6 describes the education characteristics of those who have taken a HSE test and those who did not take a HSE test. Of those who reported having an IEP while attending school, 63% (*N*=334) did not take a test while 37% (*N*=195) students took a test. Participants who left

formal education during the years of secondary education (grades 9-12 for *education status at entry* and grades 8-11 for *last grade completed*) but prior to earning a diploma are more likely to take a test, than those at other education levels.

Table 7 depicts the classroom and distance education hours of participants who did and did not take a test. Results indicate that the more hours a participant invested in their adult education services, both for classroom instruction and distance education, the less likely she/he was to take a test. More specifically, as the number of hours go up the likelihood of taking a test goes down. The likelihood of taking a test peeked at 100-250 hours (42%; N=3,060) then decreases.

Table 8 describes the educational functioning levels for those who did and did not take a test across three academic areas; Language, Reading and Math. Educational Functioning Levels range from Adult Basic Education Beginning Literacy, which is the equivalent of grades 0-1.9, to Adult Secondary Education High (ASE High), which is the equivalent of grades 11-12. Those scoring in the ASE High range had the highest percentage of those taking the test in all three academic areas.

Table 11 displays another way to review the participants' educational functioning level. This table compares the means of the highest score for each participant across the three years reviewed for this study in each of the educational functional level academic areas. Independent samples *t*-test were conducted to compare the means between those who took a HSE test and those who did not. There are significant mean differences for all three academic areas.

For Language and Reading, those that took a test had a higher mean score (M=9.75, SD=20.64 and M=10.57, SD=21.73, respectively) than those who did not take a test (M=7.61, SD=18.19 and M=9.42, SD=21.10, respectively), $t(29638)=10.93$, $p<.001$ and $t(31131)=5.37$,

$p<.001$. Math also showed a significant difference between means (those who took a test $M=6.41$, $SD=12.03$ and those who did not $M=8.5$, $SD=20.17$) in the opposite direction; $t(44409)=-13.61$, $p<.001$. Table 11 lists all associated means.

Although the differences in means were significant for each academic area, the mean scores for Reading and Math were within the same educational functioning level; ASE Low and ABE Intermediate Low, respectively. Whereas the means for Language were in two different educational functioning levels; ABE Intermediate for those who did not take a test and ASE Low for those who took a test.

Employment and Wage Outcomes

Sixty-six percent ($N=18,745$) of participants who did not take a test and 64% ($N=10,165$) of participants who took a test reported not being employed at time of entry. Table 9 indicates that those who are employed at entry are only slightly more likely to take a test (37%; $N=5,733$), than those who are not employed at entry (35%; $N=10,165$).

Table 10 lists the first and third quarter after exit average wages for those who did not take a test and those who did. The wages for those who took a test start out slightly higher than those who did not take a test; $13,899 and $13,857, respectively. However, data show those who did not take a test have a larger wage gain between quarters, $1,793 and $1,570, respectively.

Research Question 1: What are the demographic factors and learner characteristics that HSE exam passers and non-passers have in common?

As stated above, 64% ($N=28,304$) of participants did not take a HSE test. Of the remaining 36% ($N=15,898$) of participants, 29% ($N=12,820$) took either the GED or TASC test and passed, while the other 7% ($N=3,078$) took an HSE exam, and did not pass. Demographic

and learner characteristic data are presented in six categories; pass either test, did not pass either test, GED passed, GED did not pass, TASC passed and TASC did not pass.

Learner Characteristics

Table 12 presents the breakdown of passers and non-passers. While slightly fewer men (*N*=7,917) than women (*N* =7,981) took the test, more men passed a test than women (82%; *N*=6,487 and 79%; *N*=6,333, respectively). Women and men were also more likely to pass the TASC (81%; *N*=2,524 and 83%; *N*=2,648) than the GED (74%; *N*=3,811 and 77%; *N*=3,845). The passers group matches the total population in that the youngest age group (18-24) was more likely to pass a test (81%; *N*=7,046). Table 12 shows that as age increases the likelihood of passing a test decreases. Although more people took the GED (*N*=10,121), than the TASC (*N*=6,315) a higher percent passed TASC across all ages. Those who identified as White made up the largest ethnicity group to pass either test (85%; *N*=8,954), as well as to pass the GED (82%; *N*=5,454) or TASC (86%; *N*=3,507) test. Across both tests, African American's had the highest likelihood to not pass either test. Data show a larger disparity with the GED than the TASC. Specifically, only 57% (*N*=922) of African American's passed the GED while 71% (*N*=752) passed the TASC. The TASC scores are more in line with other racial groups on the TASC.

Across all ethnicities the likelihood of passing was higher for the TASC than the likelihood of passing the GED. Passers who identified as living in a rural area showed a higher likelihood of passing (84%; *N*=4,321), as compared to those who identified as living in an urban area (78%; *N*=6,727). Across most demographics and education variables more people took the GED, but the TASC saw a higher likelihood of passers, except for those passers who identified as having a disability or being a veteran.

Educational Characteristics

IEP recipients had a higher likelihood of passing the TASC (83%; *N*=45) than passing the GED (68%; *N*=104). Furthermore, Table 13 also illustrates that participants had a higher likelihood of passing the TASC as compared to the likelihood of passing the GED across all levels of education at entry. This same result is found for most levels of last grade completed. However, there are some data anomalies. Specifically, Grade 4 shows 100% likelihood of passing for both TASC (*n*=5) and GED (*n*=5). Grade 7 shows a higher likelihood of passing for the GED (82%; *N*=68), than the TASC (74%; *N*=30).

This table also demonstrates that as the education level attained prior to entry into an adult education program increases the likelihood of passing decreases, but not at a steady decline. This result could be influenced by the number of participants in each category. For example, under education at entry variables *Grade 1-5* and *no school* had higher percentages of passers (86%, *N*=31 and 91%, *N*=20, respectively) than variables *grade 6-8* and *High School Diploma/alternative OR High School Equivalency* (82%, *N*=94 and 84%, *N*=287, respectively). The same inconsistency is found for last grade completed. For example variable *Grade 1* and *Grade 6* have similar likelihood of passing (76%, *N*=1,165 and 75%, *N*=48, respectively).

Table 14 shows hours of classroom instruction and distance education for passers and non-passers. Overall, across tests the likelihood of passing goes down as the number of hours goes up. This result is observed in both classroom and distance education. A closer look shows that the likelihood of passing decreases much more rapidly as number of hours increases for GED, while the same is not found for TASC passers. This table illustrates that while more people took the GED the likelihood of passing the TASC was higher than passing the GED for both classroom and distance education.

Tables 15-18 display the educational functioning levels for passers and non-passers. Tables 15, 16 and 17 illustrate the likelihood of passing and not passing overall and per test for each academic area; Language, Reading and Math. Overall as the educational functioning level increase the likelihood of passing goes up. Similar to earlier findings, the likelihood of passing the TASC is greater than passing the GED, except for ABE Beginning Literacy where the likelihood of passing the GED is greater than the TASC, however, the *n* in this category is very small.

Table 18 compares the highest mean score for participants across the three years under review in each academic area. Independent samples *t*-test analysis was used to determine mean differences between overall (passers and non-passers), GED (passers and non-passers) and TASC (passers and non-passers). Although the educational functional level did not change for passers and non-passers for the overall, GED or TASC groups, the difference in means did show significance in all three academic areas.

For Language, all three groups (overall, GED and TASC) showed a significant difference between means. For the overall group, non-passers (M=10.59, SD=23.71) had higher mean score than passers (M=9.55, SD=13.83), $t(4169)=-2.25$, $p<.05$. The GED group had a similar result in that the GED non-passers (M=12.03, SD=25.94) had higher mean scores than GED passers (M=10.88, SD=22.40), $t(3720)=-1.97$, $p<.05$. A different result was discovered for the TASC group. TASC passers (M=7.60, SD=15.16) had higher mean scores than TASC non-passers (M=6.32, SD=13.63), $t(6313)=2.64$, $p<.05$.

For Reading, only the TASC group showed significant difference between means. More specifically, TASC passers (M=8.28, SD=16.34) had higher mean scores than TASC non-passers (M=6.59, SD=13.29), $t(1983)=3.74$, $p<.001$.

For Math, all three groups (overall, GED and TASC) showed significant differences between means in a positive direction. Overall passers (M=6.55, SD=11.88) had higher mean scores than non-passers (M=5.85, SD=12.60, t(15896)=2.90, p<.05. GED passers (M=7.22, SD=14.15) had higher mean scores than non-passers (M=6.28, SD=13.78), t(10119)=2.89, p<.05. TASC passers (M=5.55, SD=7.51) had higher mean scores than TASC non-passers (M=5.57, SD=6.34), t(6313)=4.25, p<.001.

Employment and Wage Outcomes

Table 19 indicates those who were employed at entry into the adult education program had a higher likelihood of passing a test across testing groups. Table 20 displays the average wage for first and third quarter after exit for each category. Overall the wages for passers were higher than non-passers. More specifically, the average wage for passers at first quarter after exit was $14,042, whereas the average wage for non-passers at first quarter after exit was $13,268. Wages increased for both passers and non-passers between first and third quarter ($15,740 and $14,243, respectively).

Research question one asks what demographic factors and learner characteristics HSE passers and non-passers have in common. Passers tend to be male, younger aged, White, live in rural settings, spent less time on classroom or distance education instruction, have higher educational functioning levels and make higher wages as compared to non-passers. While non-passers tend to be female, African American, live in urban settings, spent more time on classroom or distance education instruction, have lower educational functioning levels and earn lower wages as compared to passers.

Research Question 2: Is the pass rate different for each test (GED, TASC)?

Several analyses were conducted to explore this research question. First attention was given to those participants who took a HSE exam more than one time. Next the percentage of people who passed the HSE out of all those who received adult education services are explored. The difference between the proportions of people who took either test is then examined. Finally pass rates are explored within tests for participants who only took the GED and TASC exam.

Impact of Taking HSE Multiple Times On Pass Rates

Table 21 demonstrates that there were several students who took the HSE exam multiple times. Of the total population, 36% (*N*=15,898) took a HSE exam one time, whereas 9% (*N*=3,960) took the exam twice. There were four students who took the TASC twelve times, and one student who took the GED twelve times. When comparing pass rates over multiple tests, the analysis compared test takers at time of each test. For example, the analysis did not compare a student who was taking the GED for the twelfth time versus a student who was taking the TASC for the sixth time. Analysis revealed that the likelihood of passing after taking multiple tests decrease with the more times the test is taken. Table 21 depicts the decreasing pass rates. The table also shows that very few students took either test more than seven times.

Percentage of People Who Passed Out Of All Those Who Received AE Services

Table 22 illustrates that 36% (*N*=15,898) of the total population took a HSE exam within the three academic years under review. Table 23 shows that descriptive statistical analysis revealed that 29% (*N*=12,820) of the total population passed a HSE exam; while another 7% (*N*=3,078) took, and did not pass HSE exam. Analysis also revealed of the 29%, GED passers made up 17% (*N*=7.656), and TASC passers made up 12% (*N*=5,172).

Difference Between The Proportions Of People Who Took Either Test

A paired sample *t*-test was used to compare the proportion of those who took and passed the GED versus those who took and passed the TASC. The analysis revealed that there was a larger proportion of people who took and passed the GED (*M*=.48, *SD*=.50) compared to those that took and passed the TASC (*M*=.33, *SD*=.47), $t(15897)=22.29$, $p< .001$.

Examine Pass Rates Within Tests (GED and TASC) For Those Who Took One Of The Tests

For this analysis a paired samples *t*-test was conducted, comparing students who ever took the GED to those who ever took the TASC. The analysis revealed that more students took the GED (*M*=.23, *SD*=.42), than the TASC test (*M*=.14, *SD*=.35), $t(44201)=31.04$, $p<.001$. Furthermore a Chi-Square Test of Independence was performed to examine the relationship between students who only took the GED and those who only took the TASC. The relationship between these variables is significant, $x^2(4, 44202)=1{,}615.98$, $p<.001$. Additionally, Table 24 shows that descriptive statistic's revealed that of those who ever took a GED exam 76% (*N*=10,212) passed, whereas of those who ever took a TASC exam 82% (*N*=6,315) passed.

All analyses taken together indicate pass rates are different for each test. While more participants took and passed the GED test further analysis showed that when comparing pass rates within tests the TASC had a higher pass rate.

Research Question 3: Did the outcomes for HSE passers and non-passers change per HSE exam?

This question intended to examine both employment and wage outcomes. Upon review of the data it was determined that the employment variable could not be used for this research question. The employment variable within the dataset was collected at program entry and was

based upon participant self-report. In addition it is not clear if the missing data within the dataset for this variable is due to no wage, no data, or lack of matching data.

For this research question, participants are assigned to the following groups, those who: never took the GED or TASC test; only took the GED and did not pass; only took the GED and passed; only took the TASC and did not pass; and only took the TASC and passed. See Table 25 for descriptive statistics on these categories.

Impact of Wage Between Test Group Comparisons

A one-way between subjects ANOVA was conducted to compare the effect of wage in three conditions (never took, passed or not passed). This analysis produced three significant results. There was a significant effect of test group (only took TASC and passed and never took test) on first quarter average wage at the $p<.05$ level [$F(4, 19852)=2.46$, $p<.05$]. Post hoc comparisons using the Tukey HSD test indicated that the mean wage for the only took TASC and passed group (M=\$14,513, SD=\$13,098) was significantly different than the never took test group (M=\$13,755, SD=\$12,295). This result indicates that people who passed the TASC earned higher wages than those in the never took test group. However, there were no other significant differences among the testing groups for first quarter average wage.

There were two significant effects of test group on third quarter average wage at the $p<.05$ level [$F(4, 19852)=2.46$, $p<.05$]. Post hoc comparisons using the Tukey HSD test indicated that the mean wage for the only took TASC and passed group (M=\$14,513, SD=\$13,098) was significantly different than the took GED and passed group (M=\$13,789, SD=\$12,795). Post hoc comparisons also indicated that the mean wage for the only took TASC and passed group (M=\$14,513, SD=\$13,098) was significantly different than only took TASC and did not pass group (M=\$13,644, SD=\$12,350). These results indicate that people who

passed the TASC earned higher wages than those who took and passed the GED and those who took the TASC and did not pass. However, there were no other significant differences among the testing group for the third quarter average wage.

Impact of Wage Within Test Groups Comparisons

Table 26 shows descriptive statistics for quarter one and quarter three average wage within testing groups. Furthermore, a one-way between subjects ANOVA was conducted to compare the effect of wage on test in the following three conditions separately for GED and TASC: never took, passed or not passed.

The GED analyses produced two significant results. There was a significant effect of test group (took and did not pass GED and never took GED) on third quarter average wage at the $p<.05$ level [$F(2, 20803)=4.41$, $p<.05$]. Post hoc comparisons using the Tukey HSD test indicated that the mean wage for the took and did not pass GED group (M=\$14,527, SD=\$11,841) was significantly different than the never took GED group (M=\$15,611, SD=\$12,999). Post hoc comparisons also indicated that the mean wage for the pass GED group (M=\$15,628, SD=\$13,314) was significantly different than the took and did not pass GED group (M=\$14,527, SD=\$11,841). These results indicate that people who passed the GED are earning slightly higher wage than people who never took the GED and people who took and did not pass the GED have lower wages than both those who passed and those who never took the GED.

When exploring within test differences the TASC group analyses indicated three significant results. There was a significant effect of test group (passed TASC and never took test) on first quarter average wage at the $p<.05$ level [$F(2, 20148)=4.04$, $p<.05$]. There was also an effect of test group (took TASC and did not pass and never took TASC and took TASC and did not pass and passed TASC) on third quarter average wage at the $p<.05$ level [F(2,

20803)=5.97, $p<.05$]. Post hoc comparisons using the Tukey HSD test indicated that the first quarter mean wage for passed TASC group (*M*=$14,422, *SD*=$12,920) was significantly different than the never took TASC group (*M*=$13,735, *SD*=$12,343). Post hoc comparisons also indicated that the third quarter mean wage for those who took and did not pass TASC group (*M*=$13,796, *SD*=$11,261) was significantly different than the never took the TASC group (*M*=$15,539, *SD*=$13,053). Post hoc comparisons also indicated that the third quarter mean wage for those who took and did not pass TASC group (*M*=$13,796, *SD*=$11,261) was significantly different than the passed TASC group (*M*=$15,917, *SD*=$12,924). These results indicate that first quarter earnings are higher for those who pass the TASC then those who took and never passed or never took the TASC. However, the difference was not significant between those who passed the TASC and those who took and did not pass. For the third quarter earnings, results indicate that the people who passed the TASC are earning slightly higher wages than people who never took the TASC and are making about $2000 more than those who took and did not pass the TASC.

Impact of Quarter 1 versus Quarter 3 Average Wage Differences Between Test Group Comparisons

Table 27 shows the descriptive statistics for the wage difference between quarter one and quarter three average wage between testing groups. In addition, a one-way between subjects ANOVA was conducted to compare the effect of difference between first and third quarter wage on test in the following three conditions separately for GED and TASC: never took, passed, and not passed conditions.

There was one significant effect of the GED test group (passed GED and never took GED) on the difference between first and third quarter wage at the $p<.05$ level [*F*(2,

16313)=3.720, $p<.05$]. Post hoc comparisons using the Tukey HSD test indicated that the first and third quarter mean wage difference for the passed GED group (M=$2,516, SD=$9,960) was significantly different than the never took GED group (M=$1,977, SD=$10,402). These results indicate that those who pass the GED have larger differences between first and third quarter earnings when compared to those who never took the GED. Those who took and did not pass the GED have lower differences between first and third quarter wages than the other two groups.

There was one significant effect of the TASC test group (took and did not pass TASC and never took TASC) on the difference between first and third quarter wage at the $p<.05$ level [F(2, 16313)=4.61, $p<.05$]. Post hoc comparisons using the Tukey HSD test indicated that the first and third quarter mean wage difference for the took and did not pass TASC group (M=$640, SD=$9,327) was significantly different than the never took TASC group (M=$2,147, SD=$10,255). These results indicate that there is a larger difference between first and third quarter earnings for those who never took the TASC when compared to those who took and did not pass the TASC. However, this difference is greater than the difference for those who passed the TASC and this difference did not meet the level of significance.

Additional Analyses

Impact of Instructional Hours Within Test Group Comparisons

Rose (2009) and Reder (2010; 2014a) posit that as time spent on adult education instruction increases the long term economic benefits for participants also increase. The following analysis was conducted to determine if the same finding held true to Indiana adult education students. Table 28 shows the descriptive statistics for total classroom hours by testing group for both GED and TASC. Furthermore, a one-way between subjects ANOVA was

conducted to compare the effect of total instructional hours on test in the following three conditions separately for GED and TASC: never took, passed or not passed conditions.

All three conditions showed significance for the GED Group at the $p<.001$ level [$F(2, 44199)=274.07$, $p<.001$]. Post hoc comparisons using the Tukey HSD test indicated that the total instructional hours for those who took and did not pass GED group ($M=255$, $SD=424$) was significantly different than the never took GED group ($M=140$, $SD=315$). Post hoc comparison also indicated that the total instructional hours for the pass GED group ($M=93$, $SD=144$) was significantly different than the never took GED group ($M=140$, $SD=315$). The final post hoc analysis indicated that the total instructional hours for the passed GED group ($M=93$, $SD=144$) was significantly different than took and did not pass GED group ($M=255$, $SD=424$). These results indicate that those who pass the GED put in fewer instructional hours than either of other two GED groups. Those who took and did not pass the GED put in the most instructional hours out of the GED groups.

All three conditions showed significance for the TASC Group at the $p<.001$ level [$F(2, 44199)=113.80$, $p<.001$]. Post hoc comparisons using the Tukey HSD test indicated that the total instructional hours for those who took and did not pass TASC group ($M=255$, $SD=461$) was significantly different than the never took TASC group ($M=131$, $SD=292$). Post hoc comparison also indicated that the total instructional hours for the pass TASC group ($M=162$, $SD=321$) was significantly different than the never took TASC group ($M=131$, $SD=292$). The final post hoc analysis indicated that the total instructional hours for the pass TASC group ($M=162$, $SD=321$) was significantly different than took, and did not pass TASC group ($M=255$, $SD=461$). These results indicate that those who never took the TASC put in the least amount of instructional

hours. Whereas, those who took and did not pass the TASC were those who put in the most amount of instructional hours.

Impact of Instructional Hours Between Test Groups Comparisons

Table 29 shows the descriptive statistics for total classroom hours between testing groups. A one-way between subjects ANOVA was conducted to compare the effect of total instructional hours on test in the following conditions; never took GED or TASC, only took GED and did not pass, only took GED and passed, only took TASC and did not pass, and only took TASC and passed. Several conditions showed significance at the $p<.001$ level [$F(2, 43659)=82.74$, $p<.001$]. Post hoc comparisons using the Tukey HSD test indicated that the total instructional hours for those who took, and did not pass GED group (M=195, SD=315) was significantly different than the never took test group (M=137, SD=318). Post hoc comparison also indicated that the total instructional hours for the only took and pass GED group (M=93, SD=144) was significantly different than the never took test group (M=137, SD=318). The third post hoc analysis indicated that the total instructional hours for the only took and did not pass TASC group (M=222, SD=430) was significantly different than never took test group (M=137, SD=318). The fourth post hoc comparison indicated that the total instructional hours for the only took and pass GED group (M=93, SD=144) was significantly different then the only took and did not pass GED group (M=195, SD=315). The fifth post hoc comparison indicated that the total instructional hours for the only took and pass TASC group (M=138, SD=262) was significantly different then for those who only took and did not pass GED group (M=195, SD=315). The sixth post hoc comparison indicated that the total instructional hours for the only took and did not pass TASC group (M=222, SD=430) was significantly different then the only took and passed GED group (M=93, SD=144). The seventh post hoc comparison indicated that the total instructional

hours for the only took and passed TASC group (*M*=138, *SD*=262) was significantly different then the only took and passed GED group (*M*=93, *SD*=144). The eighth and final post hoc comparison indicated that the total instructional hours for the only took and passed TASC group (*M*=138, *SD*=262) was significantly different then the only took and did not pass TASC group (*M*=222, *SD*=430).

Taken together these results indicate that overall those who only took and passed the GED spent the fewest amount of hours toward study/education. While those who took and did not pass the TASC spent the most hours toward study/education. Those who never took the test put in less hours than either of the TASC test groups. Those who passed either test spent fewer hours than those who took and did not pass either test. The TASC testers spent more hours than the GED testers toward study/education.

Impact of Instructional Hours On Average Wage

For this analysis, a Person's r product-moment correlation coefficient was computed to assess the relationship between the total instructional hours and average wage at the first and third quarter after exit. Although analysis revealed statistically significant results, there was no relationship between time and wage. For example total instructional hours and average wage at both first and third quarter after exit were statistically significant and revealed no relationship, r=.052, n=20,151, p<.001 and r=.028, n=20,806, p<.001, respectively.

To explore the potential relationship between instructional hours and wage further, a Person's r product-moment correlation coefficient was computed to assess the relationship between the total instructional hours, average wage at the first and third quarter after exit and Test Group separately for GED and TASC. Analyses revealed many statistically significant

results, and no relationships. More specifically results indicate no relationship appears between hours of instruction and wage regardless of outcome of the test.

Summary

This chapter presented the results of data analysis based upon the three research questions. The full population of students accessing adult education services in Indiana were used for this study. For research question one: What are the demographic factors and learner characteristics that HSE exam passers and non-passers have in common? several demographic and learner characteristics were explored using descriptive statistics. Chapter Five will compare the results of this analysis to past research. Research question two: Is the pass rate different for each test (GED, TASC)? used several different analyses to explore pass rates. More specifically, descriptive statistics, paired samples *t*-tests and chi-square tests were conducted. All analyses taken together indicate pass rates were different for the two test groups. Chapter Five will explore this difference further.

A series of one-way ANOVAs were conducted for research question three: Did the outcomes for HSE passers and non-passers change per HSE exam (GED, TASC)? The focus of analysis for this question was on effect of test group (GED passers and non-passers and TASC passers and non-passers) on outcome (wage). Analyses examined both between and within test comparisons. Chapter Five will explore findings in more depth as well as connect to past research.

The major findings for this study were as follows:

- Research Question 1: What are the demographic factors and learner characteristics that HSE exam passers and non-passers have in common?

- Hypothesis 1: Older students will be more likely to complete and pass the HSE was rejected. Results indicate the majority of passers were between the ages of 18-24.
- Hypothesis 2: Data did not allow full analysis due to inconsistent use of data definitions.
- Other key findings:
    - More women than men participated in services, while more men passed a test.
    - The majority of passers were White, with African Americans being the least likely to pass a test overall. However upon further analysis, African Americans TASC pass rates are more in line with other racial groups.
    - The majority of passers spent less than 100 hours of classroom or distance education instruction. As the hours spent increased the likelihood of passing decreased.
    - The majority of passers were not employed at time of entry into the AE program, however those who were employed had a higher likelihood of passing.
    - Passers had higher earnings then non-passers.
    - Those who took the TASC had lower Educational Functional Levels as compared to those who did not take a HSE test and those took (passed and did not pass) the GED.
- Research Question 2: Is the pass rate different for each test (GED, TASC)?
    - The null hypothesis was rejected. Results indicate a difference in pass rates.
    - Overall more people took the GED test, thus more people passed the GED. However, upon within test analysis showed higher pass rates for the TASC test.

- Research Question 3: Did the outcomes for HSE passers and non-passers change per HSE exam?
    - Hypothesis 4 was accepted. There is a positive relationship between HSE passers and wage. Results indicate passers are making higher earnings than non-passers.
    - Hypothesis 5: unable to complete analysis on employment.
    - Hypothesis 6 was accepted. There is a negative relationship between HSE non-passers and wage. Results indicate non-passers are making lower earnings than passers.
    - Hypothesis 7: unable to complete analysis on employment.
    - Hypothesis 8: Null was rejected. Results indicated there is a difference of wage between tests for passers.
    - Hypothesis 9: Null was rejected. Results indicated there is a difference of wage between tests for non-passers.

Note: Unable to complete analysis on employment for Hypothesis 8 and 9.

CHAPTER FIVE:

DISCUSSION

Introduction

The purpose of this study was to analyze descriptive and outcome data collected on all students receiving services by IDWD funded adult education programs over a three-year timespan (2012-2015). No sampling was used in this study. There were two main areas of focus. The first focus was to examine the data specifically looking for factors and learner characteristics that impact high school equivalency (HSE) passers and non-passers. The second focus was to compare the results of the data through the lens of the HSE assessment change (from GED to TASC) in 2013-2014. Data on HSE pass rates and wage outcomes were compared for participants who completed the GED and those who completed the TASC. Findings are first discussed within the context of the purpose of this study tying results back to major themes discussed in Chapters One through Four. Second, the findings in the context of the current economic and social policies that are influenced by neoliberal philosophy and practices are discussed.

Who Is Being Served?

During the three academic years reviewed for this study (2012-2013, 2013-2014, 2014-2015) the Indiana Adult Education system served about 30,000 students per year (NRS, 2012-2014). During the three-year time period 15% of students served were youth aged 16-18, and another 15% were English language learners. The current dataset excluded both English language learners and anyone under the age of 18. Students in correctional facilities were also

excluded. The complete data set used for this study, therefore, contained 44,202 unique student records over the period of three academic years.

Rose (2009) and Greenburg et al. (2012) discussed the lack of research on program completers and non-completers. Sixty-four percent of the full population did not take an HSE exam during the three-year review period. Thus, instead of program completion, the current study concentrated on HSE test completion. Using a longitudinal approach, the current study focused on those who took a HSE exam and those who did not. Of those who took a test, further analysis examined passers and non-passers.

As stated above, a noteworthy finding within the current dataset was that 64% (N=28,304) of participants did not take an HSE exam during the three-year review period. There could be many reasons for students to enter adult education services and not have taken the HSE exam within the three-year time frame. Some example scenario's include:

- a student might have gained employment prior to taking the HSE exam;
- a student might have only needed to remediate to a certain level, such as going from a reading level of 6th grade to a reading level of 10th grade in order to retain their current position or to be promoted, thus not needing to obtain a HSE;
- a student might have entered adult education services with a high school diploma or equivalency and only needed remediation in their digital literacy skills (i.e. how to read and comprehend information using technology), thus not needing to obtain a HSE; or
- a student might still be working towards preparing for the HSE exam.

Another noteworthy finding is that about 12% (*N*=5,126) of the total population entered adult education services with a high school diploma or higher. Of those, about 8% (*N*=399) took

a HSE exam. Of those who took an exam 83% (*N*=333) passed, while the other 17% (*N*=66) did not pass. It is unclear why individuals who already obtained a high school diploma or higher would need to take a HSE exam.

Based upon Greenburg et al. (2012) suggestion to focus on profiles of learners as opposed to the situational, institutional or dispositional factors that impact persistence in adult education and literacy programs, the current study examined learner characteristics and demographic data. More specifically, in Indiana a student is more likely to pass a HSE exam if they are male, of younger age, White, live in a rural setting, spend less time on classroom or distance education, and have a higher literacy and numeracy proficiency (as defined by educational functioning level, not by last grade attended or education level at entry).

Factors That Impact Student Success

Several factors emerged from the current study as impacting student success. Across most demographics and education variables, more people took the GED, but the TASC saw a higher likelihood of passers, except for those passers who identified as having a disability or being a veteran. It is also noteworthy that IEP recipients had a higher likelihood of passing the TASC than passing the GED. Further research is needed to explore these findings more in depth.

Based upon the research reviewed for this study, age and parental status (Comings et al., 1999; Rose, 2009; Greensburg et al., 2012) were specifically explored. In addition, hours of classroom and distance education, literacy and numeracy growth, and identifying as White were found to be positive factors that impact student success. These areas are further discussed below.

Age and Parental Status

Many authors (Comings et al., 1999; Rose, 2009; Greensburg et al., 2012) posit that age positively impacts persistence in adult education and literacy programs. Specifically, Rose

(2009) comments that generally students in adult education programs "tend to be older students" (p. 281). Chapter Two offers a full discussion of how youth in adult education classrooms are growing. Comings et al. (1999) and Greensburg et al. (2012) found that older students tend to persist in adult education programming, citing the benefit of maturity that comes with age and the lack of having to care for small children. However, when examining students who took the GED multiple times Zhang and Patterson (2010) found that younger students aged 16-18 had the highest passing rate.

The current study on Indiana adult education students supports Zhang and Patterson's findings regarding age. More specifically, the current data indicate that younger students are more likely to take and pass a HSE exam. More specifically, 18-24 year olds made up 55% (*N*=7,046) of the passers. However, it is important to note that participants aged 18-24 made up 47% (*N*=20,814) of the total population.

As discussed in Chapter Four, parental status was not consistently collected within the InTERS database. Therefore, parental status for this study was defined as single parent status. Seventeen percent (*N*=7,581) of the total population identified as single parents. These students were more likely to not take a test within the three academic years reviewed. For those who did take a HSE exam, they were more likely to pass. This group passed the TASC at higher rates than the GED.

These two results, younger students are more likely to take and pass a HSE exam and only 17% (*N*=7,581) of students identified as single parents and those who took a test were more likely to pass, taken together could imply that the above reasoning put forth by Comings et al. (1999) and Greensburg et al. (2012) could also apply here. More specifically, the lack of small

children to care for and/or a present partner to assist in the care of children could explain the result of younger students being more likely to take and pass a HSE exam.

More research is needed to explain why younger students are passing the HSE at higher rates than older students. Could it be a result of an increase in younger students in the adult education classroom, as suggested by Perin et al. (2006)? Could it be due to younger students having less of a gap between formalized education and pursuing adult education?

Seat Time vs. Persistence

As part of the Longitudinal Study of Adult Literacy (LSAL), Reder (2014a) found that the more time students spent in adult education programs, the better the outcomes (as measured by earnings). More specifically, Reder found that spending over 100 hours of instruction lead to a higher likelihood of positive outcomes (Rose, 2009). Older studies encourage practitioners to rethink persistence, not by seat time or time a student's spends in the classroom, but to a more learner centric view (Fitzgerald & Young, 1997; Comings et al., 2000; Comings, 2007). While newer research highlights the LSAL finding, the current study supports the former.

More specifically, the findings of the current study indicate that as the number of hours spent on classroom and distance education increases the likelihood of taking a test decreases. In addition, only examining those who took a test, the same finding occurs. Specifically, as the number of hours spent on classroom and distance education increases the likelihood of passing the test decrease. This finding is supported by the philosophy of IDWD about the urgency of which adult education students need to increase their skills to gain or retain employment (IDWD, 2012; IDWD personal communication, 2014). More specifically, IDWD point out that many adult education students in Indiana are not able to engage in two- or four-year degree programs due to already having employment or personal responsibilities that require education/training

programs that can be completed quickly (IDWD, 2012). This topic will be discussed further in the section about neoliberalism below.

Literacy and Numeracy

While the current findings indicate the more education obtained prior (by looking at the variables *last grade completed* and *education level at entry*) to entry into an adult education program the more likely the student is to not pass the HSE exam. The educational functioning level variables are a better measure of literacy and numeracy as measured over time. This study examined the highest educational functioning level obtained over the three-year period. Findings indicate that the higher the educational functioning level the more likely a student is to take a test. Of the test takers, those with higher educational functioning levels are more likely to pass the HSE exam.

These results support a primary finding of the LSAL data (Reder, 2009a; Reder, 2010; Reder, 2014a; Reder, 2014b) that literacy proficiency matters. As an individual continues to increase her/his basic skills the long-term outcomes of this investment increase. Reder (2010) was able to show that the level and growth of literacy proficiency had a positive impact on wage. Furthermore, the current study shows that students who took the TASC test had higher passing rates as compared to those who took the GED. TASC test takers seemed to have more time to prep for the test, whereas the data show the GED test takers spent the lowest number of hours on classroom and distance education.

Although pass rates were higher for those who took the TASC compared to those who took the GED; the Educational Functional Levels were lower for TASC testers. More specifically, TASC tester's had lower educational functioning levels' as compared to GED passers, GED non-passers and those who never took a test. For example, looking at mean scores for math, GED passers had mean scores of 7.22 (*SD*=14.15) while TASC passers had mean scores of 5.55 (*SD*=7.51).

Ethnicity

Those who identified as White were the most likely to take and pass a HSE test. However it is noteworthy that this group made up 57% (*N*=25,022) of the total population and of those, 58% (*N*=14,517) never took a test during the time period under review. According to the 2016 U.S. Census data (n.d.) this group makes up the largest ethnic group for the state of Indiana. However, according to the Indiana Disproportionality Committee annual report (2011), there is a discrepancy in the rate of educational attainment between ethnic groups. More specifically, this Committee reviewed educational attainment data over a three-year period (2009, 2010, and 2011) and found across the three-year period, those who identify as Hispanic and African American have a higher rate of not attaining a High School Diploma as compared to those who identify as Asian and White. The current data reflects these statewide trends.

When looking at the passers and non-passers across tests those who identified as African American have the highest likelihood of not passing. However, upon deeper review of the data comparing GED testers and TASC testers, data show a larger disparity between the pass rates of those who identify as African American between the two tests. Specifically, those who identify as African American have higher pass rates on the TASC test (71%, *N*=752) compared to pass rates on the GED test (57%, *N*=922). The higher passing rate on the TASC puts this ethical group more in line with the passing rates of other racial groups (all within the 70-80% pass rate) on the TASC. Whereas, the pass rate of African Americans on the GED is lower than other racial groups (all within 60-80% pass rate).

Furthermore, those who identified as Asian or Hispanic have the highest likelihood of never taking a test. The Indiana Disproportionality Committee annual report (2011) shows

people who identified as Hispanic have the highest rate of not attaining a high school diploma or equivalency.

Pass Rates

The current study compared pass rates of the GED and TASC tests. This is the first study that looks at this type of comparison specifically using the full population of a state's adult education system. The long-term impact of the different HSE tests and the impact of changing HSE tests are not yet known. Conversely, what is known is that employment for individuals with less than a high school diploma is limited (NSC, 2013). More specifically, in 2016, the National Skills Coalition cites that 54% of jobs in the U.S. require more than a high school diploma, but less than a 4-year degree (NSC, 2016). Current data from IDWD supports that few occupations are available to individuals with less than a high school diploma (IDWD, 2017a). Therefore, understanding the impact of the test change for students, particularly how changing the test might impact employment and wage outcomes is critical.

Pass rates were explored in four different ways to determine if the pass rates differed between the GED and TASC and if so, how. The current study found that as the number of times students took the HSE exam increases, the likelihood of passing decreases. This result supports Zhang and Patterson's (2010) findings. More specifically, the authors looked at GED repeat examinees using data from 1,984 GED testing centers across the U.S., over a three-year period (2004, 2005, and 2006). They concluded that of the repeat examinee's two-thirds of the non-passers never passed the exam.

By examining the proportion of people who took either test and by examining the percentage of people who passed either test out of the full population, it was determined that more people took and passed the GED. However, this finding might be explained by the fact

that more people took the GED than the TASC. Therefore, the fourth analysis explored pass rates for each test only looking at individuals who took and passed each test.

This analysis revealed a higher pass rate for those who only took and passed the TASC, as compared to those who only took and passed the GED. Although more people took the GED exam, TASC testers could have benefited from being in the program longer, thus increasing their chance of passing. More specifically, this study only looked at GED testers over a year and a half period. Whereas, TASC testers could have started an adult education program in 2012 and not taken the TASC until 2015, increasing the likelihood of passing. Further analysis should be completed to consider time in adult education program and potential impact on pass rates (Reder, 2014a). This additional analysis could also contribute to the above discussion about time in program versus outcomes.

Understanding the impact of changing the HSE exam in Indiana from GED to TASC is important on many levels. As the market for adult education assessments increases and more states select more options for their students, it is important to know and understand how all of the HSE exams compare to each other. It is also important to understand how each test impacts the students. For example, using the current study, across most demographic and learner characteristics more students passed the TASC as compared to the GED, although more students took the GED. More research is needed to explore the characteristics of passers and non-passers for each test to determine if certain students are doing better on a certain test.

Increased Basic Skills, Increased Wage Potential

Human capital theory (Becker, 1962; Becker, 1992; Mincer, 1974; Rubb, 2006), many national public policy organizations (Jones, 2007; National Center for Higher Education Management Systems, 2009; National Skills Coalition, 2010a-b; 2013; Foster, 2012) and adult

education researchers (Tyler, 2003; Bingman, 2009; Rose, 2009; Reder, 2010, 2014 a-c) cite a positive connection between educational attainment and earnings. The findings of the current study support this connection in that the wages of HSE passers were higher than the wages of HSE non-passers. This finding remains the same when looking within each test.

Although TASC passers earned higher wages than GED passers, when comparing the differences between quarter one and quarter three wages, the passers regardless of which test was taken and passed, showed to be higher for passers than non-passers. Those who did not take a test within the timeframe examined earned wages in between the passers and non-passers. This finding supports the notion that individuals seek adult education services in Indiana for remediation that might not end in HSE attainment. In addition 17% (*N*=4,727) of those who did not take a test, already had a HSD/HSE or higher upon entry to an adult education program, some even having advanced degrees.

As discussed in previous chapters and above, Reder (2010, 2014a) through his work with the LSAL and others (Rose, 2009) found a positive relationship between hours of instruction and higher earnings. The current results do not support this finding. The GED passers have the lowest mean of total hours, which is under 100 hours and their wages are higher than all other groups except for TASC passers, which could be explained by inflation.

Overall those who passed earned higher wages and higher growth of wages than the non-passers and those who did not take a test. This finding indicates that the number of hours put into prepping for the HSE exam does not impact wages. However, passing or failure to pass the HSE does show an impact on wage. This finding supports Tyler's (2004) work on comparing wages of male high school dropouts. Tyler found that for male high school dropouts, those who attained a GED had faster growing wages than those who did not attain a GED.

The Bureau of Labor Statistics (U.S DOL, 2017) data also support the finding that HSE passers make more than those who have less than a high school diploma or equivalency. More specifically, the BSL data shows that high school graduates make almost $10,000 more annually than individuals who have less than a high school diploma or equivalency. The current study explored whether this finding held true for Indiana adult education students. While passing did impact wages, it was less than expected. Looking at first and third quarter wage differences then annualizing the difference, the current data indicate a $7,000 difference between those who passed and those who did not pass the HSE exam.

This discrepancy in Indiana data compared to the national trending could be due to time. The current study only reviewed first and third quarter wages after program exit. Other studies such as Tyler (2004) reviewed wage data for the first and 24th quarter after GED attainment. Rose (2009) reviewed 24 quarters of wage data; 14 before and 10 after program participation. Using the LSAL data, Reder (2014a) concluded it would take several years for the full impact of GED attainment on earnings to be noticed.

Limitations

Limitations to the current study include: narrow focus of research questions prevented full review of dataset and exclusion of special populations. The IDWD InTERS database is robust and can offer insight into longitudinal review of adult education students and programs successes and challenges. However, the current study only focused on three years' worth of data from this database. The current study also only focused on three research questions. While this narrow focus allowed for a full exploration of the research questions other interesting areas were not explored such as educational gain over time.

The exclusion of special populations from this study prevented additional analyses to be completed. More specifically students under the age of 18, identified as English language learners or in a correctional facility participating in adult education services in Indiana were excluded from this study.

Recommendations

Several recommendations for further analysis with the IDWD dataset are recommended. Specifically, using a control group, expanding the time window for wage analysis, reviewing the impact of the phased rigor increase for TASC, requiring certain fields within the InTERS database, including special populations in further analysis and continued study on the impact of allowing more HSE exams onto the market.

Rose (2009) cites the use of a control group to compare outcomes of those who took and passed/did not pass an HSE exam to their counterparts who never engaged in adult education services. Reder (2014a; 2014b) found individuals who participate in adult education programs have increased future earnings as a result of participating. Bingham (2000; 2009) also found rates of employment increased for participants after one year of program participation. The use of a control group would allow for Indiana and determine how program participation impacts earnings of those who never participated in services compared to those who did.

As noted earlier in this chapter, Tyler, (2004), Rose (2009) and Reder (2009b; 2010) all used longer time frames to examine the impact of HSE on wage. The current study only reviewed first and third quarter after exit over a three-year period. Continuing to review wages for the participants identified in this study for the 2015-2016 and 2016-2017 academic years would allow for further analysis to compare wage outcomes over time for HSE passers and non-passers.

In addition, inflation should be factored into comparing wages over time. The current study reviewed a three-year time period, where the first year and a half only the GED test was offered and the last year and a half only the TASC test was offered. Results indicate more students took the GED, but a higher percentage of students passed the TASC. This could be due to time; specifically, TASC students could have been in the program longer and benefited from additional prep time. However, other results of the current study are contradictory. Specifically, hours committed to prepping for the HSE was not found to have an impact on wages. Furthermore, the current study found that the more time students put into HSE study (either classroom or distance education) the less likely they were to take and pass a HSE exam. Further analysis is needed to determine if these findings would hold true over a longer period of time and to determine the impact of inflation on the current results.

One of the reasons cited by IDWD to conduct a Request for Proposals for the HSE Assessment was that the GED test was increasing its rigor all at once. When IDWD awarded the HSE Assessment contract to the creators of the TASC test, it was agreed that this test would phase in an increase of rigor over a three-year period. A possible unintended consequence of this decision found in the current dataset is that TASC testers had lower educational functioning levels than GED testers. Further study is needed to determine how the phased-in increase of rigor impacted pass rates and educational functioning level of students, if at all.

Rose (2009) suggests that a strong management information system could align student backgrounds and attendance with learning goals leading to more solid data that can inform evaluations of programs at the state and local levels. The InTERS database is a robust system with a plethora of data. However, many data points were not required, thus limiting the use of such data in analysis. For example, there were six data fields that pertained to receiving public

assistance. Only one of the fields has over 100 responses. It is recommended that Indiana review the InTERS data system and determine which data fields are useful and should be made mandatory for completion.

There is much research on the growing trend of youth in adult education classrooms (Rachel & Bringham, 2004; Perin, Flugman, & Spiegel, 2006; Brinkley-Etzkorn & Skolits, 2014). Over the three years reviewed for this study 15% of the total population served were 16-18 years old (NRS, 2012-2014). Another 15% were English language learners. Both of these populations and students participating in adult education services who are incarcerated were excluded from this study. Further analysis should be conducted looking at all three of the research questions for this study to determine the impact of the three excluded special populations on the findings of this study.

Two interesting findings that warrant further exploration are that 64% (*N*=28,304) of the total population did not take a HSE exam during the three-year period under review and 12% (*N*=5,126) of the total population entered adult education services with a high school diploma or higher. Further exploration on the characteristics of both sub-populations are needed. It would be interesting to know the specific reasons for entering adult education services when one already has a HSD or higher. It would also be of interest to know if those with advanced degrees/training are skewing the wage data of those in the never took test group

The last recommendation offered is more analysis on the impact of widening the HSE assessment market. More studies are needed to determine the impact on pass rates for all three HSE assessments: GED, TASC and HiSET. In addition more research is needed that focus' on students perceptions and experiences of the tests. Such as Brinkley-Etzkorn and Skolits (2014) work on student and adult educators perceptions and opinions on the 2014 changes to the GED

test. Lastly, research is needed to determine the impact of forced choice states compared to open option states. More specifically, a growing number of states (Zinth, 2015) are offering multiple HSE exams and allowing students to choose which exam to take. Further analysis is needed to determine the impact of students' choices on pass rates, repeat testing rates, and outcomes.

Influence of Neoliberalism in Indiana

The findings of the current study could be the result of unintended consequences of federal and state politics. In recent years, Indiana has engaged in decisions that some would advocate align with the neoliberal philosophy. The below discussion will give a brief overview of neoliberalism. Next key decisions from the Indiana legislature are presented. Finally, connections of neoliberalism to the findings of the current study will be made.

There is a vast body of literature regarding neoliberalism. An exhaustive review of that literature body is beyond the scope of this study. However, a brief description of the topic and its impact on adult education worldwide is warranted for the current discussion.

> Neoliberalism is "…a corporate agenda of privatization, deregulation and free trade; and a political program designed to enhance corporate power and markets over democratic decision-making and public goods" (Salt, 2000; p. 118).

Neoliberalism places emphasis on individual choice (Tobias, 2006), competition and the market place (Gouthro, 2009). Furthermore, this philosophy views governments that accept the responsibility of protecting its citizens health and well-being by way of creating financial and social need programs as a "…negative force that intrudes too much in the lives of citizens, stifling innovation, inhibiting choice and fostering uniformity" (Tobias, 2006, p. 4-5). Put more simply, Gouthro (2009) posits that neoliberalism supports the marketplace as shaping societal values and puts the responsibility of success on each individual.

Benjamin, White, MacKeracher, and Stella (2013) explain how this worldview impacts education, specifically adult education. Adopting neoliberal ideas shifts the focus of education from ". . . personal and social development towards a focus more interested in skill development and knowledge acquisition" (p. 29). Due to neoliberalism's belief that the educational institution is ". . . best suited to securing the interest of individuals in the marketplace" (Tobias, 2006, p. 4) it is a struggle to separate adult education and training from the political landscape (White, 2004, as cited in Benjamin et al., 3013).

Furthermore, Gouthro (2009) cites the climate of competition created by neoliberalism ". . . pits learners against one another. . ." while education becomes more valued for credentials and qualifications that prepare learners for the labor force (p. 158; Zepke, 2015). In this environment, students are considered as customers and educational institutions are expected to justify their services in 'marketised terms' (p. 48, Finnegan, 2016). The strong linkage between education and labor markets has resulted in education being more reactive to business (Allais, 2014). Therefore, industry and the private sector have become stronger voices (Volles, 2016). For example, in a review of lifelong learning discourse in the European Union, Volles posits that the private sector and industry ". . . have succeeded in persuading the European Union, and . . . international organizations, that there is a skills crisis" (p. 355). Such influence has resulted in government policies and practices that allow funding for corporate entities to steer the education system ". . . in the direction of an applied knowledge society/economy" (p. 103; Zepke, 2015).

In a critique of neoliberal governments, Finnegan (2016) offers that after forty years this movement has not delivered on the market reforms as promised. Despite this failure, neoliberalism still persists in educational policy (Torres, 2011; Allais, 2014). This residue is felt in the WIOA law, for example. More specifically, the Adult Education and Family Literacy Act

(AEFLA) is embedded in a federal workforce law (WIOA, 2014) as opposed to a federal education law. In addition, funding for family literacy activities are no longer incentivized as standalone activities. There must be a pairing with further employment or training. The performance indicators by which states are held accountable for continued federal adult education funding focuses on employment rate, median earnings, credential attainment, measurable skills gain, and effectiveness in serving employers (WIOA, §116, 2014). More specifically, for a high school equivalency diploma to count towards the credential metric, it must be paired with employment or enrollment in an education or training program leading to a postsecondary credential. The HSE diploma alone only counts towards the measurable skills gain performance metric (U.S. DOL, 2016b).

Indiana has made decisions that some would advocate align with the neoliberal philosophy. In 2011, the Indiana State Legislature passed a bill to move the responsibility of administering the State's Adult Education programming from the Indiana Department of Education to the Indiana Department of Workforce Development (IC 22-4.1-20, HB1340, 2011). Representative Behning who authored the bill justified this move by the following quote:

> The enactment of this bill is yet another step in moving us toward providing a high quality education to all Hoosiers and making the State of Indiana competitive in the new world economy, (Indiana House Republicans, 2011; para. 8).

Furthermore, IDWD (2012) issued a white paper addressing their philosophy and vision for adult education within the state. The foundation of this vision is built upon the belief of urgency for which adult education students need to increase their skills to gain or retain employment. In practice this is carried out as defining employment as the goal of all IDWD services, including adult education. Specifically, if students leave education or training programs prior to

completion, of the program or prior to obtaining a credential, for employment this is considered as a success.

The following year, the Indiana State Legislature passed a right-to-work bill (IC 22-6-6, HEA 1001, 2012). While this decision received much media attention (Indiana Department of Labor, n.d.; Davey, 2012; Greenhouse, 2012; Guyett, 2012; National Right To Work Committee, 2015; Turner, 2015) the Indiana Supreme Court upheld the law (Evans & Cook, 2014). This move made Indiana the first state to enact a right to work law within a decade (Davey, 2012). It is documented that Indiana has a history of being an at-will work state (Muhl, 2001). However, public employees were exempt from this notion (Muhl, 2001). Along with the decisions above, then Governor, Mitch Daniels reversed that designation (IC 4-15-2.2-20, 2012; Indiana State Personnel Department, 2013). More recently, Indiana is pursuing a federal waiver to require employment for some Medicaid recipients (Groppe, 2017).

Other forces within the State that could be seen as lending strength to a neoliberal movement within the state is the low unemployment rate (IDWD, 2017b) coupled with employer pressure to solve the workforce shortage. As such employers are being given a strong voice in advocating for specific education and training. In response, IDWD has undertaken a project to create a demand driven workforce system that is based upon market data (IDWD, 2017c).

Based upon the demand driven workforce system initiative and the WIOA law (2014), IDWD is only funding education and training for occupations that are in demand. For IDWD *in-demand* is based upon short and long term projected employment, growth openings, percentage change, real time labor market information and wage level (personal communication, 2017; IDWD 2017d).

Thus local workforce and adult education staff may be encouraging individuals to pursue employment and/or education/training in areas that are in demand. While the consumer may or may not desire employment or education/training in this area. Collectively, this approach can been seen as benefiting the market and feeding into neoliberal ideas instead of the humanistic foundation of adult education as personal development and social justice (Benjamin et al., 2013).

Anecdotally, the above fits nicely into the discourse of neoliberalism. However, much more research is needed to confirm the above connections between state policy and practice. Benjamin et al. (2013) cite as a key finding of their work, the disconnect between what government documents as occurring and what is actually occurring on the ground, which can create tension between policy and practice. For Indiana this disconnect can be observed through the current finding of 64% (*N*=28,304) of the total population of adult education students statewide did not take a HSE test during the three years under review for this study. This finding in conjunction with the current demand driven workforce system culture, may illustrate that employment is the goal of adult education and not necessarily the HSE diploma. It is important to note this result is not necessarily an issue with adult education learners, but might be a perceived issue of defining outcomes for the statewide adult education program.

Much more research is needed to understand the true forces at play. For example, according to the IDWD State Adult Education Director, while employment might be the goal, ensuring that the student understands how furthering her/his education and/or training can continue to move her/him into better positions or put the student on a pathway to a career is key for adult education practitioners in the field (personal communication, 2016)

The current study was a descriptive statistical study, focusing on the characteristics of learners in the Indiana Adult Education system. Further study is needed to fully explore the

dataset, as well as explore the political and program decisions that lead Indiana adult education to its current state and where Indiana adult education is going next.

Summary

Chapter Five discusses the findings of the current study in the context of the major themes from Chapters One through Four. Specifically, this chapter addressed who is being served by the Indiana adult basic education system, the learner and educational characteristics that impact student success, pass rates of the GED and TASC, the potential of increased basic skills leading to increased wages, limitations of the current study as well as recommendations. This chapter ended with a brief review of the neoliberal literature and tied this literature to the Indiana adult basic education system.

The purpose of the current study was to analyze the data collected for all students accessing adult education services through an IDWD funded adult education program. This study utilized three research questions and several hypothesis as a guide. Quantitative methods were used to analyze 44,202 unique student records, including descriptive statistics, cross tabulations, *t*-tests and ANOVAs. Two areas of focus were presented: examine the data for learner characteristics that influenced student success and compare the two high school equivalency tests used by Indiana during the three academic years under review.

This study is the first study to use a full population of a single state to compare learner characteristics (passers and non-passers) and pass rates for two different HSE exams. The present study contributes to the body of literature on adult education students and high stakes testing. While this study starts the conversation about adult education in Indiana, it also provides much opportunity and recommendations for further exploration.

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Appendix A

Tables

Table 1

Educational Functioning Levels and Equivalent Grade Levels

Literacy Level	Equivalent Grade Level
Beginning ABE Literacy	0-1.9
Beginning Basic Education	2-3.9
Low Intermediate Basic Education	4-5.9
High Intermediate Basic Education	6-8.9
Low Adult Secondary Education	9-10.9
High Adult Secondary Education	11-12

Table 2

Follow-Up Outcome Measures and Definitions

Follow-Up Outcome Measure	Definitions
Entered employment	Did the student obtain a job by the end of the first quarter after exiting the program?
Retained employment	Did the student remain in the job in the third quarter after exiting the program?
Receipt of a secondary school credential or its equivalent	Did the student obtain a High School Equivalence or High School Diploma?
Entered postsecondary education or training	Did the student enroll in a postsecondary education, occupational skills or apprenticeship training program?

Table 3

Academic Years to Study

Academic Year	Explanation
2011-2012	Data will not be used due to this being the first year of a new data system. Some unintended consequences from this first year was that not all data points were required fields in the system, thus there was inconsistent reporting.
2012-2013	Data will be used. This year will be used as the baseline year, as this was the year before the HSE assessment changed.
2013-2014	Data will be used. The HSE assessment changed in the middle of this year. The TASC assessment was implemented 1/14/14.
2014-2015	Data will be used. This year will also be used as a baseline year, as this was the first full academic year after the HSE assessment change.
2015-2016	Data will not be used due to the outcome variables needed for Research Question 3 would not be available until after analysis is scheduled to be completed.

Table 4

Learner Characteristic Variables for All Participants, Never Took Test, Took Test

Variables	N	Total %	Never Took Test		Took Test	
			n	%	n	%
Gender						
Female	22,995	52	15,014	65	7,981	35
Male	21,207	48	13,290	63	7,917	37
Total	44,202	100	28,304		15,898	
Age* (years)						
18-24	20,814	47	12,306	59	8,508	41
25-44	18,695	42	12,559	67	6,136	33
45-59	4,252	10	3,093	73	1,159	27
60+	441	1	346	79	95	22
Total	44,202	100	28,304		15,898	
Ethnicity*						
American Indian or Alaska Native	121	.3	82	68	39	32
Asian	998	2	884	89	114	11
Black or African American	8,111	18	5,580	69	2,531	32
Hispanic or Latino	2,401	5	1,967	82	434	18

Native Hawaiian or Other Pacific Islander	36	.1	25	69	11	31
White	25,022	57	14,517	58	10,505	42
Two or More Races	7,512	17	5,248	70	2,264	30
US Citizen	39,132	89	23,896	61	15,236	39
Veteran	225	.5	133	59	92	41
Disabled	5,770	13	3,959	69	1,811	31
Single Parent	7,581	17	4,905	65	2676	35
Live Rural	12,270	28	7,138	58	5,132	42
Live Urban	26,416	60	17,760	67	8,656	32
Low Income	14,557	33	9,347	64	5,210	36
Receiving Public Assistance	7,605	17	4,974	65	2,631	35

*Categories based upon the NRS defined categories (NRS, 2016)

Table 5

Age by Gender

			Age							
			18-24		25-44		45-59		60+	
Gender	N	%	N	%	n	%	n	%	n	%
Women	22,995	52	9,957	43	10,307	45	2,477	11	254	1
Men	21,207	48	10,857	51	8,388	40	1,775	8	187	1
Total	44,202	100								

Table 6

Education Characteristic Variables for All Participants, Never Took Test, Took Test

Variables	N	Total %	Never Took Test		Took Test	
			n	%	n	%
IEP	529	1	334	63	195	37
Education Status at Entry						
No School	68	.2	46	68	22	32
Grades 1-5	173	.4	137	79	36	21
Grades 6-8	3,075	7	1,978	64	1,097	36
Grades 9-12 (no diploma)	35,575	81	21,288	60	14,287	40
High School Diploma/alternate	3,850	9	3,507	91	343	9
OR High School Equivalency						
Some Postsecondary (no degree)	653	2	614	94	39	6
College or Professional degree	623	1	606	97	17	3
(Bachelors)						
Missing	185	.4	128	69	57	31
Total	44,202	100	28,304		15,898	
Last Grade Completed						
Grade 1	5,230	12	3,705	71	1,525	29
Grade 2	10	0	8	80	2	20
Grade 3	25	.1	17	68	8	32

Grade 4	36	.1	28	78	8	22
Grade 5	75	.2	60	80	15	20
Grade 6	280	.6	216	77	64	23
Grade 7	399	.9	276	69	123	31
Grade 8	2,431	6	1,481	61	950	39
Grade 9	5,348	12	3,378	63	1,970	37
Grade 10	8,142	18	4,684	58	3,458	42
Grade 11	11,535	26	6,511	56	5,024	44
Grade 12	4,119	9	3,386	82	733	18
Missing	6,572	15	4,554	69	2,018	31

Table 7

Number of Classroom Instruction and Distance Education Hours

Variables	N	Total %	Never Took Test		Took Test	
Classroom Hours			n	%	n	%
0-99	31,411	71	20,616	66	10,795	34
100-250	7,283	16	4,223	58	3,060	42
251-500	2,975	7	1,817	61	1,158	39
501-1000	1,600	4	1,006	63	594	37
1001-3000	862	2	588	68	274	32
3001-7000	68	.2	51	75	17	25
Missing	3	0				
Total	44,202	100	28,301		15,898	
Distance Education Hours						
.04-99	13,651	93	8,150	60	5,501	40
100-250	672	5	380	57	292	43
251-500	214	1	147	69	67	31
501-1000	89	.6	66	74	23	26
1001-3000	32	.2	26	81	6	19
Total	14,658		8,769		5,889	

Table 8

Educational Functional Levels All Participants, Never Took Test, Took Test

	Total Population		Never Took Test		Took Test	
Language	n	%	n	%	N	%
ABE Beginning Literacy	355	.8	337	95	18	5
ABE Beginning Basic Education	4,272	10	3,980	93	292	7
ABE Intermediate Low	6,583	15	5,462	83	1,121	17
ABE Intermediate High	11,709	27	8,044	69	3,665	31
ASE Low	7,467	17	4,233	57	3,234	43
ASE High	11,937	27	5,174	43	6,763	57
Missing	1,879	4	1,074	57	805	43
Reading						
ABE Beginning Literacy	92	.2	88	96	4	4
ABE Beginning Basic Education	900	2	863	96	37	4
ABE Intermediate Low	5,769	13	5,119	89	650	11
ABE Intermediate High	10,479	24	7,838	75	2,641	25
ASE Low	10,200	23	6,157	60	4.043	40
ASE High	14,374	33	6,755	47	7,619	53
Missing	2,388	5	1,484	62	904	38
Math						
ABE Beginning Literacy	30	.1	28	93	2	7

ABE Beginning Basic Education	1,654	4	1,568	95	86	5
ABE Intermediate Low	9,212	21	7,880	86	1,332	14
ABE Intermediate High	14,382	33	9,671	67	4,711	33
ASE Low	8,069	18	4,046	50	4,023	50
ASE High	9,258	21	3,776	41	5,482	59
Missing	1,597	4	1,335	84	262	16

Table 9

Employment at Entry

	N	Total %	Never Took Test		Took Test	
Employed at Entry			n	%	n	%
Yes	15,292	35	9,559	63	5,733	37
No	28,910	65	18,745	65	10,165	35
Totals	44,202	100	28,304		15,898	

Table 10

Wage Variables for All Participants, Never Took Test, Took Test

Wage Variables for All Participants					
Average Wage	N	*M*	*SD*	Min	Max
1st Quarter After Exit	20,151	$13,813.00	$12,419.00	$4	$139,860
3rd Quarter After Exit	20,806	$15,544.00	$12,996.00	$8	$141,160
Wage Variables for Participants Who Never Took a Test					
Average Wage					
1st Quarter After Exit	18,648	$13,857	$12,494	$4	$139,860
3rd Quarter After Exit	19,236	$15,650	$13,087	$8	$141,160
Wage Variables for Participants Who Took a Test					
Average Wage					
1st Quarter After Exit	8,120	$13,899	$12,600	$16	$139,860
3rd Quarter After Exit	8,665	$15,469	$12,933	$8	$115,460

Table 11

Educational Functional Level Mean Scores

Language	N	*M*	*SD*	*p*	Educational Functional Level
Never Took Test	28,304	7.61	18.19	.000	ABE Intermediate High
Took Test	15,898	9.75	20.64		ASE Low
Reading					
Never Took Test	28,304	9.42	21.10	.000	ASE Low
Took Test	15,898	10.57	21.73		ASE How
Math					
Never Took Test	28,304	8.50	20.17	.000	ABE Intermediate Low
Took Test	15,898	6.41	12.03		ABE Intermediate Low

Table 12

Learner Characteristic Variables, Passers and Non-passers

Variables	Passed either		Did Not Pass either		GED passed		GED Did Not Pass		TASC passed		TASC Did not pass	
Gender	n	%	n	%	n	%	n	%	n	%	n	%
Female	6,333	79	1,648	21	3,811	74	1,334	26	2,524	81	608	19
Male	6,487	82	1,430	18	3,845	77	1,131	23	2,648	83	535	17
Total	12,820		3,078		7,656		2,465		5,172		1,143	
Age* (years)												
18-24	7,046	81	1,462	17	4,041	77	1,204	23	3,012	85	536	15
25-44	4,905	80	1,231	20	3,063	76	947	24	1,843	79	486	21
45-59	809	70	350	30	516	65	280	35	293	72	112	28
60+	60	63	35	37	36	51	34	49	24	73	9	27
Ethnicity*												
American Indian or	31	80	8	20	20	77	6	23	11	85	2	15

Alaska Native												
Asian	86	75	28	25	33	61	21	39	53	80	13	20
Black or African	1,673	66	858	34	922	57	704	43	752	71	315	29
American												
Hispanic or Latino	320	74	114	26	197	70	83	30	123	76	40	24
Native Hawaiian or	8	73	3	27	8	73	3	27	0		0	
Other Pacific Islander												
White	8,954	85	1,551	15	5,454	82	1,227	18	3,507	86	589	14
Two or More Races	1,748	77	516	23	1,022	71	421	29	726	80	184	20
US Citizen	12,300	81	2,936	19	7,377	76	2,344	24	4,931	82	1,094	18
Veteran	71	77	21	23	34	79	9	21	37	74	13	26
Disabled	1,322	73	489	27	770	77	381	33	553	74	191	26
Single Parent	2,070	77	606	23	1,211	72	476	28	859	80	222	20
Live Rural	4,321	84	811	16	2,577	79	680	21	1,744	86	282	14
Live Urban	6,727	78	1,929	22	3,801	71	1,546	29	2,933	80	738	20

Low Income	4,187	80	1,023	20	2,476	75	823	25	1,713	82	382	18
Receiving Public Assistance	2,054	78	577	22	1,280	73	472	27	774	79	204	21

*Categories based upon the NRS defined categories (NRS, 2016)

Table 13

Education Characteristic Variables. Passers and Non-passers

Variable	Passed either		Did Not Pass either		GED passed		GED Did Not Pass		TASC passed		TASC Did not pass	
	n	%	n	%	n	%	n	%	n	%	n	%
IEP	149	76	46	24	104	68	49	32	45	83	9	17
Education Status at Entry												
No School	20	91	2	9	12	80	3	20	8	89	1	11
Grades 1-5	31	86	5	14	12	75	4	25	19	86	3	14
Grades 6-8	94	82	203	18	555	78	155	22	340	80	84	20
Grades 9-12 (no diploma)	11,495	81	2,792	19	6,831	75	2,240	25	4,671	82	1,030	18
High School Diploma/alternate OR High School Equivalency	287	84	56	16	203	81	49	19	84	84	16	16

Some Postsecondary (no degree)	30	77	9	23	17	71	7	29	13	81	3	19
College or Professional degree (Bachelors)	16	94	1	6	4	80	1	20	12	100	0	
Missing	47	83	10	17	22	79	6	21	25	81	6	19
Totals	12,820		3,078		7,656		2,465		5,172		1,143	
Last Grade Completed												
Grade 1	1,165	76	360	24	568	68	597	78	597	78	165	22
Grade 2	2	100	0				2	100	2	100		
Grade 3	6	75	2	25	3	60	3	60	3	60	2	40
Grade 4	8	100	0		3	100	5	100	5	100		
Grade 5	11	73	4	27	7	70	4	80	4	80	1	20
Grade 6	48	75	16	25	27	66	21	81	21	81	4	16
Grade 7	98	80	25	20	68	82	30	74	30	74	12	29
Grade 8	773	81	117	19	524	78	250	80	250	80	63	20
Grade 9	1,550	79	420	21	955	74	595	81	595	81	138	19

Grade 10	2,795	81	663	19	1,706	75	1,091	83	1,091	83	229	17
Grade 11	4,158	83	866	17	2,451	78	1,712	84	1,712	84	318	16
Grade 12	569	78	164	22	322	70	247	79	247	79	65	21
Missing	1,637	81	381	19	1,022	78	615	81	615	81	146	19
Total	12,820		3,078		7,656		5,172		5,172		1,143	

Table 14

Number of Classroom Instruction and Distance Education Hours, Passers and Non-passers

	Passed either		Did Not Pass either		GED passed		GED Did Not Pass		TASC passed		TASC Did not pass	
Total Hours	n	%	n	%	n	%	n	%	n	%	n	%
0-99	9,121	85	1,674	15	5,774	82	1,252	19	3,355	85	599	15
100-250	2,347	78	713	23	1,315	70	558	30	1,032	79	276	21
251-500	821	71	337	29	399	58	294	42	422	80	109	20
501-1000	356	60	238	40	134	38	221	62	222	70	97	30
1001-3000	166	61	108	39	34	20	135	80	132	70	56	30
3001-7000	9	53	8	47	0		5	100	9	60	6	40
Total	12,820		3,078		7,656		2,465		5,172		1,143	
Distance Education Hours												
.04-99	4,465	81	1,036	19	2,521	76	802	24	1,948	82	436	18

100-250	209	72	83	28	92	54	80	46	117	80	30	20
251-500	41	61	26	39	11	28	28	72	30	71	12	29
501-1000	7	30	16	70	2	11	16	89	5	50	5	50
1001-3000	5	83	1	17	1	33	2	67	4	100	0	
Total	4,727	100	1,162	100	2,627		928		2,104		483	

Table 15

Educational Functional Levels-Language, Passers and Non-passers

	Language											
	Passed Either		Did Not Pass Either		GED Pass		GED Did Not Pass		TASC Pass		TASC Did Not Pass	
	n	%	n	%	n	%	n	%	n	%	n	%
ABE Beginning Literacy	8	44	10	56	5	42	7	58	3	33	6	67
ABE Beginning Basic Education	118	40	174	60	48	28	122	72	70	50	69	50
ABE Intermediate Low	591	53	530	47	288	43	384	57	303	60	199	40
ABE Intermediate High	2,603	71	1,062	29	1,488	64	841	36	1,115	75	375	25
ASE Low	2,664	82	570	18	1,706	79	468	21	960	82	214	18
ASE High	6,237	92	526	8	3,657	89	442	11	2,585	91	256	9
Missing	599	74	206	26	464	70	201	30	136	85	24	15

Table 16

Educational Functional Levels-Reading, Passers and Non-passers

	Reading											
	Passed Either		Did Not Pass Either		GED Pass		GED Did Not Pass		TASC Pass		TASC Did Not Pass	
	n	%	n	%	n	%	n	%	n	%	n	%
ABE Beginning Literacy	1	25	3	75	1	33	2	67	0		1	100
ABE Beginning Basic Education	13	35	24	65	8	27	22	73	5	56	4	44
ABE Intermediate Low	273	42	377	58	112	31	246	69	161	48	172	52
ABE Intermediate High	1,692	64	949	36	919	55	760	45	773	71	318	29
ASE Low	3,193	79	850	21	1,979	73	718	27	1,215	80	300	20
ASE High	6,944	91	675	9	4,094	89	520	11	2,856	90	325	10
Missing	704	78	200	22	543	73	197	27	162	88	23	12

Table 17

Educational Functional Levels-Math, Passers and Non-passers

	Math											
	Passed Either		Did Not Pass Either		GED Pass		GED Did Not Pass		TASC Pass		TASC Did Not Pass	
	n	%	n	%	n	%	n	%	n	%	n	%
ABE Beginning Literacy	1	50	1	50	0		1	100	1	100	0	
ABE Beginning Basic Education	22	26	64	74	10	22	35	78	12	27	33	73
ABE Intermediate Low	654	49	678	51	307	39	481	61	347	57	266	43
ABE Intermediate High	3,357	71	1,354	29	1,977	65	1,090	35	1,380	74	477	26
ASE Low	3,448	86	575	14	2,207	82	470	18	1,243	85	212	15
ASE High	5,131	94	351	6	2,978	90	335	10	2,159	94	150	6
Missing	207	79	55	21	177	77	53	23	30	86	5	14

Table 18

Educational Functional Level Mean Scores, Passers and Non-passers

Language	N	*M*	*SD*	*P*	Educational Functional Level
Passed Either	12,820	9.55	13.83	.025	ASE Low
Did Not Pass Either	3,078	10.59	23.71		ASE Low
GED Pass	7,656	10.88	22.40	.049	ASE Low
GED Did Not Pass	2,465	12.03	25.94		ASE High
TASC Pass	5,172	7.60	15.16	.005	ABE Intermediate High
TASC Did Not Pass	1,143	6.32	13.63		ABE Intermediate High
Reading					
Passed Either	12,820	10.53	21.34	.631	ASE Low
Did Not Pass Either	3,078	10.75	23.29		ASE Low
GED Pass	7,656	12.05	24.04	.815	ASE High
GED Did Not Pass	2,465	12.18	25.61		ASE High
TASC Pass	5,172	8.28	16.34	.000	ABE Intermediate High
TASC Did Not Pass	1,143	6.59	13.29		ABE Intermediate High

Math					
Passed Either	12,820	6.55	11.88	.004	ABE Intermediate High
Did Not Pass Either	3,078	5.85	12.60		ABE Intermediate Low
GED Pass	7,656	7.22	14.15	.004	ABE Intermediate High
GED Did Not Pass	2,465	6.28	13.78		ABE Intermediate High
TASC Pass	5,172	5.55	7.51	.000	ABE Intermediate Low
TASC Did Not Pass	1,143	5.57	6.34		ABE Intermediate Low

Table 19

Employment, Passers and Non-Passers

	Employed at Entry		Not Employed at Entry	
	n	%	n	% Pass
Pass	4,653	81	8,167	80
Did Not Pass	1,080	19	1,998	20
GED Pass	2,678	74	4,978	76
GED Did Not Pass	925	26	1,570	24
TASC Pass	1,975	84	3,197	81
TASC Did Not Pass	383	16	760	19

Table 20

Wage Variables, Passers and Non-passers

Passers	N	M	SD	Min	Max
1st Quarter After Exit	6,617	$14,042	$12,848	$20	$139,860
3rd Quarter After Exit	7,095	$15,740	$13,165	$8	$115,460
Non-Passers					
1st Quarter After Exit	1,503	$13,268	$11,427	$16	$126,284
3rd Quarter After Exit	1,570	$14,243	$11,757	$36	$88,016
GED Passers					
1st Quarter After Exit	3,976	$13,781	$12,790	$4	$139,860
3rd Quarter After Exit	4,346	$15,628	$13,314	$8	$112,440
GED non-Passers					
1st Quarter After Exit	998	$13,279	$11,019	$16	$66,828
3rd Quarter After Exit	1,037	$14,470	$11,998	$68	$86,172
TASC Passers					
1st Quarter After Exit	2,646	$14,422	$12,920	$20	$139,860
3rd Quarter After Exit	2,753	$15,917	$12,924	$36	$115,460
TASC non-Passers					
1st Quarter After Exit	425	$13,644	$12,350	$136	$126,284
3rd Quarter After Exit	450	$13,968	$11,255	$36	$88,016
GED and TASC non-Passers. Those who took and did not pass both tests.					
1st Quarter After Exit	80	$11,138	$11,237	$144	$58,460

3rd Quarter After Exit	83	$12,902	$11,382	$368	$68,280

Table 21

Pass Rates, Multi test takers

	GED			TASC			Total population		
	n	% Pass	% did not	n	% Pass	% did not	n	% Pass	% did not pass
Time 1	10,121	63	37	5,777	65	35	15,898	64	36
Time 2	2,210	42	58	1,750	52	48	3,960	47	53
Time 3	699	36	64	721	41	59	1,420	38	62
Time 4	261	29	71	334	38	62	595	34	66
Time 5	111	25	75	158	40	60	269	34	66
Time 6	49	22	78	74	32	68	123	29	71
Time 7	21	29	71	40	33	68	61	31	69
Time 8	7	57	43	22	32	68	29	38	62
Time 9	3	0	100	11	27	73	14	21	79
Time 10	3	33	67	5	0	100	8	13	87
Time 11	2	0	100	4	0	100	6	0	100
Time 12	1	0	100	4	25	75	5	20	80

Table 22

Frequency Table, All Participants, Passers and Non-Passers

	Total Population	
	n	%
Pass	12,820	29
Did not pass	3,078	7
Never took test	28,304	64
total	44,202	100

Table 23

Pass Rates All Participants

Overall		GED		TASC	
n	%	n	%	n	%
12,820	29	7,656	17	5,172	12

Table 24

Frequency Table, GED and TASC Takers

	GED		TASC	
	n	%	n	%
Pass	7,656	76	5,172	82
Did not pass	2,465	24	1,143	18
Total	10,121		6,315	

Table 25

Descriptive: Average Wage Q1 and Q3

	Average Wage Quarter 1					Average Wage Quarter 3				
	n	*M*	*SD*	Min	Max	n	*M*	*SD*	Min	Max
Never took test	12,031	$13,755	$12,295	$4	$120,108	12,141	$15,598	$13,041	$16	$141,160
Only took GED and did not pass	998	$13,279	$11,019	$16	$66,828	1,037	$14,470	$11,998	$68	$86,172
Only took GED and passed	3,971	$13,789	$12,795	$28	$119,592	4,341	$15,630	$13,317	$8	$112,440
Only took TASC and	425	$13,644	$12,350	$1,361	$126,284	450	$13,968	$11,255	$36	$88,016

did not pass										
Only took TASC and passed	2,432	$14,513	$13,098	$20	$139,860	2,523	$15,966	$13,067	$36	$115,460

Table 26

Descriptive: Average Wage Q1 and Q3, Within Test Group Comparisons

	Average Wage Quarter 1					Average Wage Quarter 3				
GED	n	*M*	*SD*	Min	Max	n	*M*	*SD*	Min	Max
Never took	14,888	$13,876	$12,434	$4	$139,860	15,114	$15,611	$12,999	$16	$141,160
Took, did not pass	1,287	$13,185	$10,990	$16	$66,828	1,346	$14,527	$11,841	$68	$86,172
Took, passed TASC	3,976	$13,782	$12,790	$28	$119,592	4,346	$15,628	$13,314	$8	$112,440
Never took	17,000	$13,735	$12,343	$4	$120,108	17,519	$15,539	$13,053	$8	$141,160
Took, did not pass	505	$13,247	$12,204	$136	$126,284	534	$13,796	$11,261	$36	$88,016

Took, passed	2,646	$14,422	$12,920	$20	$139,860	2,753	$15,917	$12,924	$36	$115,460

Table 27

Descriptive: Difference Average Wage Q1 and Q3 Between Test Group Comparisons

	GED					TASC				
	n	*M*	*SD*	Min	Max	n	*M*	*SD*	Min	Max
Never took	11,983	$1,977	$10,402	$-129,804	$114,372	13,700	$2,147	$10,255	$-84,632	$114,372
Took, did not pass	1,078	$1,873	$10,366	$-40,968	$69,044	416	$640	$9,327	$-38,268	$44,296
Took, passed	3,255	$2,516	$9,960	$-55,412	$59,416	2,200	$1,919	$10,832	$-129,804	$76,940

Table 28

Descriptive: Total Classroom Hours, Within Test Group

	GED total hours					TASC total hours				
	n	*M*	*SD*	Min	Max	n	*M*	*SD*	Min	Max
Never took test	34,081	140	315	0	8,176	37,887	131	292	0	8,176
Took test, did not pass	2,465	255	424	0	6,104	1,143	255	461	3	4,720
Passed	7,656	93	144	0	2,680	5,172	162	321	0	6,104

Table 29

Descriptive: Total Classroom Hours, Between Test Group

	Total classroom hours				
	n	*M*	*SD*	Min	Max
Never took test	28,304	137	318	0	8,176
Only took GED and did not pass	1,937	195	315	0	4,488
Only took GED and passed	7,646	93	144	0	2,680
Only took TASC and did not pass	990	222	430	3	4,720
Only took TASC and passed	4,787	138	262	0	4,148