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Relationship Between Student Hope and Academic Achievement

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Table of Contents

Acknowledgements……3

List of Tables……...…6

Abstract……...…7

CHAPTER 1……..……8
Introduction……...….8

Background of the Problem…….….8

Problem Statement……...……11

Hypothesis……...…..12

Delimitations and Limitations……...…….12

Definitions of Key Terms…….……12

CHAPTER II……..……..14
Review of the Literature……..14

Background…….…….15

Summative Assessment……...…….21

Formative Assessment…….……22

Dynamic Assessment……..…..…23

SOLO Taxonomy…….…..…23

Northwest Evaluation Association…….……25

Carnegie Units…….….25

Socioeconomic Status Impacts……....26

Reframing Education……...28

Schools of the Future……...30

Hope……..33
Project-based Learning and Social/Emotional Growth……...……39

Hope Measurement……..41

The Hope Study……42

Summary……...43

CHAPTER

III……...…44

Methodology……...……..44

Subjects…….....45

Data Collection Procedures……..…45

Credibility, Reliability, and Validity……...46

Instrumentation……...47

Data Analysis…….....47

CHAPTER IV……..50

Results……..50

Summary……..55

CHAPTER V…….....56

Summary of Findings……..56

Considerations…….….59

Recommendations……60

References…….62

Appendix A-Confidentiality and Non-disclosure Agreement……...75

Appendix B-Population Distributions……..…..79

List of Tables

Table 1 Median Change in Hope for Demographic Categories…….52

Table 2 Median Change in Math for Demographic Categories……..…53

Table 3 Median Change in Reading for Demographic Categories……....54

RELATIONSHIP BETWEEN STUDENT HOPE AND ACADEMIC ACHIEVEMENT

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Abstract

Educational research is ubiquitous; however, agreement on best practices is not. Although parents, teachers, students, and communities have a vested interest in students' success, varying practices of what is taught, how it is taught, and to whom it is taught are still debated.

This study expands upon work done by Dr. Scott Wurdinger and Dr. Ron Newell in which their research shows that student hope and NWEA math and reading scores appear to be correlated. To expand upon those results, demographic information was used to see if a difference exists amongst dichotomized groups. The results indicate that the difference in medians are the same for all groups with the exception of the median change in reading between male and female students.

Keywords: Alternative assessment; assessment; education; formative assessment; hope; hope survey; standardized testing; summative assessment.

CHAPTER I

INTRODUCTION

Background of the Problem

One billion, seven hundred million dollars a year is spent on standardized testing programs in the United States (Ujifusa, 2012, n.p.). The academic assessment industry has become a lucrative business despite concerns regarding equity and the proper use and goals of assessments (Ravitch, 2016).

Students are subject to numerous required assessments throughout their academic careers. Assessment data is collected in schools in various forms and vary by school, district, and state requirements. Public education is currently guided by the results of standardized testing from a few disciplines, typically math and reading (Abbott, 2016). Given the financial and societal costs of standardized academic assessments and the lack of proven benefits, a paradigm shift regarding assessment is needed (Ravitch, 2016).

What we teach and how we teach our children reflects our values, and as our priorities and values change, so does our future (Dewey, 1973/1981). In schools, our societal priorities are demonstrated by what is taught and what is assessed, and the decisions we make today will forever impact the future of society.

As assessment represents societal priorities, it is obvious there would be many differing intense views regarding the content, equity, administration, and results of assessments. Debates concerning the proper use of assessment data and the goals of assessments are well documented (Abott, 2016; Newell & Van Ryzin, 2007; Ravitch, 2016; Robinson & Rose, 2010). Although the literature is clear regarding these issues, no

significant changes have emerged. Improving the existing procedures of academic testing has not occurred.

In some fields of human services, there is a shift toward examining and treating the whole person (Branch, 2014; Lee, 2013; Mount, 2014). Branch (2014) compares historical and current training programs used to train medical doctors and discusses the benefits and limitations of the programs. His research focused on the need to teach prospective medical doctors the importance of treating the whole person, which includes listening skills, expressing empathy, interviewing, commitment to values, and being selective in your responses. He emphasized the importance of experiential education with "observation, coaching, and feedback" (p. 71).

Similarly, the education field would benefit by viewing the student as a whole person when making decisions that impact youth. Screening students' psychological health using a survey at intervals could provide important information regarding the whole student. For example, "hope is related to academic achievement across all grade levels" (Robinson & Rose, 2010, p. 39). Research completed by Robinson and Rose (2010) supports this idea by demonstrating the correlation between hope and academic achievement for college students. Furthermore, their findings suggest that domain specific hope surveys are better predictors of achievement than a general hope survey.

The Hope Survey (2018), put together by Newell and Van Ryzin (2007), is a screening tool that measures "student perceptions of autonomy, belongingness, goal orientations and engagement in learning" (para. 2). Hope Survey is made up of various self reporting surveys of students, with scales that were developed at major universities and have established reliability and validity through publications. (Hope Survey, 2018).

The Hope Survey has been and continues to be used by numerous public charter schools, some of which are in Minnesota (S. Wurdinger, personal communication, January 12, 2018). The survey results have varied based on the intentions of each school; however, specific recommendations for these testing sites were developed based on their results of the Hope Survey.

The Hope Survey was developed to assess the school framework as it could or would assist in development of a stage/environment fit for adolescent development. A positive environment for the adolescent stage of development would include autonomy, belongingness, and a sense of competency, measured here by mastery goal orientation. Hope is considered to be a result of establishing the nurturing environment, and is considered to be a major outcome (Dr. Ron Newell, personal communication, November 1, 2022).

EdVisions, an organization that works with charter schools to support developmental growth of adolescents by creating an individualized culture with strong, supportive relationships (Newell, 2002), uses the Hope Survey in their schools. The process of administering the Hope Survey begins by obtaining baseline data for students using an online format.

EdVisions charter schools' hope survey is typically completed by students at the beginning and end of the school year to determine changes in hope scores. After the collection of data, schools receive a report that explains the data, which is further discussed via video conference or on-site visits by survey staff to answer questions or help with goal planning. Subsequent years' data is collected to assemble longitudinal data as well as further assistance from survey staff (Hope Survey, 2018).

Although the survey is designed to afford schools a method of measuring students' dispositions toward achievement (Hope Survey, 2018), it is likely the data will provide more information over time. For example, if a student's traditional summative assessment score is average and a subsequent score is extremely low, interpretations may omit the score because it is not valid in assessing growth or knowledge. The hope survey, given the same results, would not exclude the data or be inaccurate; the fact that the student either dropped in "hope" or didn't try at all would both indicate a problem with the "whole student."

Traditional academic assessments consume valuable time and financial resources in schools (Jochin & McGuinn, 2016). The hope survey takes between 15 and 30 minutes to complete. If there is a correlation between hope and academic growth, as measured by a standardized test, resources could be preserved by discontinuing standardized testing.

Dewey's (1897) pedagogical creed opines, "Education, therefore, must begin with a psychological insight into the child's capacities, interests, and habits" (n.p.). Although this thought is over a century old, very little progress has been made in the educational system to address these themes.

The educational resources of time and money are drained by traditional assessment costs, assessment administration, test preparation, and assessment interpretation. Furthermore, educational staff morale is affected by testing outcomes, legislation tied to these outcomes, and a lack of resources to address student needs (Ravitch, 2016).

Problem Statement

Educational reform practices attempt to solve the challenges of educational assessments by adjusting current systems. As these modifications have not alleviated complications of assessing students' knowledge, entirely new concepts must be investigated.

The purpose of this study was to compare students' hope survey data with their academic progress scores and demographic information to investigate if differences between the groupings exist. The principal measurement used for this non-parametric study is the students' socioeconomic status as determined by free and reduced lunch data. Additional data examined are the academic assessments, the change in hope scores from 2017 to 2018, and demographic information.

Hypotheses

This study contains two hypotheses:

1. The null hypothesis for this non-parametric study is that the distributions of the populations are equal for all comparisons.
2. The alternative hypothesis would be that one or more of the distributions are not equal.

Non-parametric demographic data includes gender, ethnicity, socio-economic status, and special education services. Categories for the comparison include median change in hope scores, median change in reading scores, and median change in math scores.

Delimitations and Limitations

This research includes comparing historical academic and hope survey data; consequently, only schools using a standardized assessment and the hope survey can be utilized. Furthermore, the sample is limited to a subsection of public charter schools in the Midwest, a total of six schools are included.

As historical data are used, specific testing environments and other unknown contributing factors may have influenced either assessment's results.

Definitions of Key Terms

Alternative Assessment

Methods used to assess student knowledge that are not typically used in a classroom.

Assessment

An evaluation of someone's knowledge, ability, mental health, or judgment.

Education

A body of knowledge acquired or expected to be acquired.

Formative Assessment

This phrase has many interpretations. For the purposes of this study, formative assessment specifically refers to activities teachers use to evaluate lessons' fidelity and use it to make adjustments or changes in their planning.

Frame

A set of assumptions and ideas.

Stage/Emvironment Fit

A school environment that provides necessary developmental resources and frameworks that are needed for a particular stage of development, such as adolescence.

Standardized Test

A test that is given and scored in a consistent manner.

Summative Assessment

A test that is given at the end of a training, such as a chapter, unit, or course to determine if the material is learned.

CHAPTER II

REVIEW OF THE LITERATURE

The testing practices used in the education system today began after World War I. With the hope of "rating intelligence and sorting out capacities" (Hoffmann, 1964/2003, p. 7), the United States Army developed batteries of assessments. By the 1920s, schools and colleges began to use similar tests for applicants, and true-false quizzes once students were admitted in lieu of the traditional essay examinations. By the second World War, these assessment techniques were ubiquitous, and the administration and production of tests developed into a lucrative business (Hoffmann, 2003).

In addition to assessment requirements, students must meet credit requirements for graduation and entrance into college. A Carnegie Unit, which is used to measure credits, is equal to a minimum of 120 hours of class time (Outhouse, 2012).

Topics researched to prepare for this study include standardized testing issues and consequences, goals of education, summative and formative assessment models, and the history of the Carnegie Unit. Additionally, socioeconomic status impacts on education and possible paths for reframing educational systems were considered. Research centered on hope, specifically in the academic realm, was studied.

This study contains two hypotheses:

1. The null hypothesis for this non-parametric study is that the distributions of the populations are equal for all comparisons.
2. The alternative hypothesis would be that one or more of the distributions are not equal.

Background

The purpose of education changes based on government, business, culture, and community objectives (Ali, 2017; Bass, 1997; Carpenter & Hughes, 2011; Hopkins, 2013). According to Hopkins (2013), "the overarching goals and purpose of education as they are perceived are often murky" (p. 122). Governments view education as an "investment to promote economic competitiveness" (p. 122) while business interest in education concerns the training of the future workforce, or human capital (Ali, 2017; Hopkins, 2013). Taxpayers value education as a means to ensure students become contributing members of society. Numerous nations have recently focused on sustainable well-being "as a central vision and overarching purpose for education" (Hopkins, 2013, p. 123).

In 1981, the National Commission on Excellence in Education (1983) was created to assess the quality of education in the United States and to offer recommendations. The commission assessed the quality of learning and teaching in private and public schools including colleges and universities. Additionally, the commission studied the relationship between high school achievement and admission requirements for college; identified programs that resulted in college success; compared the American education facilities with those of other advanced nations; assessed the impact of social and educational modifications on education; and determined barriers or problems needing to be addressed.

Revisiting this historically significant report helps us understand the persistent controversy over assessing all aspects of public education in the United States. The report begins by justifying its work through identifying business needs, competition with other

nations, national defense, moral and democratic society, and employment requirements. Then the report summarizes comparisons between American schools and other industrialized nations, previous generations' achievement, course selection, and the need for remedial programs. An analyst in the report was quoted to emphasize the state of affairs:

> Each generation of Americans has outstripped its parents in education, in literacy, and in economic attainment. For the first time in the history of our country, the educational skills of one generation will not surpass, will not equal, will not even approach, those of their parents. (p. 11)

At the same time, the report does specify that:

> The average citizen today is better educated and more knowledgeable than the average citizen of a generation ago-more literate, and exposed to more mathematics, literature, and science. . . . [However,] the average graduate of our schools and colleges today is not as well-educated as the average graduate of 25 or 35 years ago, when a much smaller proportion of our population completed high school and college. (p. 11)

Thus, the writers contend, more people are learning, but those who graduate learn less than previous generations.

The committee's findings are categorized into content, expectations, time, and teaching. Each category includes observations as well as recommendations.

Unclear goals and diluted curricula, as well as extensive student choice, negatively impact the content of education. Specific guidelines are recommended for completion of a diploma including four years of English, three years of math and science,

three years of social studies, and one-half year of a computer science course. Additionally, at least two years of a foreign language is recommended for those planning to attend college.

Deficiencies in expectations are outlined as decreases in homework assigned, low requirements for graduation, student choice, removal of requirements for college, lack of curriculum created by experienced teachers and scholars, lack of challenging materials, and a decrease in expenditures for instructional materials. Proposed actions to address expectations include using grades as evidence of knowledge, increasing admission requirements for college, required standardized testing, and many suggestions with respect to textbooks and supplementary materials.

Time addresses the school calendar, hours of instruction, classroom management, and teaching of study skills. A few of the recommendations to contend with include an increase in homework assignments for high school students, effective study skills to be introduced in early elementary classes, extended school day and extended school year, improved classroom management to decrease inefficient use of time, and eliminate the advancement of students based on age.

Findings regarding teaching are plentiful and difficult to negotiate. “Too many teachers are being drawn from the bottom quarter of graduating high school and college students” (National Commission on Excellence in Education, p. 30). Teacher preparation programs focus on educational methods which reduces the time available for content courses. Low teacher pay requires many teachers to work a second job. Teacher shortages, particularly in the math and science fields, create a vacuum that is filled with unqualified staff. “Half of the newly employed mathematics, science, and English

teachers are not qualified to teach these subjects; few than one-third of U.S high schools offer physics by qualified teachers" (p. 31).

Guidance from the committee includes increased teacher pay as well as grants and loans to attract quality teacher candidates. Furthermore, recommendations regarding teacher experience were given: new teachers, experienced teachers, and master teachers. Master teachers should help with the development of curriculum, teacher candidate programs, and supervising probationary teachers.

As the National Commission on Excellence in Education (1983) report reveals, debates regarding what is taught, what is assessed, how it is assessed, and the use of test results are well established. Critiques of assessment written in 1962 have been republished in 2003, and the critiques are still relevant to current testing milieu (Hoffmann, 1964/2003; Ravitch, 2016).

Test reliability issues create difficulties with test design. Reliability is affected by "the consistency with which a test's items measure whatever they're measuring" (Popham, 2001, p. 46). Additionally, reliability is impacted by score-spread; higher score-spreads increase test reliability. In order to generate a high score-spread and minimize the length of tests, content that all students learn and know is not tested (Popham, 2001).

Test manufacturers design assessments used to assess and/or predict knowledge, characteristics, potential, and skills. To create statistically sound assessments, test manufacturers design exams using results from examinees that exhibit the desired outcome to determine the correct answers. This construction style can create a disadvantage for an examinee with advanced or superior knowledge (Hoffman, 2003).

Testing can have unintended damaging consequences, particularly if the instrument relies solely on multiple choice or true and false type questions. Unwarranted praise or promotions, lack of recognition, and morale are affected by the misuse of assessments in school and the work environment (Hoffmann, 2003; Ravitch, 2016).

Although essay type assessments may show more about a student's ability or skills, they are fallible: If typewritten, students who type fast will have an advantage; students' spelling, grammar, and handwriting affect scores; nonuniformity in grading impacts scores; student interest and motivation have great influences learning; and the halo effect skews grading scales (Hoffmann, 2003).

Jacques Barzun, as quoted in Hoffman (2003), wrote, "The fate of the nation is affected by what tests do, first, to the powers of those who are learning, and, second, to the selection the tests make among the potential leaders of thought and discoverers of new knowledge" (p. 8). Using test results as criteria for decision making and accountability has become the norm. This has resulted in misidentification of inferior schools, pressure on educators, narrowing of curriculum, and cheating (Popham, 2001; Ravitch, 2016).

Standardized test scores are used to evaluate the quality of schools worldwide, a function tests were not designed to measure. "Standardized achievement tests should not be used to evaluate the quality of students' schooling because the quest for wide score-spread tends to eliminate items covering important content that teachers have emphasized and students have mastered" (Popham, 2001, p. 48). Furthermore, useless questions will remain if they produce score spread. Lastly, and entirely out of school systems' control, students' socioeconomic status and inherited academic aptitudes impact scores (Jackson,

2011; Popham, 2001; Ravitch, 2016). The fact is most tests only predict the likelihood of getting similar results on subsequent tests (Wurdinger, 2018).

Education is about personal responsibility, good citizenship, and learning good habits. Traditional testing formats cannot measure originality, character, industriousness, persistence, diligence, courage, imagination, honesty, integrity, creativity, kindness, or other skills that enhance life (Newell, 2003; Newell & van Ryzin, 2009; Outhouse, 2012; Ravitch, 2016; Thousand et al., 2007; Trilling & Fadel, 2009; Wagner, 2012; Warren, Mitten & Loeffler, 2008; Wurdinger, 2016). More importantly, with rapidly changing workforce needs, predicting vital academic particulars is impossible (Harlen, 2007; Ravitch, 2016).

Assessment trends change, and in recent decades there has been a focus on differentiating instruction and assessment (Thousand, Villa & Nevin, 2007; Ravitch, 2016). The most effective method of instruction, based on research data, is formative assessment (Andres et al., 2021; Popham, 2008). At issue, however, are the varying definitions, teacher training programs, and teachers' perceptions of their classroom practices (Black & Wiliam, 1998).

Heath (1994) described characteristics that need to be developed for people to be successful in life: joy of learning, ability to learn independently, self-confidence, curiosity, sensitivity, and compassion. Heath also discussed academic grades as a result of disposition and character and outlines the development of those characteristics including organizing and planning, cooperation and teamwork, work ethic, self-confidence, self-esteem, and responsibility.

"Traditional secondary schools do not have a sterling track record when it comes to motivating and engaging students in learning" (Newell & Van Ryzin, 2009, p. 25). For students to be successful, they need autonomy and the senses of belonging and competence. Autonomy allows for choice and self-management, belongingness is a protective factor for stressful events, and competence influences determination and persistence, all of which impact psychological development (Newell & van Ryzin, 2009).

Summative Assessment

Summative assessment practices have been used for over a century, and still variations in its definition exist. Harlen (2007) wrote, "Summative assessment is carried out for the purpose of reporting the achievement of individual students at a particular time" (p. 16). Popham (2008) stated, "When a mature, final-version educational program is evaluated in order to make a decision about its continuation or termination, this constitutes summative evaluation" (p. 3).

Ishaq et al. (2020) studied summative assessment and its effects in education, with an emphasis on Pakistani students in their English coursework. The researchers listed advantages and disadvantages of summative evaluation. Some advantages included are "It evaluates the performance of educational programs and tracks progress across priorities and targets" and " boosts confidence and motivates the person to build a learning environment and encourages them" (p. 2). However, as the article states in the list of disadvantages, "Repeated testing for low-level students decreases self-assurance and self-esteem. The summative assessment outcomes harm low achievers" (p. 3). Another drawback noted in the study was that the summative assessment is given after the lesson has been completed and does not allow for intervention prior to judgment. In

Pakistan, a review of 29 discrete reports and policies "had shown that there is no validity, trustworthiness, and credibility in the public examination and assessment system" (Ishaq et al., 2020, p. 4).

Formative Assessment

Of the assessment practices currently evaluated, formative assessment has the most evidence of increasing student learning (Black & Wiliam, 1998; Popham, 2008) and students' perception of formative assessment is not substantially impacted by the learning environment changes necessitated by Covid-19 (Andres, Contelles, & Orti, 2021). Although the evidence shows positive results, varying definitions of formative assessment and terms used to describe the process create difficulty in research. According to Black and Wiliam (1998), "formative assessment does not have a tightly defined and widely accepted meaning" (p. 7).

Buldu (2010), Box et al. (2015), and Yan and Cheng (2015) quoted Black and Wiliam's 1998 article to define their use of formative assessment as "all activities undertaken by teachers and by children that provide information for use as feedback to modify teaching and learning activities" (p. 1440). Similarly, Cauley and McMillan (2010) defined formative assessment as "a process through which assessment-elicited evidence of student learning is gathered and instruction is modified in response to feedback" (p. 1). Tsai et al. (2015) stated that formative assessment "is mainly used during the learning process to provide learning feedback and enhance learning performance" (p. 260).

In addition to producing academic gains, formative assessment techniques impact student motivation (Andres et al., 2021; Cauley & McMillan, 2010). Neither grades nor

praise influence the commitment and interest of students as does task-specific feedback. Although self-reflection and peer feedback can benefit learning, formative assessment requires an impact on teacher decision making and action (Cauley & McMillan, 2010).

In the forward of Hoffmann's (2003) text, Jacques Barzun stated, "A pupil does not really know what he has learned till he has organized and explained it to someone else" (p. 11). This is an example of formative assessment if the student's explanation is used in the design of instruction. Popham (2008) paraphrased Scriven's essay by writing, "If the quality of an early -version educational program is evaluated while the program is still malleable . . . this constitutes formative evaluation" (p. 3).

Dynamic Assessment

Dynamic Assessment, another term used to describe similar pedagogical practices, is defined as "the dialectical unity of instruction and assessment" (Poehner & Lantolf, 2010, p. 312). Poehner and Lantolf's (2010) article described Vygotsky's distinction between intentional, goal-directed educational development and everyday spontaneous development. Vygotsky felt educational development should be "mediated by dialogic interaction in the zone of proximal development" (Poehner & Lantolf, 2010, p. 315). The similarity between definitions of formative assessment and dynamic assessment are clear.

SOLO Taxonomy

The structure of observed learning outcomes, SOLO taxonomy, has two phases. The quantitative phase indicates knowledge that is discrete whereas the qualitative phase shows an understanding of the interconnectedness of the knowledge. These phases are separated into five hierarchical verbs based on cognitive complexity: prestructural,

unistructural, multistructural, relational, and extended abstract (Svensater & Rohlin, 2022).

> Biggs, Collis, and Edward (1981) describe two tasks students must learn. First he has to learn some data, such as facts, skills, concepts, or problem-solving strategies. Second he has to use those skills, facts, or concepts in some way, such as explaining what he has learned, or solving a problem, or carrying out a task, or making a judgment. (p. 3)

Using learned skills and knowledge examples include "making judgments, resolving conflicting accounts of events, interpreting a poem or a map, making a decision, or solving a problem" (Biggs, et al., 1981, p. 3).

Briggs et al. (1981) describe the difficulty in computing grades due to the quantity of responses, quality of responses, and their interconnectedness. Quantity may represent the number of facts a student knows, whereas quality would indicate an understanding of when, where, and how to use those facts. Since quantitative knowledge is a prerequisite of qualitative skills, summative assessments are a good indicator of learning; however, they are not a complete picture of learner understanding.

Svensater and Rohlin (2022) stated, "Formative assessment with emphasis on feedback has been linked to developmental purposes of assessment, whilst summative assessment is assumed to focus on judgemental and quality assurance purposes" (p. 1). Blending summative and formative assessments, using the SOLO taxonomy, the researchers concluded there is an interdependence between summative and formative assessment and that the combination meets the needs of educational institutions and the needs of students.

Northwest Evaluation Association

Northwest Evaluation Association (NWEA) has developed a computer-based dynamic assessment tool that adjusts question difficulty as the test progresses. Measures of Academic Progress (MAP) scores are calculated for each discipline assessed and can be used to compare between years or within years to show what has been learned. Additionally, NWEA has developed comparative data that can be used to inform instruction (Thum & Hauser, 2015).

The Rasch Unit (RIT) scales are "stable, equal interval scales that use individual item difficulty values to measure student achievement independent of grade level" (NWEA, 2017, np). RIT scores range from about 100 to 300. Although the scores show growth independent of grade level, charts are created to indicate the expected score and expected growth for grade levels as well as alignment with other standardized tests. These expected values change as the normed data changes, but are updated regularly (NWEA, 2020).

Carnegie Units

The origination of Carnegie units lacks educational value. Steel magnate Andrew Carnegie created the Carnegie Foundation for the Advancement of Teaching to finance a pension system for college professors. The foundation's trustees created standards for pension eligibility by itemizing requirements to be ranked as a college. The requirements included that colleges must require four years of high school or its equivalent for admission. In order to clarify what the equivalent of four years of high school entails, the trustees clarified a measurement unit as being a course that consists of five periods per week for the duration of an academic year (Silva & White, 2015).

More than a century later, the Carnegie Unit's impact on educational systems is omnipresent. The credit hour affects graduation, budgeting, financial aid, hiring practices and class sizes in high schools. Colleges use the credit hour to determine admissions, academic calendars, faculty workload, transfer and degree requirements, institutional accreditation and financial aid policies (Dettre, 1975; Outhouse, 2012; Silva & White, 2015).

Critiques of the credit system are abundant. Students do not learn at the same pace, so requiring a specific number of hours to learn a topic is illogical. Curricular and technological innovations allow flexibility in schedules, making the credit hour discretionary. And the credit hour requirement casts doubt on whether any absence should be considered excused (Outhouse, 2012).

Socioeconomic Status Impacts

Income-related academic achievement disparities are large, and economically vulnerable students become victims of the reproduction of inequality. The "process of inequity is shaped by the complex interaction between people's past histories, group and individual identities, self-efficacy and self-esteem, and their relationships" (Yonezawa, 2000, p. 133). In fact, socioeconomic status (SES) is a key predictor for college attendance, and even what type of college or university the student is likely to attend (Jordan & Plank, 2000; Smrithi & Jeffrin, 2015).

Numerous researchers have studied the disadvantages of low SES for students as well as possible interventions for narrowing the poverty-based achievement gaps. Jordan and Plank (2000) address the talent loss among high-achieving low-SES students. They point out the most salient factor for college attendance is parental advice steering their

child toward college, and their analysis revealed students with high SES talk more often to their guidance counselors and teachers about their future plans. This underscores the importance of teacher and student relationships in supporting student growth.

Sanders and Jordan (2000) found that teacher and student relations have a significant positive influence on “adolescents’ educational investment, measured as school conduct, classroom preparation, and avoidance of maladaptive behaviors” (p. 65). Their results remain constant when controlling for prior learning, race/ethnicity, gender, SES status, school sector and academic track.

Gamino et al. (2014) studied the effectiveness of cognitive training, any process used to exercise brain cognition (Healy & Bourne, 2012) to improve fact recall and gist reasoning, “the ability to derive global meaning from explicit details” (Chapman et al., 2012, p.123) in middle school students. They found that cognitive training improved gist reasoning and fact recall in both students in poverty and students above poverty, and stated that “the utilization of cognitive training within the public school system has the potential to reduce the academic achievement gap” (p. 10).

Bolland et al. (2019) studied gifted students living in extremely impoverished communities. They highlight the importance of hope for professional and personal futures, and assert that gifted students who are engaged in positive social situations have positive outcomes and minimized hopelessness. Furthermore, their conclusions may be “particularly relevant for students with economically disadvantaged neighborhoods, where opportunities to participate in positive social activities are more limited than in more affluent neighborhoods” (p. 237).

Lybbert and Wydick (2018) referenced Snyder's three elements of hope: meaningful goals, ability to visualize pathways to goals, and agency to motivate progress. Their intention is to show the importance of hope in human development by reviewing literature and proposing a model for hope. The article discusses "learned helplessness" and how "outcomes in our life can constrain our future ability to influence these outcomes in potentially dramatic ways" (p. 714).

Reframing Education

A "High IQ is not essential to a good life. However, hope is like oxygen" (Lopez, 2013, p. 10). Lopez (2013) asserted that peoples' thoughts about their future determine how well one lives their life. He described four key beliefs hopeful people share: "The future will be better than the present" (p. 18); "I have the power to make it so" (p. 18); "There are many paths to my goals" (p. 19); and "None of them is free of obstacles" (p. 19).

The culture of over-testing is obvious in the United States: Testing fatigue, teaching to the test, class time for test preparation and testing hacks, cheating, and other issues combine to weaken our educational system. "The public needs to know that no high-performing nation in the world tests every child every year" (Ravitch, 2016, p. xlii). In order to serve our students, families, and communities effectively, education needs to be reformed. Changing the status quo requires conceptual changes (Ravitch, 2016; Wurdinger, 2018).

Bolman and Deal (2017) explain why organizations may resist change. Pride and arrogance prevent people and organizations from admitting what is currently being done

does not work. “The less competent people are, the more they overestimate their performance,” and “When we don’t know what to do, we do more of what we know” (p. 9). Ravitch (2016) echoed this sentiment with “When we are too certain of our opinions, we run the risk of ignoring any evidence that conflicts with our views” (p. 2).

In order to solve problems, organizations hire consultants. If consultants fail, “government recurrently responds with legislation, policies, and regulations” (Bolman & Deal, 2017, p. 10), and this is especially true with educational organizations. The standards movement, No Child Left Behind (NCLB), Race to the Top, education as a business, open classrooms, and many more experiments have been piloted to fix education. Often these attempts are vacated before meaningful data regarding the intervention can be evaluated. Additionally, many policies stimulated competition amongst and within schools (Ravitch, 2016).

Legislation in the educational realm is intended to assist schools and students, but the results do not necessarily facilitate better learning. Any course of action is only useful “when a situation is sized up accurately” (Bolman & Deal, 2017, p. 15), which requires consideration of four distinct frames: human resources, structural, political, and symbolic.

The human resource frame concentrates on what people do to and for one another in an organization. Balancing the needs of the company with the needs of staff, maintaining quality employees, and investing in employees are factors within this frame (Bolman & Deal, 2017).

The structural frame focuses on ensuring people are working in the right roles and relationships. Considerations include division of labor, established goals and directions, coordination of diverse efforts, and rationality supersedes extraneous pressures and

personal agendas (Bolman & Deal, 2017). It is in this frame that development of a stage/environment fit belongs.

"Politics is the realistic process of making decisions and allocating resources in a context of scarcity and divergent interests" (Bolman & Deal, 2017, p. 179). The political frame addresses the power distribution in an establishment, and in public agencies, such as in education, power allocation is complex.

Symbolism is comprised of meaning, belief, and faith and is affected by cultural values. "Culture forms the superglue that bonds an organization, unites people, and helps an enterprise to accomplish desired ends" (Bolman & Deal, 2017, p. 242).

Given the diverse stakeholders in education, developing a well-organized, effective educational system is difficult. The varying passions and values of local community members may not align with values of the controllers of power (Bolman & Deal, 2017). But what has been proven to work for all stakeholders is having hope.

Traditionally, schools and colleges move "students from the same grade level, through the same curriculum, at the same pace, taking the same test, at the same time" (Wurdinger, 2018. P. 2). Experiential education has opened doors for alternative assessments such as performance-based evaluations of students' work. Avalon School in Minnesota, Casco Bay High School in Maine, High Tech High in California, MC^2 STEM High School in Ohio, and Rochester High School in Indiana are a few schools successfully implementing this assessment format (Martinez & McGrath, 2014). All of the above listed schools are restructuring to create a stage environment fit for adolescents.

Schools of the Future

Current practices in schools fail to prepare students for success in the future as the future is unknown. Numerous methods have been tried, evaluated, adapted, and abandoned prior to any collection of meaningful data (Hinton & Fischer, 2008). Determining correlational relationships between pedagogy and student performance is difficult, necessitating a different perspective to improve performance.

"EdVisions is an education development organization and Coalition for Essential Schools (CES) affiliate center that provides a program model and staff development for charter school creators" (Newell, 2009, p. 1). The goal is to create effective learning environments for adolescents, "engage previously disengaged students" (p.1), and design experiences intended to cultivate productive citizens. The EdVisions Cooperative and EdVisions Leader Center are the two divisions of EdVisions. The cooperative concentrates on school development and ongoing coaching, whereas the leader center focuses on sharing best practices, continuing research and an assortment of assessment tools (Newell, 2009).

EdVisions, Inc. works with schools to reframe the environment by incorporating student-centered project-based learning methodology. Design essentials include authentic assessment, self-directed project-based learning, democratic culture, and teacher accountability and ownership (Wurdinger, Newell & Kim, 2020).

Students choose their projects, which increases student interest and motivation and initiates the path to love of learning (Delisle, 1997; Jackson, 2011; Littky, 2004; Martinez & McGrath, 2014; Newell, 2003; Newell & Van Ryzin, 2009; Ravitch, 2016; Trilling & Fadel, 2009; Wagner, 2012; Washor & Mojkowski, 2013; Wurdinger, 2016;

Wurdinger, 2018). The process includes a project proposal, advisor approval, presentation to a proposal team, project completion, state standards alignment, and a final presentation to the proposal team (Wurdinger, 2016).

One unique characteristic of EdVisions schools is their focus on developing student hope for the future. In order to facilitate this development, EdVisions schools use the Hope Survey to assess first year students in the fall and spring of the first school year, and ongoing students every year thereafter. Furthermore, EdVisions has developed interventions to aid schools in developing and instilling hope in students (Newell, 2002; Wurdinger, Newell & Kim, 2020).

Additionally, research on best practices continues at EdVisions. The Comprehensive Evaluation Plan (ECAP) was designed to utilize the data from "EdVisions sites that have been proven models" (S. D. Wurdinger, personal communication, April 15, 2020). Authentic assessment expert Mike Tillman and experiential education expert Scott Wurdinger led the development of the evaluation plan and continue to provide services such as staff development and contributions for further research (S. D. Wurdinger, personal communication, April 14, 2020).

High Tech High combines high school, college, and project-based learning. Launched in San Diego County, High Tech High was developed by business leaders concerned with the lack of qualified individuals for employment in the tech industry. The schools operate under four design principles: "personalization, adult world connection, common intellectual mission, and teacher as designer" (Wurdinger, 2016, p. 97).

Big Picture Learning is another educational entity that incorporates project-based learning and adds a special focus on learning through internships (LTIs). With an

experiential learning atmosphere, the goal is for learners to be able to use what they have learned immediately, reducing the amount of information forgotten since knowledge acquisition (Littky and Grabelle, 2004; Wurdinger, 2016).

Expeditionary Learning helps schools create a facility that incorporates project-based, real world curriculum that meets required standards, creates an atmosphere of responsibility, respect, trust and joy in learning, strengthening schools and leadership, incorporating practices that enhance skills and critical thinking, and ensuring time for collaboration and learning. Unique to this establishment is their inclusion of field experts and service learning (Wurdinger, 2016).

Traditional educational frameworks treat subjects discretely as subject-centered classes with an emphasis on content knowledge, which is not representative of the use of the content in life. Information learned in school becomes relevant when subjects are not compartmentalized, that is,when they are intertwined. Project based learning excels in exposing students to the connectedness of subject content and life (Martinez and McGrath, 2014; Wurdinger, 2016). Experience in project-based learning increases student confidence in problem solving, presentation skills, time management, personal reflection, leadership, and connecting with local communities, which altogether increase hope (Wurdinger, 2016).

Hope

Hopeful beliefs and activities have been present in every historical period and civilization, although they may vary in definition and importance by culture. Snyder and Lopez (2007) have defined hope as “Goal-directed thinking in which a person has the perceived capacity to find routes to desired goals (pathway thinking) and the requisite

motivations to use those routes (agency thinking)" (p. 35). Their theory purports hope as a learned trait without biological input. Snyder (1994) describes his definition of hope in detail through examples of what constitutes hope and what does not.

The importance and value of hope is well documented in education, life, and work (Dixson & Stevens, 2018; Hoffmann, 2003; Jackson, 2011; Littky & Grabelle, 2004; Lopez, 1994; Snyder et al., 2007; Martinez & McGrath, 2014; Newell, 2003; Newell & Van Ryzin, 2009; Popham, 2001; Ravitch, 2016; Thousand, Villa & Nevin, 2007; Wagner, 2012). Specifically, for students, hope affects attendance, credits earned, graduation, grades, and college attendance. Viewing hope as a learned trait offers educators an opportunity to enhance the lives of their students (Lopez, 2012).

Measuring hope is performed by self-report using a rated scale, such as a Likert scale. There are many different hope indexes categorized by age groups. Some are domain specific while others are more general. Most assessments take between 2 to 15 minutes to complete (Lopez & Snyder, 2003).

Coaching the development of hope is critical for disadvantaged populations and a potential mitigator for closing the achievement gap. In the few studies conducted with samples of school-age Black participants, a productive mind-set is related to hope. Additionally, ethnic identity and self-concept were both significantly related to hope (Dixson & Stevens, 2018).

Dixson and Stevens' (2018) study advocated implementing hope interventions after finding that hope meaningfully predicts psychosocial variables related to academic success. Specifically, it underscored "the importance of African American students continuing to envision themselves accomplishing their goals and striving to make them a

reality despite their current circumstances and various setbacks they encounter along the way" (p. 552). Unfortunately, B lack students face poverty, racism, and low expectations from teachers at "much higher rates than other ethnic groups" (p. 552), indicating curriculum designed to foster hope would be beneficial.

Fortunately, hope can be measured, is malleable, promotes resilience, and is "beneficial across contexts and the lifespan" (Gallagher & Lopez, 2017, p. 1). Improving hope requires addressing the aspects used in Snyder and Lopez's (2007) definition: goal direction, pathways thinking, and agency thinking.

"Goals are the targets of mental action sequences, and they provide the cognitive component that anchors hope theory" (Snyder et al., 2017, p. 1). Whether long-term or short-term, goals must be important enough to engage conscious thought. Goals must be achievable, but usually have some degree of uncertainty (Snyder et al., 2017).

Pathways thinking is the process in which people see themselves as able to produce at least one, often more, workable route to their goals. The ability to produce multiple pathways is essential when encountering obstacles. People who have high hope are very effective at generating alternate routes (Snyder et al., 2017).

Agency thinking is the motivational component of hope theory, "the perceived capacity to use one's pathways so as to reach desired goals" (Snyder et al., 2017, p. 2). Agency includes the initiative to start and continue to work along a pathway and is particularly valuable when impediments are encountered. "Agency helps the person to apply the requisite motivation to the best alternate pathway" (Snyder et al., p. 3).

Pathways thinking and agency are both necessary for hope. Plans to meet goals (pathways) increases agency and goal-directed energy (agency) increases pathways.

"Pathway and agency thoughts are iterative as well as additive over the course of a given sequence of goal-directed cognitions" (Snyder et al., 2017, p. 3).

Snyder et al. (2017) propose that emotions are caused by goal-pursuit cognitions. Hope theory emphasizes the thinking process; positive emotions result from successful goal pursuits and unsuccessful goal pursuits yield negative emotions. This explanation allows for interventions for negative emotionality.

Pathway thinking begins development immediately after birth as babies start to sense what belongs with what. Near one year of age, a process of "psychological birth" begins in which two important abilities develop: the baby recognizes he or she is a discrete being and that he or she can trigger a series of events to happen. "The acquisition of goal-directed hopeful thought is absolutely crucial for the child's survival and thriving" (Snyder et al., 2017, p. 4). Research has shown hope impacts academic achievement in grade school, high school, and college students. Higher test scores and higher semester grade point averages (GPA) are related to hope. Initial hope scale scores for first semester college students predicted higher GPA and graduation rates along with lower dropout rates. "Given the predictive power of the Hope Scale for academics, perhaps it also could be used to identify academically at-risk low-hope students who would especially profit by interventions to raise their hopeful thinking" (Snyder et al., 2017, p. 12).

Additionally, hope impacts physical health. Hope has been positively associated with maintaining good health and the prevention, detection, and treatment of illnesses. Primary prevention includes thoughts and actions aimed at reducing or eliminating

chances of subsequent health problems, while secondary prevention involves thoughts and actions intended to eliminate, reduce, or contain a problem after it has occurred.

High hope people, once ill, focus on what they need to do to get better whereas low hope people focus on themselves and self-pity. When using a pain tolerance measure, low hope people experienced more pain and only tolerated the pain half as long as the high hope people (Snyder et al., 2017, p. 14).

Many expressions are used interchangeably with hope but are either components of hope or have conceptual differences. Optimism, self-efficacy, and self-determination are used in place of hope, which suggests hope is the opposite of depression, anxiety and posttraumatic stress disorder (PTSD).

Rand (2017) compares and contrasts hope, self-efficacy and optimism. He points out that hope is goal directed, future oriented, generalized, cognitive, self-focused, and has both perceived ability and intention. Optimism is described as a general expectancy that good things will happen, so it is not necessarily self-focused and does not require ability or intention. For example, an optimistic person may believe good things will happen due to external forces such as luck, fate, God, etc. Self-efficacy may include many of the same characteristics as hope but does not require intention, that is, they believe they can do it but not that they will do it. “Because hope is likely more predictive of goal-directed efforts (e.g., problem-focused coping) than either optimism or self-efficacy, hope should be a stronger predictor of performance and achievement” (Rand, 2017, p. 10).

Self-determination and hope are both goal-focused theories but examine different aspects of action. “Self-determination focuses on understanding and explaining causal

agency including volitional and agentic action; hope focuses on understanding the system of beliefs regarding one's ability to successfully engage in a goal-directed cognitive process" (Wehmeyer & Shogren, 2017, p. 12). Self-determination theory is an approach used to study motivation in individuals and societies.

Depression, which has an inverse correlation with hope, is marked by difficulties with goal setting, pathways (producing routes to goals), and goal attainment. Ritschel and Sheppard (2017) suggested using hope theory as a treatment option for individuals suffering from depression. Specifically, those suffering from major depression may benefit from assistance in setting diverse goals across domains, improving their capacity to produce multiple feasible pathways to goal attainment.

Arnau's (2017) review of studies relating hope and test anxiety found that there is a negative correlation between them. A possible explanation is based on the importance of test performance in society. "Intrusive thoughts lead to impairment in performance, further increasing anxiety" (p. 11).

Two components of procrastination are fear of failure and task aversiveness. When considering the fear of failure aspect, procrastination can be viewed as a result of anxious trepidation with regards to goal pursuit. Procrastination is linked to avoidance coping which can be seen as a response to anxiety. "Given that the behavior is impeding progress toward the goal, making the possibility of a negative outcome greater and greater" (Arnau, 2017, p. 11), supporting the finding of a negative correlation between hope and test anxiety.

Posttraumatic stress disorder (PTSD) is caused by traumatic events in one's life that have a debilitating effect on their mental health. Long and Gallagher (2017) explored

the function of hope as a protective factor and as a psychological treatment avenue. As a protective factor, hope is linked to well-being, purpose in life, life satisfaction, positive affect, and high levels of adjustment. Psychological treatment for PTSD includes assistance in finding alternate routes when obstacles emerge, which is related to pathways.

Hope is essential for all students, but for students coping with a specific learning disorder (SLD), hope is key. Although students diagnosed with SLD report lower hope appraisals than non-SLD peers, in every sample "a unique resilient subgroup could be identified who reported high levels of hope" (Al-Yagon & Margalit, 2017. P. 1). In a review of literature, Al-Yagon and Margalit (2017) found school children with either SLD or ADHD reported lower hope and academic effort when compared with their counterparts as well as higher feelings of loneliness. Suggestions for including hope pedagogy are recommended to provide children with resources to respond to challenges and circumstances that impede effective educational development.

Although hope has been shown to positively impact self-efficacy, goal setting, behaviors, resilience, optimism, school and athletic achievement, physical health and mental health across ages and cultures, there are differences in the assessments and recommended interventions for each. For example, "Hope and ethnic identity were found to be significantly and positively correlated with one another" (Pedrotti, 2017, p. 5) for B lack adolescents.

Project-based Learning and Social/Emotional Growth

Parents and teachers want students to be successful in life, and to be successful in life, students need more than academic content. Employers, parents, and teachers want

students to have life skills including problem solving, creativity, self-direction, initiative, work ethic, critical thinking, perseverance, time management, and communication. These skills, often called people skills, soft skills, or social skills are more focused on behaviors are also described as noncognitive skills (Prince et al., 2005; Wurdinger, 2016).

Prince et al. (2005) described general competencies such as teamwork and organizational skills needed for successful medical practices. They compared graduates from problem-based learning (PBL) and non-PBL colleges and found "More PBL graduates than non-PBL graduates indicated that they had learned profession-specific methods, communication skills and teamwork in medical school" (p. 394).

Lemerger, et al., (2018) suggested including social and emotional learning (SEL) with PBL as an approach to enhance academic achievement. Their work involved interventions to assist students with managing emotions, identifying and pursuing goals, relating to others, and approaching social and learning tasks. Lemberger et al.'s (2018) meta-analysis revealed SEL interventions improved academic achievement and contributed to positive school behaviors. Additionally, they found that SEL increases factors related to PBL and hope including improving academic performance, enhancing social-emotional competencies, reducing externalizing and internalizing disorders, and enhancing executive functioning; executive functioning includes "processes that support goal-directed behaviors" (p. 28). Furthermore, SEL "increased perceptions of connectedness to their fellow classmates" (p. 28) resulted from SEL interventions. Although their work focused on interventions, integrating SEL with curriculum as PBL would benefit all students.

Affective education addresses the emotional needs of students. It is defined as "the aspect of the educational process that is concerned with the feelings, values, beliefs, attitudes, and emotional well-being of learners" (Darrow, 2014, p. 29). Designing opportunities for students to appropriately express their feelings, practice assertiveness, and participate in social experiences assists in affective development and the development of emotional regulation, self-esteem, and self-awareness skills. These competencies are particularly critical for students who lack social acceptance, such as students with disabilities (Darrow, 2014).

Pluta et al., (2013) clarified the differences and similarities between PBL and collaborative learning and emphasized the "importance of sustained, interactive explanation and elaboration by learners" (p.S9). Their work found that collaborative learning had inconsistent results within the medical education community, but that those findings may be a result of curriculum design. "To select approaches with the greatest utility, instructors must carefully assign conditions of the learning context with the learning approaches under consideration" (Pluta et al., 2013, p.S9). Therefore, collaboration alone is not sufficient; PBL best facilitates learning and includes collaboration by design.

Hope Measurement

Rose and Sieben (2017) summarized the measures used to assess hope. As research on hope continues, additional assessments will be developed to meet identified needs.

The Adult Dispositional Hope Scale (DHS) is used to measure the level of hope in adults. This instrument has been shown to have strong internal reliability and high reliabilities

and validities. The DHS is a twelve-item scale assessment with measures of optimism, self-esteem, expectancy for attaining goals, and the amount of expected control.

The State Hope Scale (SHS) was developed using DHS as a base and reworking the items to reflect current orientation to goal pursuit. The SHS consists of three pathways items and three agency items and has similar validity and reliability to the DHS.

The Children's Hope Scale (CHS) is valid for children ages 8 to 16 but has also been shown valid for up to age 19. The CHS has strong reliability and has been translated into numerous languages without loss of reliability.

The Goal-Specific Hope Scale (GSHS) was created to address the goal aspect of hope, which is not directly measured in the DHS. The SHS was minimally altered and used to produce six items; three focus on goal-directed agency and three on goal-directed pathways.

The Domain-Specific Hope Scale (DSHS) was developed to assess context-specific hope. For example, the Math Hope Scale includes six items that have been modified to be math specific. Given that students feel stronger in some subjects than others, more accurate hope measures are expected when the domain is specified.

The Hope Study

With the goal of creating more engaged students, the hope study was developed to evaluate school environments from the students' perspective. Behavioral and emotional engagement in learning as well as psychological adjustment, or hope, are measured. The specific constructs measured are hope, engagement, academic press which indicates deep understanding (EdVisions, 2018), goal orientation, autonomy, and belongingness.

Additionally, a life skills rubric can be completed by the students' advisors which assesses self-direction and collaboration (Newell & Van Ryzin, 2009).

In addition to identifying strengths, assessing hope detects areas administration can implement changes to improve student hope. Increasing hope and student engagement produces increased attendance, academic achievement and positive behaviors (Wurdinger et al., 2020). The studies done by Van Ryzin, Newell and Wurdinger have shown that reframing the environment to be a fit for adolescence, and utilizing the Hope Survey and other assessments, students learn life skills, cognitive skills such as math and reading, and grow in hope.

Summary

Due to failings of the past and current educational models and assessment practices, schools of the future must re-evaluate the merit of previous practices and objectives. Reframing education will require analyzing the methods and goals of learning and assessments. Emphasis on sustainability and hope in education should be explored.

CHAPTER III

Methodology

In an attempt to find more efficient indicators of academic success, alternative assessments were used and analyzed for this research study. Research indicates hope is a predictor of success in most life matters, so an assessment evaluating hope was utilized. In addition, two life skills rubrics (self-direction and collaboration) were created to determine growth in these two areas over time. Math and reading RIT scores and demographic data were also collected.

The purpose of this study was to see if there is a difference in hope, math, and reading score gains based on demographic data. The demographic variables to be considered include ethnicity, socio-economic status, gender, and whether the student receives special education services. Each of these demographic variables were dichotomized to determine if there was a difference in the median score change for hope, math and reading.

This study contains two hypotheses:

1. The null hypothesis for this non-parametric study is that the distributions of the populations are equal for all comparisons.
2. The alternative hypothesis would be that one or more of the distributions are not equal.

Research involved collecting archival numerical data for hope surveys, math and reading RIT scores, and demographic information. A non-parametric test was used for this research as the sample sizes for the groups differed; however, each sample had a similar distribution which indicated the Mann-Whitney U test could be used to see if

there was a difference in the means for hope, math, and reading scores based on demographic data (Pallant, 2020). Archival data, or historical data, are "data that have already been collected for some other purpose" (Price et al., 2015, p. 133). Historical data was used for this study, thus there was no controlling for variables.

Survey research, such as the hope survey, asks participants to report directly on their feelings, thoughts, and behaviors. Lickert or rating scales are utilized to assign a value to categorical data enabling quantitative studies (Price et al., 2015). Teachers, known as advisors at EdVisions schools, were asked to complete self-direction and collaboration rubrics on each student in their class at the beginning and end of the school year. RIT math and reading scores were also collected in the fall and spring semesters. Socio-economic status was determined strictly by free and reduced lunch data.

Subjects

The subjects consisted of 253 students at six charter high schools in the Midwest of the United States that fall under the auspices of EdVisions. Participating schools were required to sign a Memorandum of Understanding, which signifies each school's understanding and willingness to provide requisite scores. To maintain anonymity, school, advisor and student names were not accessible in this study. Additionally, a confidentiality and non-disclosure agreement (Appendix A) was signed by the researcher and the Director of Research and Evaluation for EdVisions, Inc. This research does not identify schools, students, or individual data, therefore does not violate the confidentiality and non-disclosure agreement.

Data Collection Procedures

The data collected included hope scores, Math RIT scores, Reading RIT scores, self-direction and collaboration scores, school name, gender, socio-economic status, identified race, special education services, and advisor. Archival data from 2017 and 2018 were evaluated for differences between groups. Each variable was compared with the others to investigate if differences existed between the groupings. Requirements for inclusion in the data set were students who completed the hope survey, the self-direction and collaboration rubrics, and the RIT math and reading scores from the NWEA assessment for the consecutive years of 2017 and 2018.

The hope survey was conducted in person and given to each student at the beginning of the school year and again at the end of the school year for the 2017 and 2018 academic years. The survey used in the fall was the same as the spring, and each survey takes approximately 15-30 minutes to complete. The self-direction and collaboration rubrics were completed by advisors in the fall and spring for the 2017 and 2018 academic years.

Credibility, Reliability, and Validity

The stability of a measure, or its consistency, is reliability. A "reliable measure does not fluctuate from one reading to the next" (Cosby & Bates, 2018). Considering the use of historical data in this study, which does not allow for multiple measures, reliability is vital.

Validity is the "most important consideration in test development and evaluation" (Wang et al., 2013). Content, face, construct and criterion categories impact the validity of an assessment. Research Prospect (https://www.researchprospect.com/reliability-and-

validity/) clarifies the categories that impact validity. Content validity refers to the aspects of the test that are covered, face validity is the appearance or structure of the test, construct validity denotes the skills or attributes that are evaluated, and criterion validity ensures scores are similar to other assessments that measure the same concept.

This study, and the assessments used for research, have clearly defined hypotheses, use proper methodology, include a comprehensive literature review, and use appropriate data analysis. The credibility of the NWEA and Hope Survey have been proven and continue to be re-examined.

Instrumentation

The HOPE Survey measures constructs including hope, engagement, academic press, goal orientation, autonomy, and belongingness and is valid for grades levels 5-12. Hope indicates a student's ability to conceptualize goals and develop strategies for goal attainment. Engagement refers to a student's attitudes and behaviors in school that affects their understanding and knowledge of the material. Teachers with high expectations for students, from the student's perspective, is academic press. Academic press indicates a focus on deep understanding and knowledge retention. Goal orientation refers to what motivates a student to learn. Students who are motivated by learning to increase skill are considered to have "task" or "mastery" goal orientations while students with a "performance" goal orientation work to outdo others. Choice and self-management are indicators of autonomy. Autonomy increases student engagement, motivation and persistence. Peer relationships and student-teacher relationships affect belongingness. Students' perception of these relationships affects classroom involvement, managing failures, and achievement (EdVisions, 2018).

The survey itself is comprised of five groups of questions using rating scales. Two sections ask respondents to select how true an answer is for them and gives four options including “Not at all true,” “Not very true,” “Sort of true,” and “Very true.” One section asks respondents to indicate how true statements are for them and has three options: “Not at all true in this school”; “Somewhat true in this school”; and “Very true in this school.” Another section has five choices: “Completely False”; “False Much of the Time”; “Sometimes True and Sometimes False”; “True Much of the Time”; and “Completely True.” The final section has eight selections: “Definitely False”; “Mostly False”; “Somewhat False”; “Slightly False”; “Slightly True”; “Somewhat True”; “Mostly True”; and “Definitely True.”

Participants in this study completed a demographic sheet in addition to the survey. Additionally, teachers (advisors) at EdVisions schools completed surveys for each student that assessed student self-direction and collaboration. Each of these surveys is comprised of eight ranked replies for teachers to choose from including “Little Awareness,” “Aware of and Attempts Some Items,” “Demonstrates Some Items With Prodding,” “Demonstrates Many Items Inconsistently with Prodding,” “Demonstrates Many Items with Encouragement,” “Demonstrates Most Items with Some Support,” “Demonstrates Items Consistently with Little Support,” and “Self-directed, can Function Autonomously.” The mean of these two scores was used to calculate life skill scores for each participant.

Math and reading RIT scores range from 100 to 300. The expected growth for any given student is determined by their grade level. For example, a 7th grade student with a math RIT score of 220 in the fall should expect a growth of approximately 7 points in the

spring of the same school year, resulting in an ending score of 227. However, a 3rd grade student with a fall score of 188 has an expected growth of 13 for a final score of 201. The difference between the fall score and spring score of the NWEA assessment will be utilized for the data analysis.

Data Analysis

The Mann Whitney U test, sometimes referred to as the rank-sum test, allows for comparison of two independent groups that do not have a normal distribution as long as both populations have similar distributions. Appendix B establishes the appropriateness of the statistical test with the displays of the dichotomized distributions. By comparing medians, this test evaluates whether the two groups are significantly different (Pallant, 2020).

The historical data was entered into SPSS, an IBM-created statistical analysis program (Pallant, 2020). The Mann-Whitney U Test was used to analyze the data.

This test is done by listing all of the data values in numerical order, which allows each value to be assigned a rank. The rank value is assigned to the original group for each point of data. The sum ranks for each group are used to calculate a value, *U*. The lower of the two *U* values is compared to the expected value of *U*. The *z* value is found by subtracting the expected *U* value from the calculated *U* value, then dividing the result by the standard error. The resulting *z* value is used to find the *p* value via chart, table, or calculator. Statistical significance, indicating a rejection of the null hypothesis, is expected for *p* values less than 0.05 (Pallant, 2020).

Chapter IV

Results

Due to the imperfections of academic assessments currently used in public schools, alternative analysis of student achievement and success must be considered. In this writing, Chapter 1 introduces the problem, Chapter 2 investigates current relevant research, and Chapter 3 outlines the testing method to be used. Chapter 4 will be used to explain the results of the research using the 2017 to 2018 data set using the Mann-Whitney U Test.

This study contains two hypotheses:

1. The null hypothesis for this non-parametric study is that the distributions of the populations are equal for all comparisons.
2. The alternative hypothesis would be that one or more of the distributions are not equal.

Each demographic category was dichotomized: ethnicity into “non-White ” and “White ”; special education services into “yes” and “no”; gender into “female” and “male”; and socio-economic status, determined by student eligibility for free or reduced lunch, into “yes” and “no.” Furthermore, visual inspections of the distributions were completed to verify the appropriateness of the Mann-Whitney U Test, using the exact sampling distribution for U (Dineen & Blakesley, 1973).

The comparison of values for the hope score are shown in Table 1, math scores in Table 2, and reading scores in Table 3. Statistical significance is observed when $p < 0.5$. Table 1 focuses on the median change in hope for each dichotomized category, and although none of the results are statistically significant, ethnicity is close to significant

with a p-value of 0.07. Based on this sample, the null hypothesis cannot be rejected. There is no statistical difference in the median growth of hope based on ethnicity, special education services, gender, or socio-economic status.

Table 2 focuses on the median change in math scores for each dichotomized category. Based on this sample, the null hypothesis cannot be rejected. There is no statistical difference in the median growth of math scores based on ethnicity, special education services, gender, or socio-economic status.

Table 3 focuses on the median change in reading scores for each dichotomized category. The change in reading score difference between students receiving special education services and those who do not approaches significance, with a p-value of 0.054. As shown in the table, students receiving services had a median of four points increase of their reading score whereas students not receiving services showed a two-point increase of the median reading score.

The median change in reading scores for male and female students is significant, with a p-value of 0.048. Based on the sample for median change in reading scores, the null hypothesis can be rejected; that is, there is a difference of median change in reading scores for male and female students.

Table 1

Median Change in Hope for Demographic Categories

Characteristic	Median Change in Hope	*U*	*Z*	*P*
Ethnicity		12026.5	-1.810	.070
Non-White	3			
White	1			
SPED Services		18400.5	-.833	.405
Yes	1			
No	1			
Gender		20545.5	-1.346	.178
Female	1			
Male	1			
Socio-Economic Status		14475.5	-.859	.390
Yes	2			
No	1			

Table 2

Median Change in Math for Demographic Categories

Characteristic	Median Change in Math	*U*	*Z*	*P*
Ethnicity		13051.0	-.025	.98
Non-White	3			
White	3			
SPED Services		17828.5	-.943	.346
Yes	3			
No	3			
Gender		20095.5	-.660	.509
Female	3			
Male	3			
Socio-Economic Status		14544.5	-.997	.319
Yes	2			
No	3			

Table 3

Median Change in Reading for Demographic Categories

Characteristic	Median Change in Reading	*U*	*Z*	*P*
Ethnicity		12799.0	-.468	.640
Non-White	3			
White	3			
SPED Services		16401.5	-1.924	.054
Yes	4			
No	2			
Gender		18352.5	-1.975	.048
Female	2			
Male	3			
Socio-Economic Status		15313.0	-.240	.811
Yes	3			
No	3			

Summary

There is no statistical difference in the median growth of hope based on ethnicity, special education services, gender, or socio-economic status. There is no statistical difference in the median growth of math scores based on ethnicity, special education services, gender, or socio-economic status. The change in reading score difference between students receiving special education services and those who do not approaches significance, with a *p* value of 0.054. As shown in the table, students receiving services had a median of four points increase of their reading score whereas students not receiving services showed a two-point increase of the median reading score.

The median change in reading scores for male and female students is significant, with a *p* value of 0.048. Based on the sample for median change in reading scores, the null hypothesis can be rejected; that is, there is a difference of median change in reading scores for male and female students.

CHAPTER V

Summary of Findings

Considering the amount of resources invested in education, it is expected that educational systems operate with fidelity. Despite these vast investments, there are still failures at multiple levels. The achievement gap, student apathy towards learning, and many other plights are indicative of a system needing renovation.

There are many programs that have been initiated to address educational woes (Ravitch, 2016). Educational values are impacted by governments, businesses, cultures, and community objectives (Ali, 2017; Bass, 1997; Carpenter & Hughes, 2011; Hopkins, 2013). Government's view is to promote global competitiveness, business leaders are concerned with human capital, and taxpayers want contributing members of society. More recently, nations have begun to focus on sustainable well-being as a goal of education (Hopkins, 2013).

The National Commission on Excellence in Education (1983) evaluated the quality of public and private educational institutions and gave specific recommendations for improvement. The commission's concerns included the observation that current graduates from schools and colleges are "not as well-educated as the average graduate of 25 or 35 years ago" (p.11).

Programs to address deficiencies have included punitive and reward-based initiatives at local and national levels based on student standardized test results. The predicament is that standardized tests were not designed for this purpose. Test reliability concerns create difficulty with test design, and the misuse of assessments can have

damaging consequences. In fact, most tests only predict the likelihood of getting similar results on subsequent tests (Wurdinger, 2018).

As of late, educators have considered alternative methods of assessment including summative, formative, alternative and/or a combination of all three types. In addition to alternate assessment practices are pedagogical and curricular variations such as experiential education, differentiation, and a focus on creativity in problem solving.

In Minnesota, curriculum is decided at the distinct level but is expected to address standards for each discipline. Often improvement is attempted by adjusting current practices such as adjusting resources or materials, providing teacher professional development opportunities, creating teacher coaching positions in schools, or some other intervention. It is time to challenge the practice of supplementing what we are doing and change how we assess students.

This research, which expands upon the research completed by Wurdinger et al. (2020), considers a shift in valuation practices from the traditional formative and summative assessments to an assessment of student hope. Snyder and Lopez (2007) have defined hope as "Goal-directed thinking in which a person has the perceived capacity to find routes to desired goals (pathway thinking) and the requisite motivations to use those routes (agency thinking)" (p. 35). A correlation between hope and various life successes has been identified by numerous researchers (Snyder, 1994). This study looks at the relationship between a standardized test in math and reading, self-reported student hope, and demographic data.

Previously published research examined correlations between the hope survey, a self-direction rubric, a collaboration rubric, math RIT scores, and reading RIT scores

(Wurdinger et al., 2020.) The same hope survey used in the Wurdinger et al. (2020) research was used for this study. While Wurdinger et al. included a self-direction and collaboration rubric in their research, those items were not included in this study as they are assessed by advisors working with students.

Wurdinger et al. (2020) compared two variables at a time to determine relationship strengths and found all combinations were significant with a p value <.01 except when comparing hope and reading. Their results indicate hope, collaboration, and self-direction have a positive impact on math and reading test scores.

This work expands upon that research in determining if demographic data affects the Wurdinger et al. (2020) results. A study of current and historical educational assessments and practices was done in an effort to find a more efficient method to assess student success in schools. Math, reading, and hope scores were compared for dichotomous demographic data including gender, socio-economic status, special education services, and ethnicity.

This study contains two hypotheses:

1. The null hypothesis for this non-parametric study is that the distributions of the populations are equal for all comparisons.
2. The alternative hypothesis would be that one or more of the distributions are not equal.

Statistical significance, p=0.048, was apparent for reading scores when gender was dichotomized. Based on this data, male students' median change in reading scores is greater than female students' median change in reading scores.

Reading was near significant, p=0.054, for students receiving special education services compared to students not receiving those services. This result, if significant, would indicate that students receiving special education services had a higher increase in median reading scores than those not receiving special education services.

Hope was also near significant, p=0.07, for ethnicity when dichotomized. The data show a median change in hope of 3:1 for non-White students as compared to White students.

Considerations

As historical data were used, knowledge of testing specifics such as environment are unknown and may have impacted test results. Additionally, only schools using the specified assessment tools could be evaluated in this study, which significantly limits the amount of data available for research.

The demographic data and the groupings have the potential to create errors in a variety of ways. Self report, or parent/guardian report, is utilized for most of the demographic data. Possible errors include selecting an incorrect choice accidentally and a lack of accurate choices. For example, if a student has multiple ethnicities, one of those ethnicities is represented while the others are not. Clearly dichotomized demographic data is not representative of all options. Similarly, the only options for gender are male and female which is not consistent with current practices. Errors or omissions in data entry of student data when they are enrolled in a school or updated are also possible.

The hope survey is a self-assessment and report. As with all self-report items, there is a potential for error. The number of choices on a Likert-type scale are different

for some of the sections of the hope survey, which may cause some confusion. Additionally, if the student's reading ability is below that of the survey, errors are likely.

The NWEA test is used for both math and reading scores in this study. Student effort varies, which also has the potential to affect scores. Experience using this assessment and the available tools can also impact student performance.

Recommendations

Expanding the research about the efficacy of hope should be done by extending the use of the assessments to a wider and more diverse population, such as including large public and private schools from around the world. This research utilized historical data, limiting the inclusion of schools based on the prior use of the included assessment tools. A larger sample would also allow for a correlational study versus the non-parametric study used here.

As the Hope Study was devised as a means of assessing the development of stage/environment fit, expansion of the Hope Survey depends upon school districts willingness to alter school environments to grow hope. If done on a large scale, then it is possible to expand the populations assessed. Meanwhile, the Hope Survey can be utilized in new schools, alternative schools, private schools, and charter schools (Dr. Ron Newell, personal communication, November 1, 2022).

The research this study is based upon used the growth in hope score to compare to the growth of math and reading scores, and this study used the same format in that the change in scores were calculated. An area of research to be studied is to use the expected growth value compared to the actual growth for math and reading scores. Different

grades have different expected growth values, and a more in-depth understanding may be possible by using this measurement.

For example, a third-grade math student has an expected growth of approximately 13 points from fall to spring, whereas a 10th-grade math student has an expected growth of 3 points for the same testing schedule. Although a correlation has been shown between math and reading scores and hope scores, that correlation may underestimate or overestimate the correlation. This was not considered for this study as the historical data did not include the subjects' grade level.

Regardless of future research, the use of hope measurement should be implemented within schools. Using the predictive power of the hope scale to identify and intervene with academics as well as social-emotional learning would benefit students and staff. Academic testing is done after students learn, but a hope assessment would indicate the need for interventions prior to learning or testing.

Student hope has the potential to impact teacher retention in schools if autonomy is also granted to teachers. Ensuring students have the necessary resources (i.e., a stage/environment fit) prior to them trying to learn in a classroom environment would mitigate behavioral issues, which in turn would strengthen the relationships in schools.

Although it has been shown hope is a predictor of academic success, research regarding the disadvantages of a hope survey have not been found. This void offers potential for future study.

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APPENDIX A

Confidentiality and Non-Disclosure Agreement

Hope Survey
Powered by EdVisions

Hope Survey for Students and Staff
CONFIDENTIALITY & NON-DISCLOSURE AGREEMENT

THIS CONFIDENTIALITY & NON-DISCLOSURE AGREEMENT (this "AGREEMENT") is entered into by and between

EdVisions Inc., a Minnesota non-profit corporation ("EdVisions")
and
Deanna Fossness ("Researching Party")

as identified below. The agreement is effective as of the date signed by the Subscriber.

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Proposed Research by Researching Party:

It is EdVisions' understanding that the Researching Party will be using this data to support converting qualifiers to numeric distributions of data, identify potential research questions and support the improvement of the Hope Survey Tool.

SIGNATURES:

EDVISIONS, INC.:	**[SUBSCRIBER]:**
Dr. Julie Beddow-Schubert	By: Deanna Fosness
Dr. Julie Beddow-Schubert	Printed Name: Deanna Fosness
Director of Research and Evaluation	Title: Student
Date: 04 / 10 / 2020	Date: 04 / 10 / 2020

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APPENDIX B

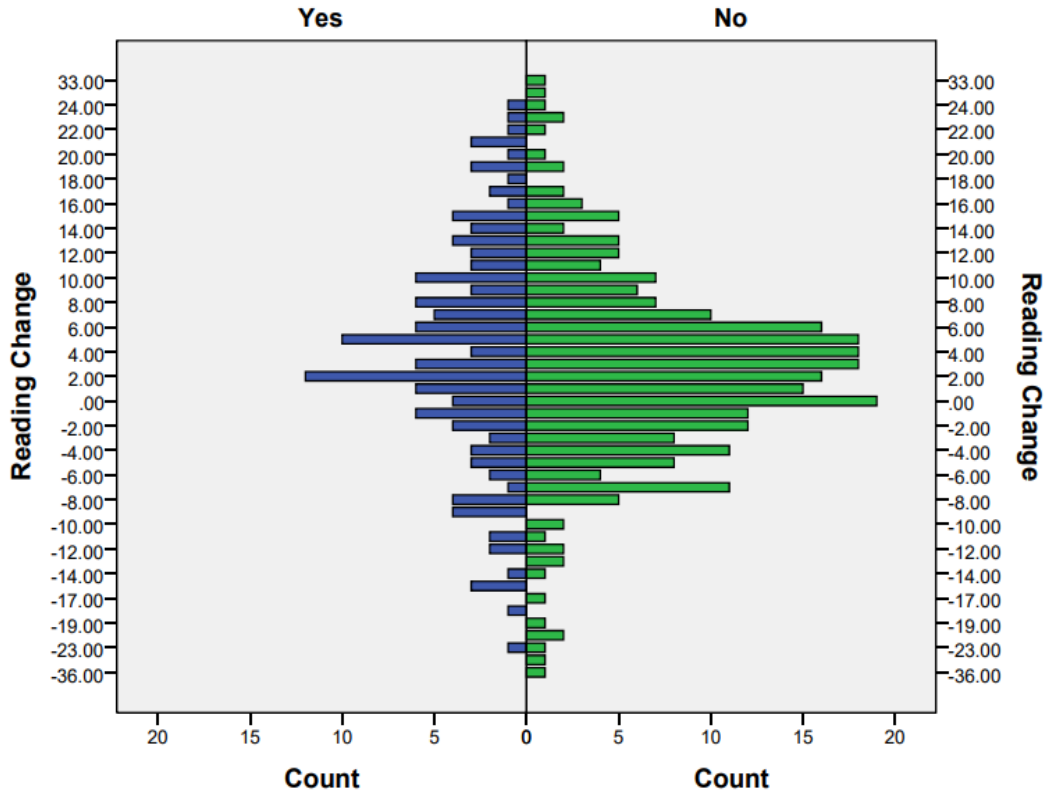
Population Distributions

The Mann-Whitney U statistical test was used to analyze historical data as the test does not require a normal distribution. However, one requirement for the use of the Mann-Whitney U is that the distributions have to be similar. This similarity can be verified visually using the displays included in this appendix.

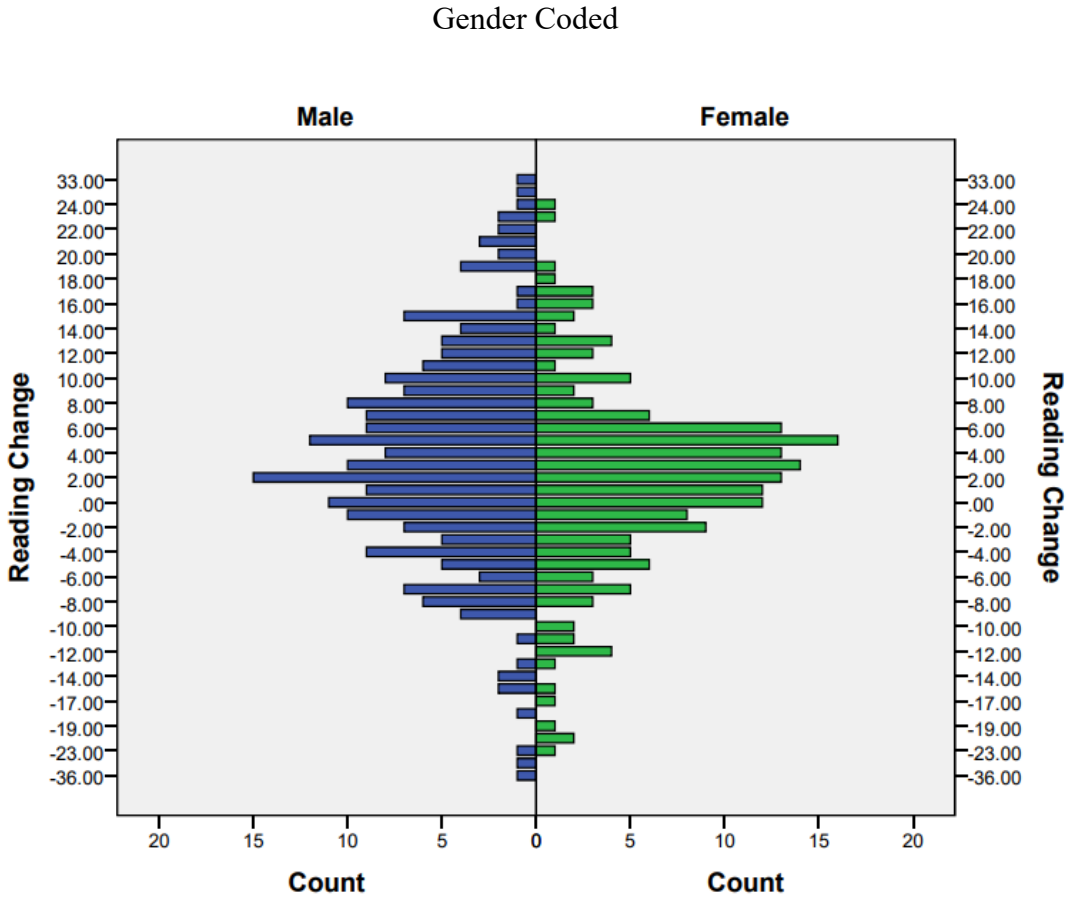
The 12 graphs show the distributions of the dichotomized categories. Reading, math and hope score changes were each compared to students' SPED eligibility, gender, free or reduced lunch eligibility, and ethnicity.

Graph 1. Students were categorized based on whether or not they received special education services. The graph shows the change in reading scores for both categories have a similar distribution, therefore confirming the appropriateness of the Mann-Whitney U statistical test.

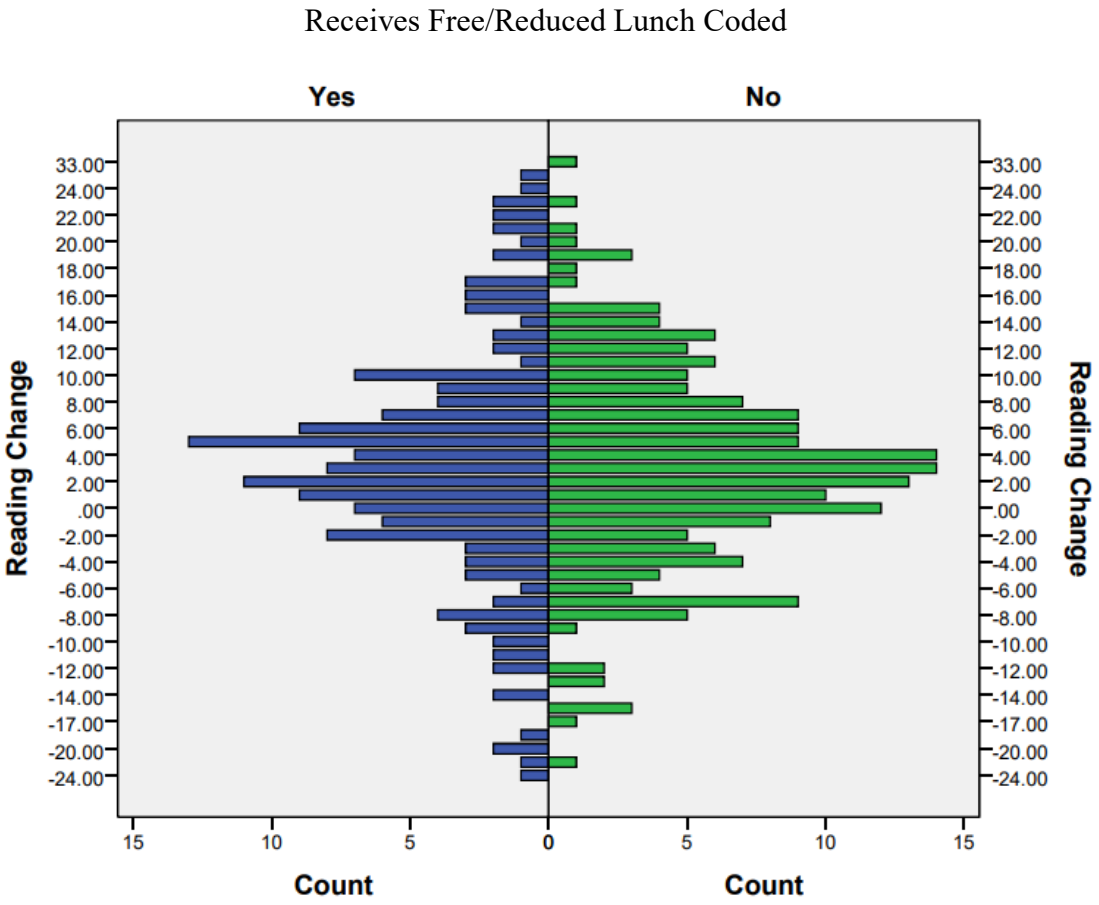
Receives SPED Service Coded



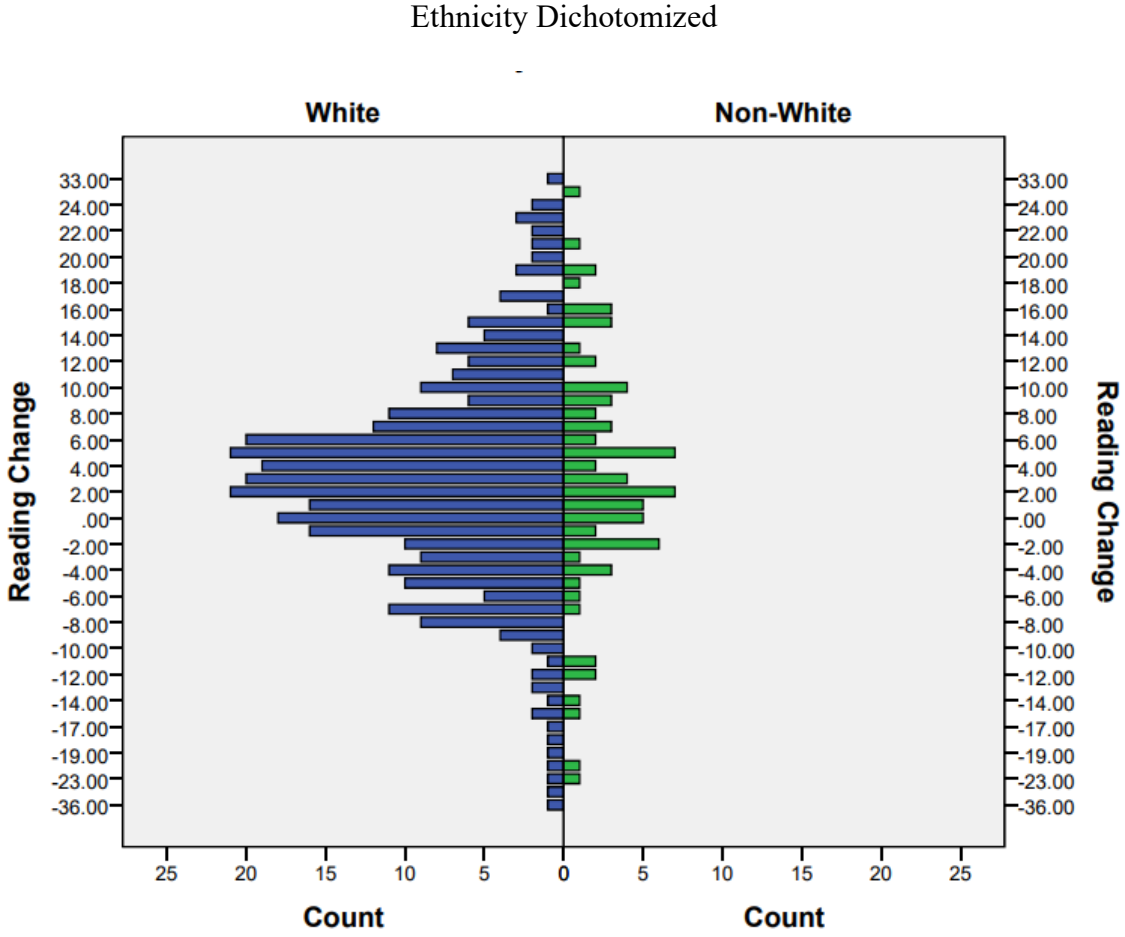
Graph 2. Students were categorized based on gender, either male or female. The graph shows the change in reading scores for both males and females have a similar distribution, therefore confirming the appropriateness of the Mann-Whitney U statistical test.



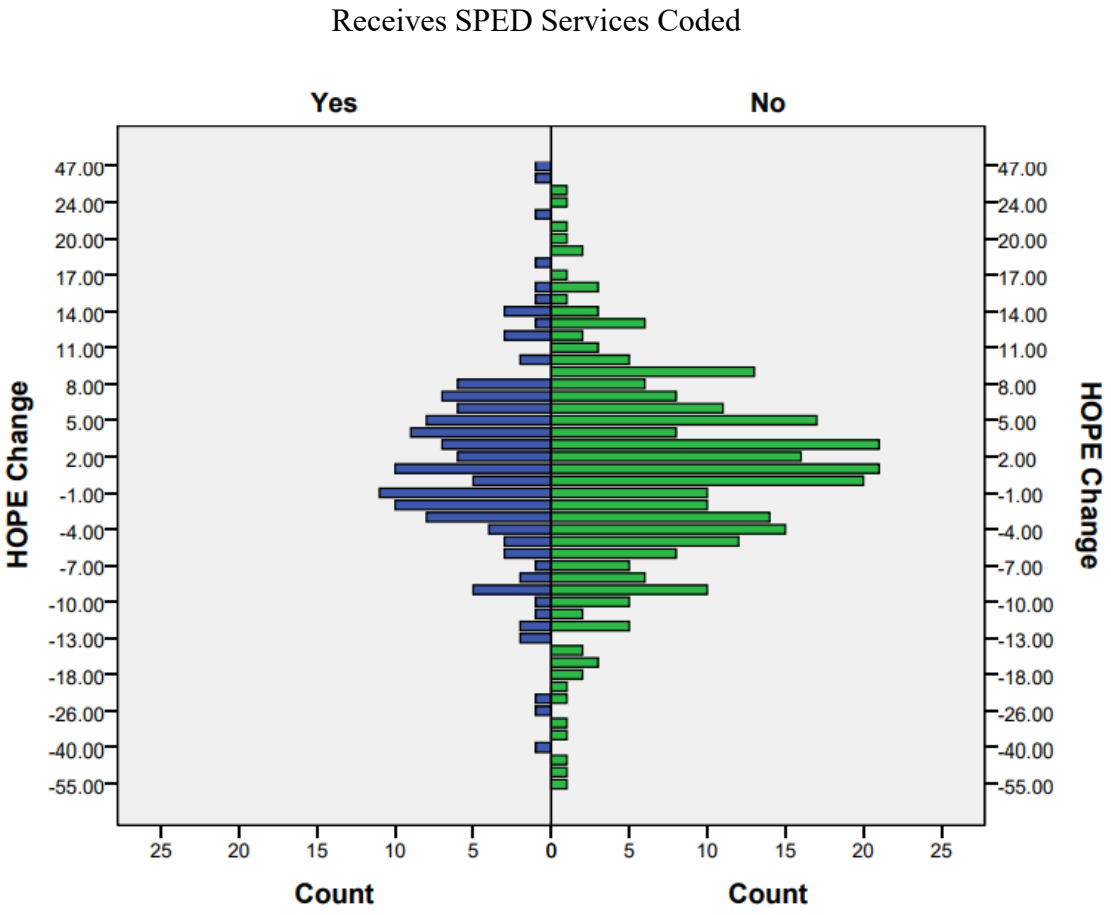
Graph 3. Students were categorized based on whether or not they receive either free or reduced lunch at school. The graph shows the change in reading scores for both students who receive free or reduced lunch and those who do not have a similar distribution, therefore confirming the appropriateness of the Mann-Whitney U statistical test.



Graph 4. Students were categorized based on ethnicity, dichotomized into White and non-White. The graph shows the change in reading scores for White and non-White students have a similar distribution, therefore confirming the appropriateness of the Mann-Whitney U statistical test.

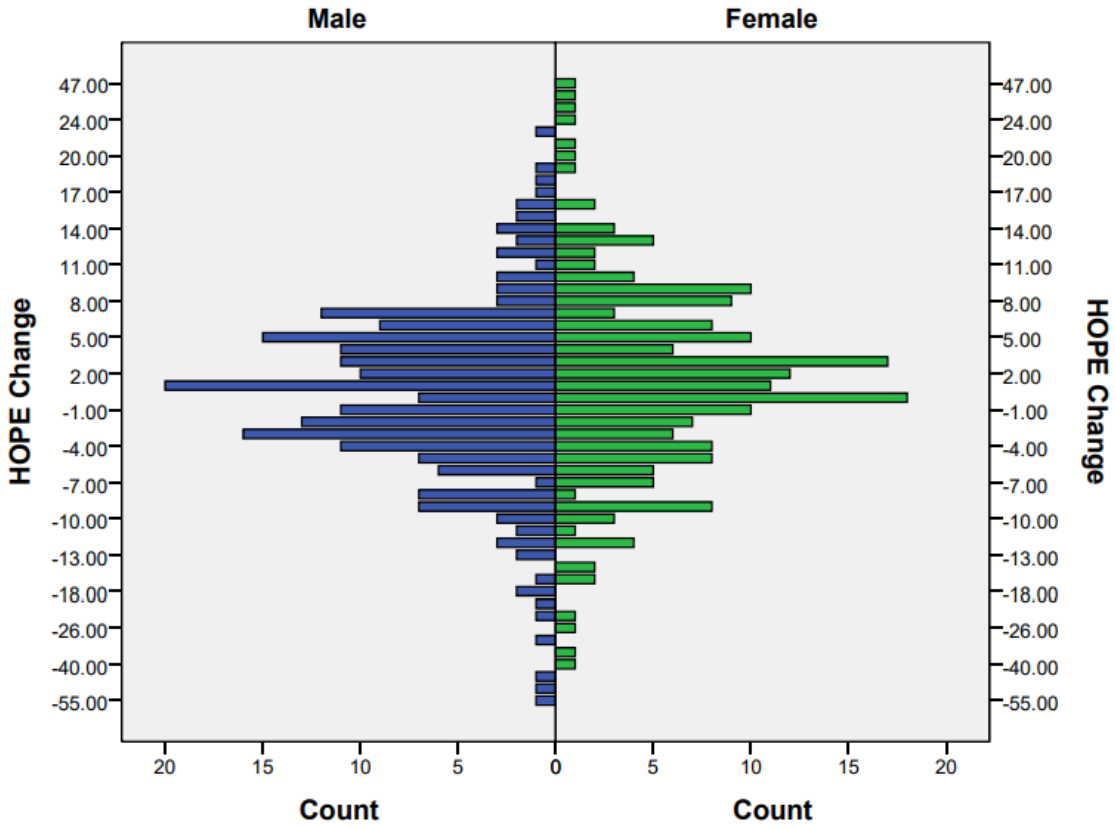


Graph 5. Students were categorized based on whether or not they received special education services. The graph shows the change in hope scores for both categories have a similar distribution, therefore confirming the appropriateness of the Mann-Whitney U statistical test.

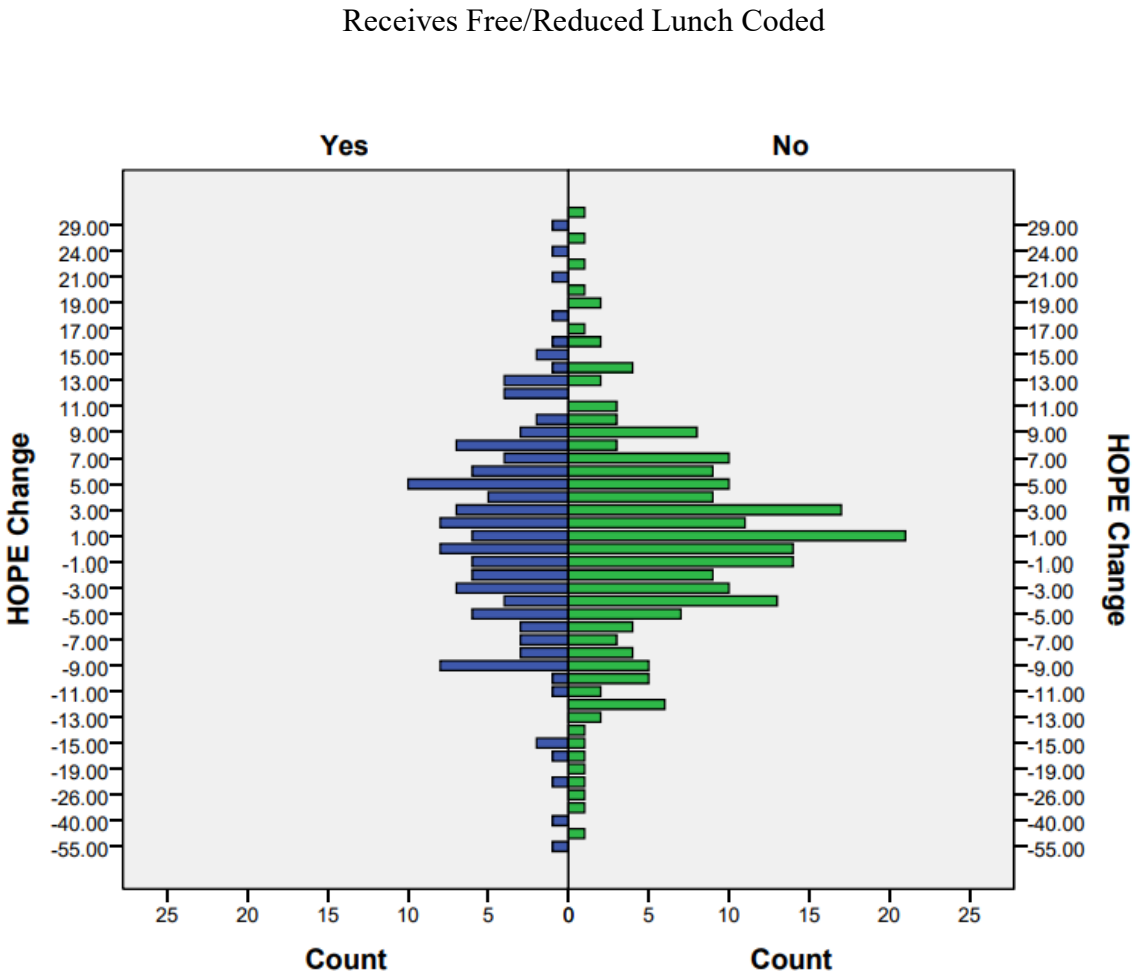


Graph 6. Students were categorized based on gender, either male or female. The graph shows the change in hope scores for both males and females have a similar distribution, therefore confirming the appropriateness of the Mann-Whitney U statistical test.

Gender Coded

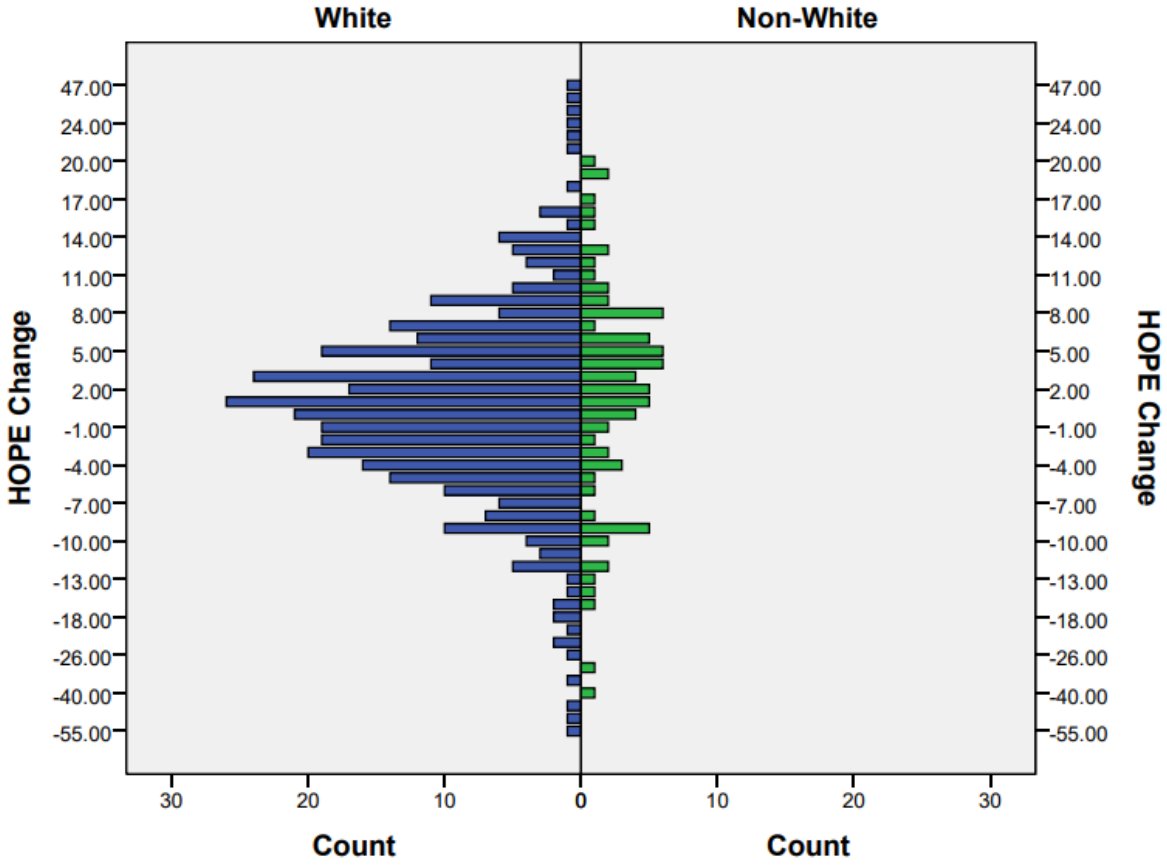


Graph 7. Students were categorized based on whether or not they receive either free or reduced lunch at school. The graph shows the change in hope scores for both students who receive free or reduced lunch and those who do not have a similar distribution, therefore confirming the appropriateness of the Mann-Whitney U statistical test.

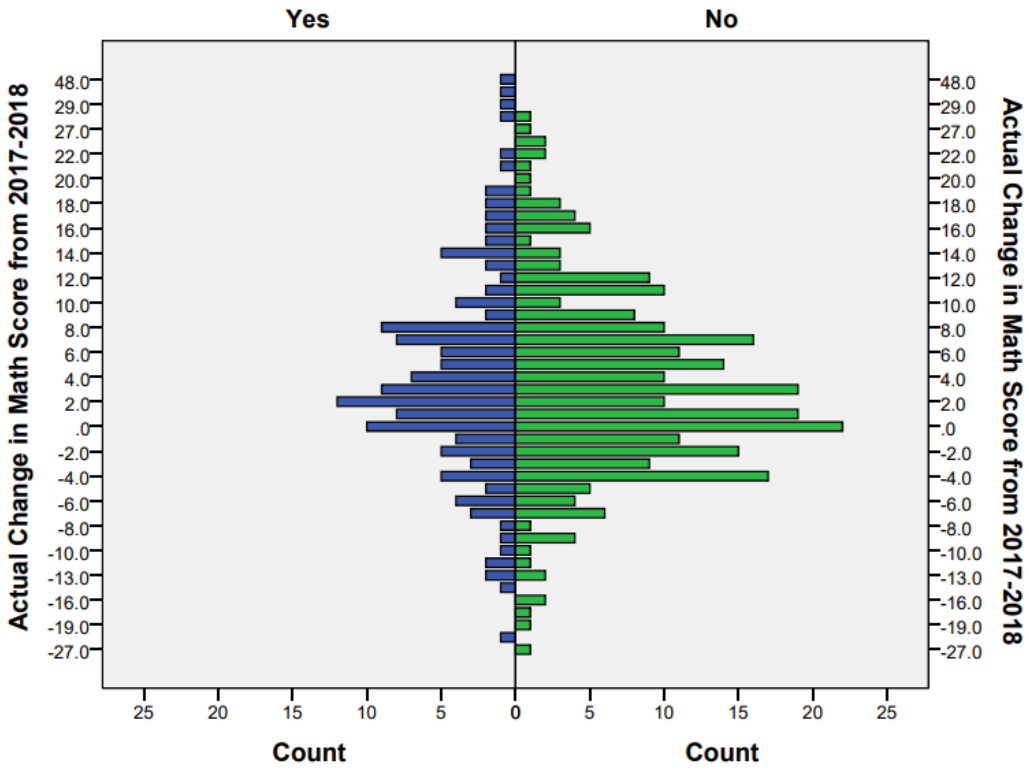


Graph 8. Students were categorized based on ethnicity, dichotomized into White and non-White. The graph shows the change in hope scores for White and non-White students have a similar distribution, therefore confirming the appropriateness of the Mann-Whitney U statistical test.

Ethnicity Dichotomized

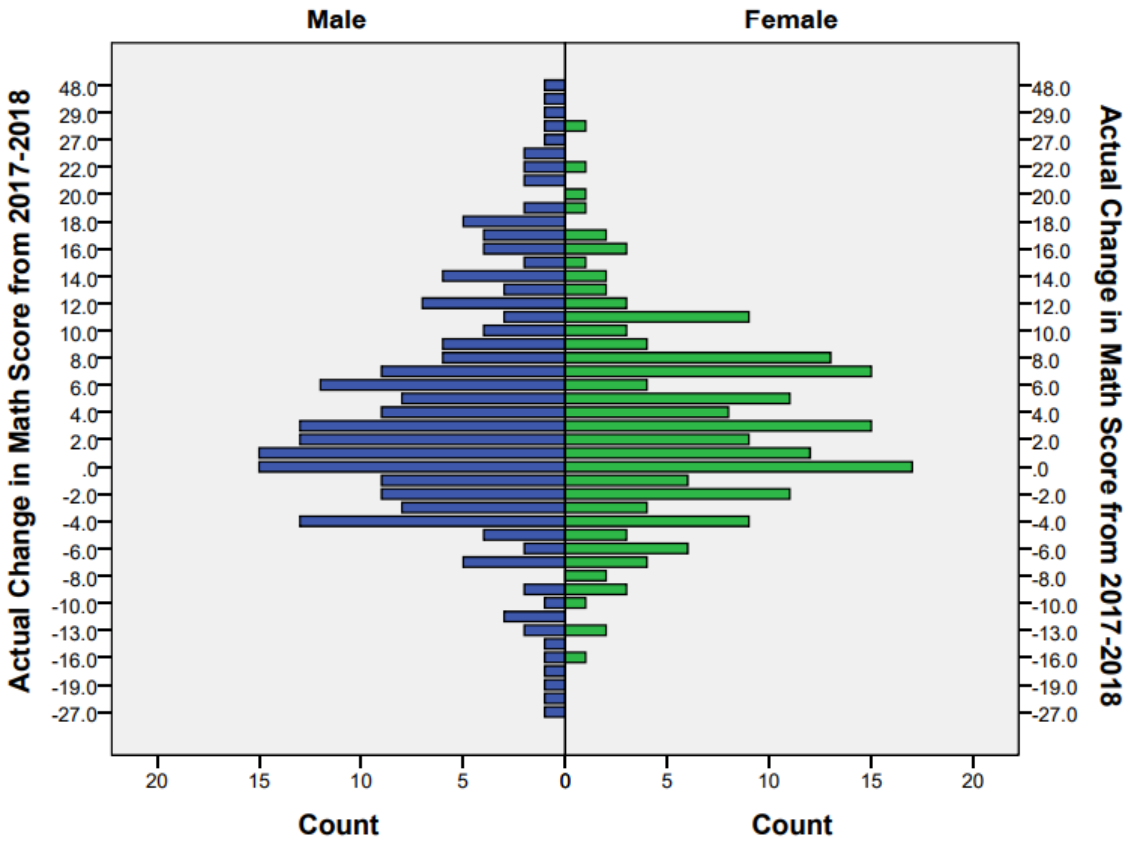


Graph 9. Students were categorized based on whether or not they received special education services. The graph shows the change in reading scores for both categories have a similar distribution, therefore confirming the appropriateness of the Mann-Whitney U statistical test.

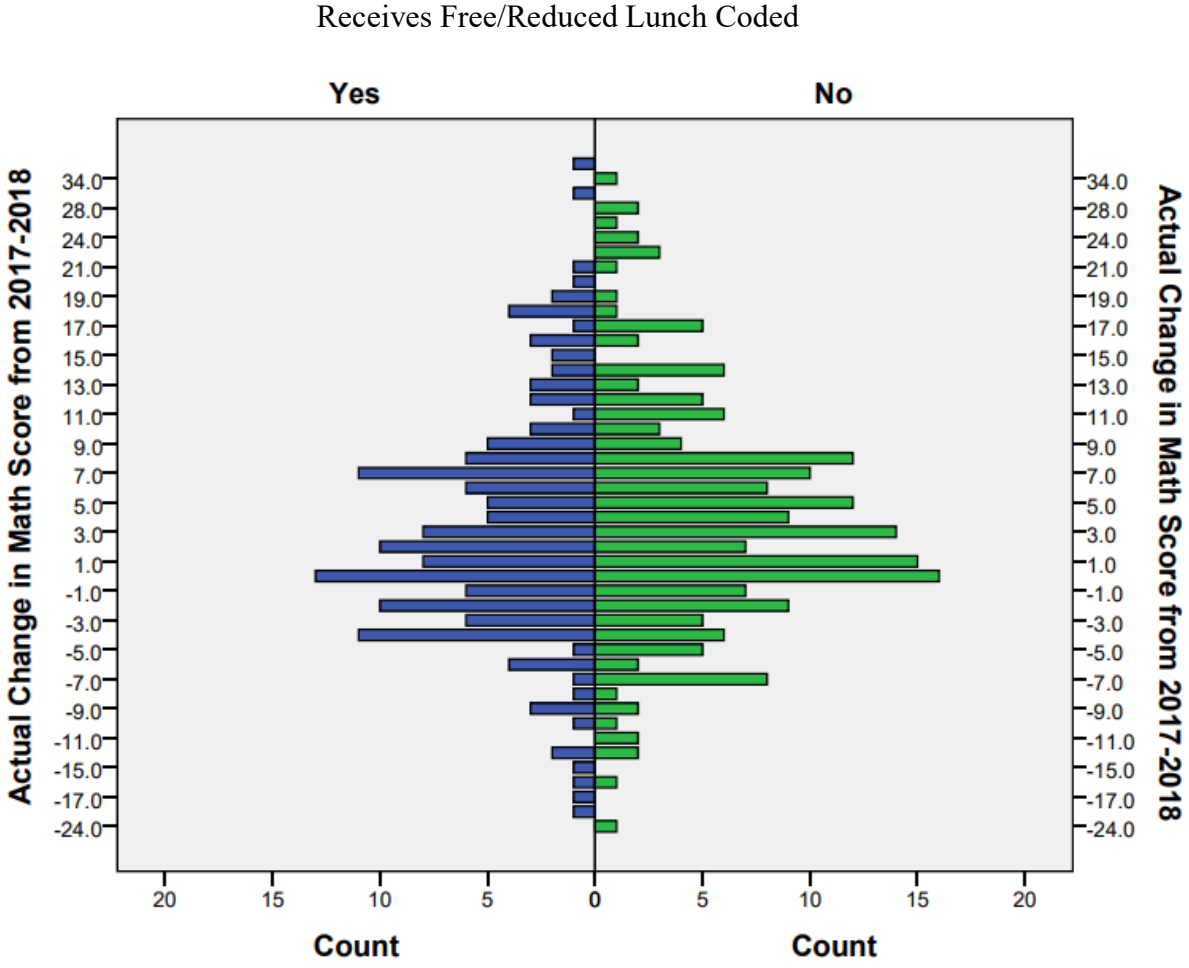


Graph 10. Students were categorized based on gender, either male or female. The graph shows the change in math scores for both males and females have a similar distribution, therefore confirming the appropriateness of the Mann-Whitney U statistical test.

Gender Coded



Graph 11. Students were categorized based on whether or not they receive either free or reduced lunch at school. The graph shows the change in math scores for both students who receive free or reduced lunch and those who do not have a similar distribution, therefore confirming the appropriateness of the Mann-Whitney U statistical test.



Graph 12. Students were categorized based on ethnicity, dichotomized into White and non-White . The graph shows the change in math scores for White and non-White students have a similar distribution, therefore confirming the appropriateness of the Mann-Whitney U statistical test.

Ethnicity Dichotomized